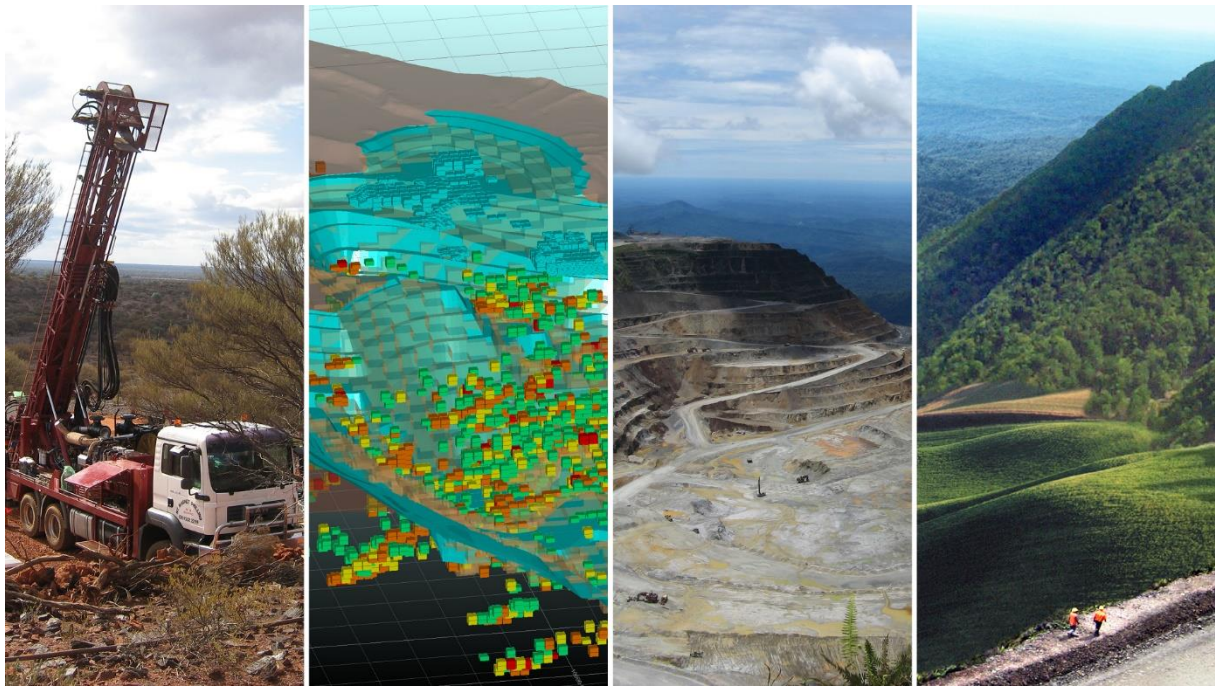


Final

Mulga Downs Iron Ore Project: Geochemical Assessment

Mulga Downs, Western Australia
Hancock Prospecting Pty Ltd



Final

Mulga Downs Iron Ore Project: Geochemical Assessment

Mulga Downs, Western Australia

Prepared for:

Hancock Prospecting Pty Ltd
3/28–42 Ventnor Ave
West Perth, WA, 6005
Australia

+61 8 9429 8222

<https://www.hancockprospecting.com.au/>

HANCOCK
PROSPECTING

Prepared by:

SRK Consulting (Australasia) Pty Ltd
Level 3, 18–32 Parliament Place
West Perth, WA, 6005
Australia

+61 8 9288 2000

www.srk.com

ABN. 56 074 271 720

Authors: Claire Linklater, Julian Tang, Calum Thompson **Initials:** CL/JT/CT

Reviewer: John Chapman

Initials: JC

File Name:

HCK009_Mulga Downs Iron Ore Project - Geochemical Assessment_Rev6.docx

Suggested Citation:

SRK Consulting (Australasia) Pty Ltd. 2024. Mulga Downs Iron Ore Project: Geochemical Assessment. Final. Prepared for Hancock Prospecting Pty Ltd: West Perth, WA,. Project number: HCK009. Issued 27 November 2024.

Copyright © 2024

SRK Consulting (Australasia) Pty Ltd ■ HCK009 ■ 27 November 2024



Disclaimer: The opinions expressed in this report have been based on the information supplied to SRK Consulting (Australasia) Pty Ltd (SRK) by Hancock Prospecting Pty Ltd (HPPL). The opinions in this report are provided in response to a specific request from HPPL to do so. SRK has exercised all due care in reviewing the supplied information. While SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

Contents

Useful definitions	vii
Executive summary	ix
1 Introduction	1
1.1 Terms of reference	1
1.2 Objectives	1
2 Background	2
2.1 Project setting	2
2.2 Geology	2
2.3 Proposed Project development	5
3 Geochemical assessment	7
3.1 Overview	7
3.2 Available assay datasets	11
3.2.1 Distribution of sulfur	11
3.2.2 Distribution of selected metals and metalloids	15
3.3 Mineralogical assessment	18
3.4 Potential for acid and metalliferous drainage	20
3.4.1 Acid potential	20
3.4.2 Acid neutralising capacity	22
3.4.3 Acid-base accounting and net acid generation	29
3.4.4 Sample classification	31
3.5 Potential for contaminant leaching	35
3.5.1 Overview of methods	35
3.5.2 Short-term static leach extraction test results	36
3.5.3 Kinetic testing	54
3.5.4 Mineralogical controls on leaching	58
3.6 Other geochemical risks	61
4 Sample representativity	62
4.1 Spatial representation	62
4.2 Stratigraphical representation	62
4.3 Geochemical representation	63
5 AMD block modelling and scheduling	64
5.1 AMD classification approach	64
5.2 Provisional material balance	64
5.3 Material management requirements	65
6 Conclusions and recommendations	66
6.1 Conclusions	66
6.1.1 AMD potential	66
6.1.2 Contaminant leaching potential	67
6.2 Recommendations	67
References	70

Tables

Table 1:	Summary of geochemical assessment outcomes.....	xi
Table 2.1:	Summary of waste tonnages by stratigraphy.....	5
Table 3.1:	Overview of sample numbers for routine assays and geochemical assessments	8
Table 3.2:	Summary of drill hole assays (XRF) with GAI values of ≥ 3 , as a function of stratigraphy	16
Table 3.3:	Summary of geochemical assays (acid digest) with GAI values of ≥ 3 , as a function of stratigraphy.....	17
Table 3.4:	Summary of mineralogical results	19
Table 3.5:	Total ANC of all available samples	23
Table 3.6:	Comparison of ABCC, ANC and XRD data	26
Table 3.7:	Summary of ABA and NAG data for each stratigraphical unit	30
Table 3.8:	Waste rock classification schemes	32
Table 3.9:	Comparison of alternative AMD classification approaches.....	35
Table 3.10:	Statistical summary of fraction leached (as a percentage of the whole-rock acid digest content) in DI extracts	42
Table 3.11:	Synthetic groundwater composition	52
Table 3.12:	Summary of steady state release rates.....	56
Table 3.13:	Summary of possible mineral solubility controls	59
Table 4.1:	Distribution of samples assessed, by stratigraphy	63
Table 5.1:	Material classification categories	64
Table 5.2:	Preliminary material balance, waste rock per pit	65

Figures

Figure 2.1: Stratigraphy	3
Figure 2.2: Outcomes of a hyperspectral scan for alunite-pyrophyllite (red) at the Mulga Downs site	4
Figure 2.3: Map showing the locations of proposed pits	6
Figure 3.1: Phase of geochemical characterisation	7
Figure 3.2: Distribution of samples submitted for supplemental assessment	10
Figure 3.3: Box-and-whisker plot showing sulfur content as a function of pit grouping	12
Figure 3.4: Box-and-whisker plot showing sulfur content as a function of stratigraphy	14
Figure 3.5: Measured sulfide-sulfur (CRS) as a function of total sulfur (LECO) content	20
Figure 3.6: Calculated sulfide sulfur as a function of total sulfur (LECO) content	21
Figure 3.7: Box-and-whisker plots showing total ANC as a function of stratigraphy	24
Figure 3.8: ABCC results	25
Figure 3.9: CarbNP calculated from TIC plotted as a function of total ANC for CzD2 (top), CzD3 (middle) and remaining units (bottom)	27
Figure 3.10: Surrogate ANC from calcium content (ANC_{surr_Ca}) plotted as a function of total ANC for CzD2 (top), CzD3 (middle) and remaining units (bottom)	28
Figure 3.11: NAG acidity (to pH 7) plotted as a function of NAPP value	31
Figure 3.12: Classification according to AMIRA approach, differentiated by stratigraphy	33
Figure 3.13: Classification according to MEND approach, differentiated by stratigraphy	33
Figure 3.14: Average dissolved sulfate, DI leach extract testing	38
Figure 3.15: Median and 90th percentile dissolved concentrations in DI leachates expressed as a ratio of the corresponding site trigger value	40
Figure 3.16: Dissolved aluminium concentration as a function of pH – DI leach extracts (top) and LEAF 1313 (bottom)	44
Figure 3.17: Dissolved copper concentration as a function of pH – DI leach extracts (top) and LEAF 1313 (bottom)	45
Figure 3.18: Dissolved cobalt concentration as a function of pH – DI leach extracts (top) and LEAF 1313 (bottom)	46
Figure 3.19: Dissolved DI leach extract concentrations for CzD2 and CzD3 samples as a function of pH – copper (top) and cobalt (bottom)	47
Figure 3.20: Leachate pH as a function of contact ratio – LEAF 1314	48
Figure 3.21: Examples of solubility (top) and source control (bottom) leaching behaviour	50
Figure 3.22: Comparison of outcomes from DI leach extracts and the synthetic groundwater extract – selected parameters	53
Figure 3.23: AMIRA column leachate pH and sulfate as a function of time	55
Figure 3.24: Measured IOR and OCR by stratigraphic grouping	57
Figure 3.25: DI leach extract data plotted on an aluminium activity (at 25°C)	60

Appendices

Appendix A	Supplemental geochemical assessment data
Appendix A.1	Mineralogical assessment
Appendix A.2	Paste parameters, ABA and NAG
Appendix A.3	Bulk chemical assays
Appendix A.4	Leachate results
Appendix A.5	LEAF plots
Appendix A.6	Kinetic laboratory results and plots
Appendix A.7	Laboratory reports Phases 1 and 2
Appendix B	Leapfrog images showing distribution of samples

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
ABCC	acid buffering characteristic curve
AMD	acid and metalliferous drainage
ANC	acid neutralising capacity, in units of kgH ₂ SO ₄ /t
AP	acid potential, in units of kgH ₂ SO ₄ /t
BIF	banded iron formation
Bq/g	becquerels per gram
CarbNP	Carbonate Neutralisation Potential
CRS	chromium reducible sulfur
CzD2	detrital sequences
CzD3	alluvial sediment
DI	deionised
DITR	Department of Industry, Tourism and Resources
DMIRS	Department of Mines, Industry Regulation and Safety
DMP	Department of Mines and Petroleum
EC	electrical conductivity
g/L	grams per litres
GAI	Geochemical Abundance Index
GARD	Global Acid Rock Drainage
HCl	hydrochloric acid
HPPL	Hancock Prospecting Pty Ltd
INAP	International Network for Acid Prevention
JER	Jeerinah Formation
kgH ₂ SO ₄ /t	kilograms of sulfuric acid per tonne
km	kilometres
L/kg	litres per kilogram
L:S	liquid:solid
LEAF	Leaching Environmental Assessment Framework
LOI	loss on ignition
MAC	MacLeod Member
m	metres
mg/L	milligrams per litre
MMIF	Marra Mamba Iron Formation
MPA	maximum potential acidity, in units of kgH ₂ SO ₄ /t
Mt	million tonnes
NaCl	sodium chloride (salt)
NAF	non-acid forming
NAG	net acid generation
NAM	Nammuldi Member
NAPP	net acid producing potential, in units of kgH ₂ SO ₄ /t
NEW	Mount Newman Member

NMD	neutral mine drainage
NPR	neutralisation potential ratio
PAF	potentially acid forming
TDS	total dissolved solids
TIC	total inorganic carbon
UC	uncertain
US EPA	U.S. Environmental Protection Agency
WA	Wittenoom Formation
WRD	waste rock dump
wt%	weight percentage
XRD	x-ray diffraction
XRF	x-ray fluorescence

Executive summary

The proposed Mulga Downs Iron Ore Project is located within the Pilbara region of Western Australia and could comprise multiple pits, some of which will extend to below the water table. Potential tailings and waste rock to be mined will be managed within above-ground facilities or backfilled into mined-out pits. This report documents the status of geochemical characterisation in support of developing the Project.

The data reviewed include drill hole assays and logging, and supplemental geochemical assessments completed by MWH (2013) and Mine Earth (2023). Available data include mineralogy, acid-base accounting (ABA) and net acid generation (NAG) testing, bulk chemical assays and short-term leach testing. The information reviewed has been used to develop an understanding of the material properties and criteria for assessing the potential for acid and metalliferous drainage/neutral mine drainage (AMD/NMD) and contaminant leaching.

The following conclusions were made.

Waste rock

- The AMD potential was, in general, low. Based on the drill hole assay data within the pit shells, the sulfur content is low in all the stratigraphic units; median values are invariably below 0.05%.
- A low proportion of material may contain higher sulfur, typically comprising material from greater depth that is not expected to be mined, e.g. basal Nammuldi Member (NAM) unit, and some material within the cover sequences (CzD2 and CzD3). Mineralogical assessment and sulfur speciation tests suggest that within the cover sequence, alunite may form a significant portion of the sulfur present.
- Acid neutralising capacity (ANC) was typically low. The low ANC, combined with the low sulfur content, results in many samples with a net acid producing potential (NAPP) close to zero (from -10 to 10 kgH₂SO₄/t).
- Leachate pH is a primary control on contaminant solubility and therefore leaching. Under the neutral pH conditions expected for most of the waste rock, leaching is expected to be limited. In the short-term leach datasets, acidic leachate solutions were only generated in a small number of tests: (i) strongly acidic for sulfidic samples that contained acidic oxidation products and (ii) mildly acidic in the case of alunitic samples.
- Finite quantities of soluble salt may influence solute content in initial contact waters, possibly resulting in release of some minor/trace elements (Co, Cu, Mn, Ni, Zn). Such salts are not expected to represent ongoing contaminant sources.
- Kinetic testing suggests that CzD3 material may represent an ongoing source of As, Cr and V. This observation is broadly consistent with recent water quality monitoring results obtained at site; readily detectable concentrations of these elements have been observed in shallow groundwaters.

Waste classification

Alternative AMD classification schemes were evaluated. Alunite-sourced acid potential led to different outcomes when using the AMIRA and MEND classification approaches. Using the AMIRA

scheme, fewer samples classed as potentially acid forming (PAF); high sulfur alunitic samples reported to uncertain (UC) classes as NAG testing generated lower than expected acidity (due to the low solubility of alunite). The MEND approach could be considered conservative in that the number of PAF-classed samples would be overestimated rather than underestimated. The MEND classification system, being based on ratios, may class some samples as PAF despite negligible NAPP.

The conventional AMIRA and MEND classification criteria rely on NAG and ANC testing respectively, and cannot be directly applied to the drill hole dataset because NAG and ANC data are not included in such datasets. Consequently, a sulfur cutoff approach to identify PAF materials was developed (based on the supplemental geochemical characterisation results) and implemented for the drill hole dataset. Given the low proportion of materials containing sulfur above the 0.1% S threshold, the sulfur content may be used exclusively to classify the waste materials. In this approach, all material with a sulfur content below 0.1% S would be classified as NAF. For material containing more than 0.1% S, a secondary sulfur criterion (0.25% S) may be used to differentiate between UC and PAF. Material containing between 0.1% and 0.25% S would be classified as UC, and material containing more than 0.25% S would be considered PAF.

Based on the drill hole datasets, and using assay results for core intervals that fall within the pit volumes, PAF-classed material would represent approximately 1% of the material to be mined. An additional 4% of the waste material would be classed as UC. In total 95% of the waste material would be classed as NAF.

Considering the small volume of PAF material that would be produced, the development of the waste management plan should consider the placement of PAF materials in designated PAF cells that can be isolated deep within the waste rock landforms to limit acid generation (by limiting oxygen ingress to the material) and control acid mobilisation and solute release from these materials. Since the PAF volumes are comparatively small, consideration may also be given to direct backfilling of the PAF materials to mined-out sections of the pit that will be inundated below the long-term water table (if available during operations), or, segregating and backfilling such waste when space becomes available within the mined-out pits. An optimised waste management plan should be developed based on the updated block model and mine schedule, current landform designs and using the recommended classification criteria presented herein.

The main outcomes of study are summarised in Table 1.

Table 1: Summary of geochemical assessment outcomes

Characteristics	Assessment	Report Findings	Relevant Threshold	Impact/Risk
Potential for acid generation	ABA NAG Sulfur forms (sulfate or sulfide) Carbon forms	Median sulfur contents is very low (<0.05% S) Based on ABA and NAG testing (~300 samples) the stratigraphic units to be mined are predominantly NAF. PAF classed samples are confined to basal NAM (Nammuldi Member) and JER (Jeerinah Formation), which will not be mined. Evaluation based on ~28,000 in-pit samples represented in drill hole database using classification based on sulfur criteria indicated 1% of samples to be PAF and 4% to be UC (95% NAF).	Conservative classification derived from analyses NAF <0.1% S UC 0.1% ≤ S <0.25% PAF S ≥ 0.25%	Low risk of acid generation occurring Minor proportions of PAF and UC-classed waste may require management
Total metal/metalloid concentrations	Whole rock analysis	When compared to average crustal abundances, As, Fe, Mn, Se and Sn were found to be 'enriched' in >10% of samples in some or all stratigraphic units.	Geochemical Abundance Index >3 indicates significant enrichment (INAP)	Enrichment is not an indicator of potential for leaching. However, enriched elements should be included in environmental monitoring activities and risk assessment
Potential for contaminant leaching	Water soluble leach testing at different liquid to solid ratios, pH values, and time periods	Short-term leach testing included range of leachant conditions (pH, salinity, contact ratio). Solution pH identified as primary control on the release of some solutes. At circumneutral conditions, leaching of most elements was limited. Preliminary screening of results using investigative thresholds based on baseline groundwater quality indicated that release of Al, Cd, Co, Cu, Cr, Fe, Mo, Ni, P, Ti and Zn could be of concern. LEAF (contact ratio dependence) and kinetic test results suggest release of most dissolved elements is limited by a finite quantity of soluble salts. However, kinetic testing suggests that CzD3 material may represent an ongoing source of As, Cr and V, broadly consistent with recent water quality monitoring results.	Short-term water leachate concentrations (median > half investigative threshold or 90th percentile > investigative threshold)	Low risk at circumneutral conditions Most NAF materials are unlikely to represent an ongoing metalliferous drainage hazard. Cover sequence materials (CzD3) may require specific handling and/or monitoring to manage risk of neutral metalliferous drainage
Mineralogy	XRD	Mineralogical analysis identified: ■ Pyrite and jarosite; acid generating (JER only, will not be mined) ■ Alunite and gypsum; (CzD3, NAM and JER). Alunite may represent stored acidity, but solubility is low at circum-neutral pH conditions and groundwater alkalinity may be sufficient to neutralise acidity released ■ Calcite and dolomite, key acid-consuming minerals (particularly in CzD3/CzD2 (alluvial) samples). ■ Ankerite and siderite, less effective in providing net acid neutralisation		Low – but material with high alunite or gypsum content should not be placed on external surfaces of waste rock landforms – to mitigate risk of mildly acidic (alunite) or saline (gypsum) run-off
Radioactivity	Total concentration	Not assessed directly, but uranium content (by mass) was low, resulting in calculated U-238 activities ranging to a maximum of 0.2 Bq/g	1 Bq/g	Low
Fibrous minerals	Visual, in-field	Not assessed in this study, but no asbestiform minerals recorded by HPPL during resource drilling in the Mulga mine pits. In addition, geological setting is not consistent with a high abundance of asbestiform minerals.	No visible asbestos in mine pits	Low

Notes:

¹ ABA – acid base accounting; NAG – net acid generation; NAF – non acid forming; PAF – potentially acid forming; UC – uncertain; XRD – x-ray diffraction.

² LEAF: United States Environmental Protection Agency Leaching Environmental Assessment Framework test methods.

1 Introduction

1.1 Terms of reference

Hancock Prospecting Pty Ltd (HPPL) is proposing to develop the Mulga Downs Iron Ore Project (hereinafter also referred to as the Project). The proposed Project comprises multiple pits. Waste rock from the Project will be managed within above-ground facilities or backfilled into mined-out pits. To support planning for the Project, various geochemical assessments have been completed. This report documents the status of geochemical characterisation in support of developing the Project.

1.2 Objectives

The overarching objective of the geochemical characterisation program is to identify materials that may impact the local environment if mined and exposed to atmospheric conditions. A key focus relates to assessment of the potential for AMD.

The characterisation program has been developed in accordance with:

- Section 4 of the *Draft Guidance Materials Characterisation Baseline Data Requirements for Mining Proposals* (DMP, 2016)
- *Guideline for Mining Proposals in Western Australia* (DMP, 2016).

The program is consistent with other national and international standards for assessing and documenting the potential for AMD. For example, reference is made to the following standards:

- *Preventing Acid and Metalliferous Drainage*, September 2016, developed by the Australian Government, Department of Industry Tourism and Resources
- *Global Acid and Metalliferous Drainage (GARD) Guide*, Version 1 (2012), developed by the International Network for Acid Prevention (INAP).

2 Background

2.1 Project setting

The Project is located in the Chichester Range immediately north of the Fortescue River valley, within the Pilbara region of Western Australia, approximately 210 km south of Port Hedland and 180 km northwest of Newman

2.2 Geology

The Mulga Downs deposit is hosted by the Marra Mamba Iron Formation (MMIF), which is one of the deepest stratigraphical units in the Hamersley Group (Figure 2.1).

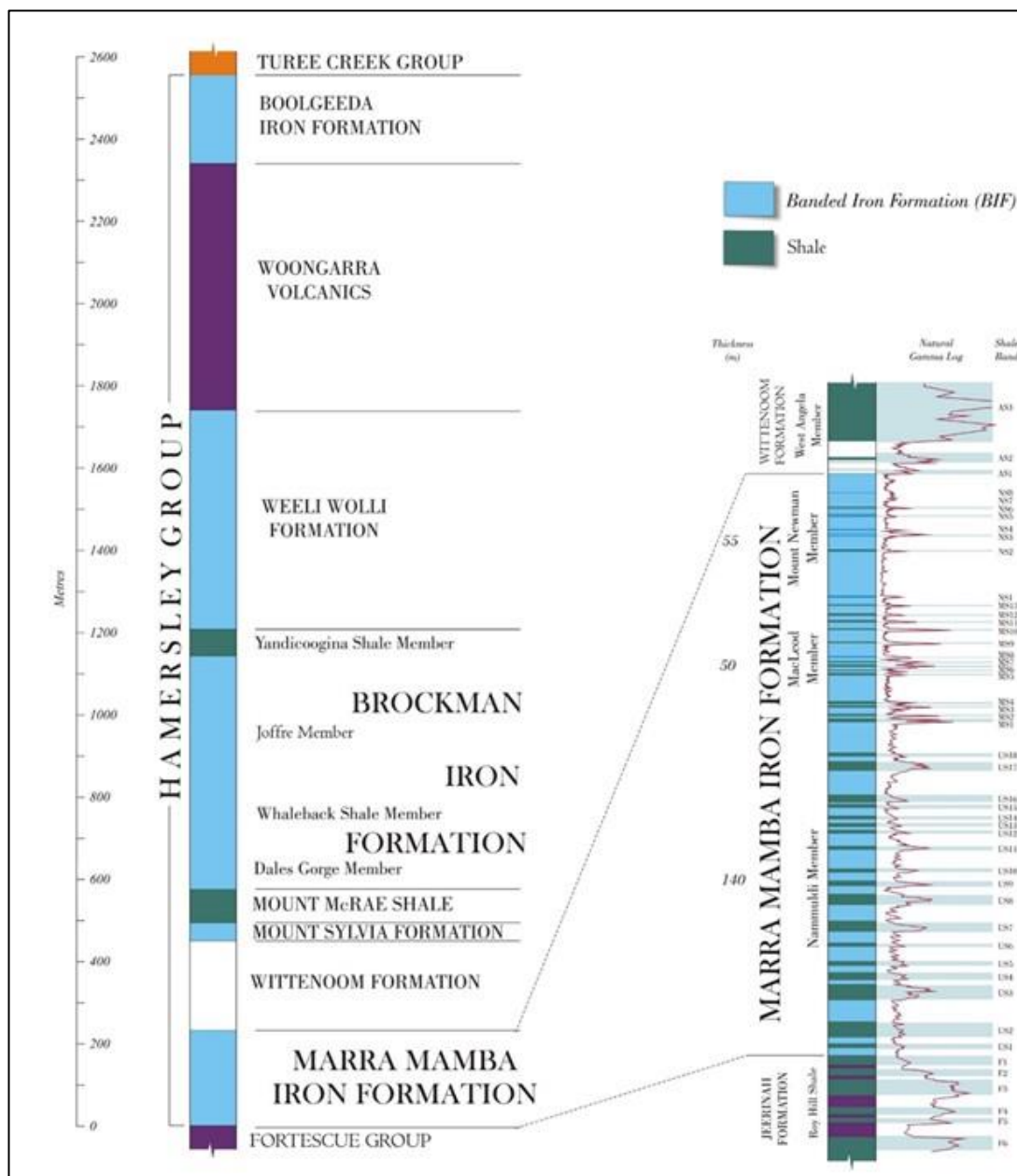
The MMIF comprises:

- Mount Newman Member (NEW) – consisting of banded iron formation (BIF) with thin shale intervals
- MacLeod Member (MAC) – consisting of shale, BIF and chert as interbedded units
- Nammuldi Member (NAM) – consisting of BIF, podded chert and shale.

The MMIF conformably overlies the Jeerinah Formation (JER), which is known to host sulfide mineralisation as well as dolomitic material. The MMIF is overlain by the Wittenoom Formation (WA), a unit that is not expected to be intersected by mining at Mulga Downs.

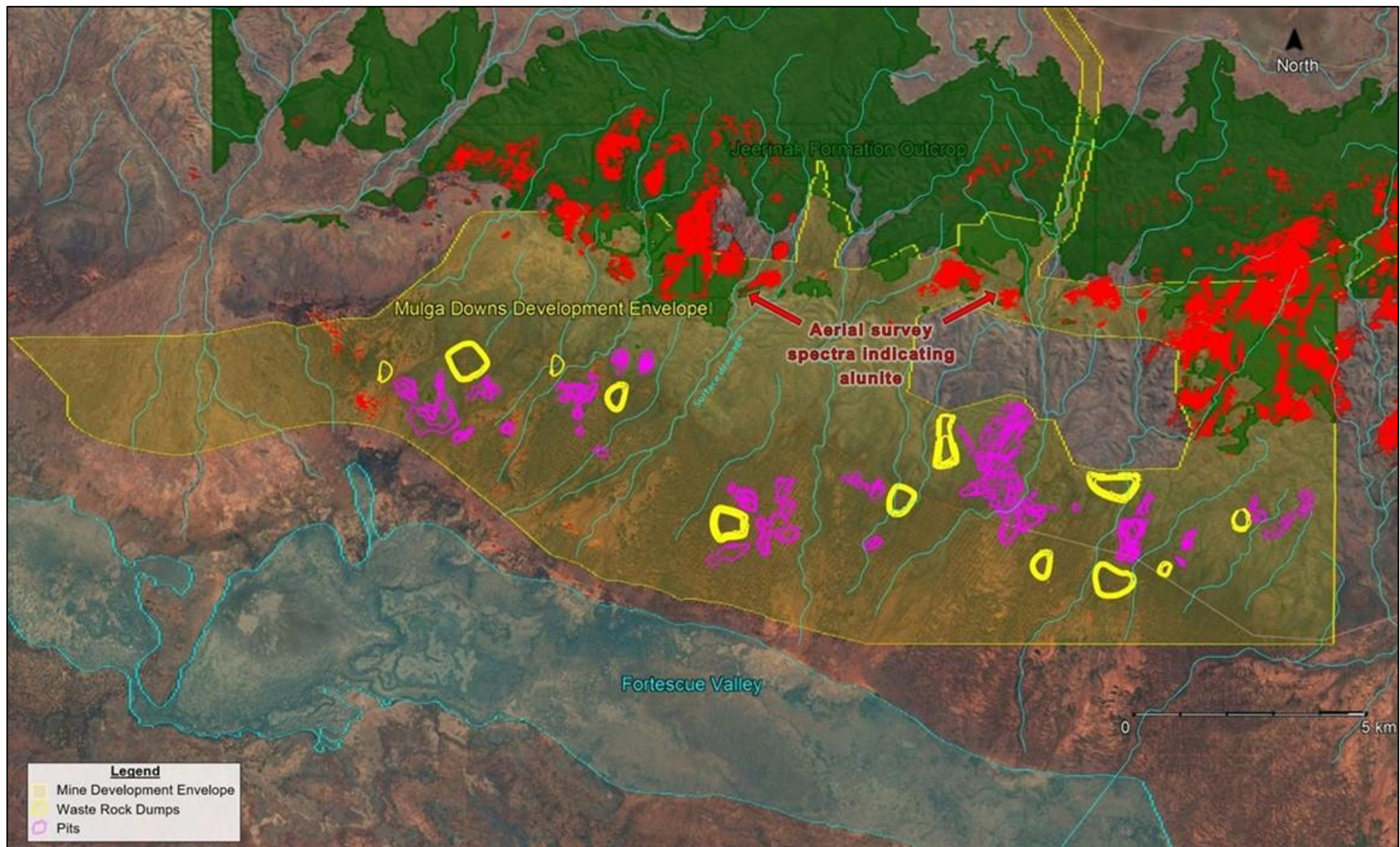
Cover sequences in the area include alluvial sediment (CzD3) and detrital sequences (CzD2) that include channel iron deposits. Alunite has been recorded in some of the stratigraphic units (see also Section 3.3). The highest alunite content (up to 11 wt%; MWH, 2013) is associated with the basal NAM unit and the JER unit. The presence of alunite is interpreted to be the product of in situ weathering of pyrite over geological time. Alunite is also present in the cover sequences at levels of up to 4 wt% (Mine Earth, 2023). Figure 2.2 is an aerial view of the Mulga Downs site and shows the distribution of alunite as inferred from a hyperspectral scan of the area. Alunite distribution correlates with surface outcrop of the JER unit toward the north, and the presence of alunite in the alluvial sequences is inferred to have resulted from material transport from these northern outcrops (CBEC, 2023).

Figure 2.1: Stratigraphy



Source: "I:\srk.ad\dfs\AU\SYD\Data\Projects\HCK009 - Mulga Downs - geochem support\03_Data_In\Geology\MRE presentation\HPPL Mulga Downs East 2022 MRE Update_v2.pptx"

Figure 2.2: Outcomes of a hyperspectral scan for alunite-pyrophyllite (red) at the Mulga Downs site



Source: HPPL

2.3 Proposed Project development

The Project is at an early stage of development. Figure 2.3 is a map showing the locations of proposed pits. Pit shells have been designed so that the majority of material to be mined will be extracted from above the pre-mining water table. Run-of-mine ore would be transported off-site and no tailings storage facilities will be constructed.

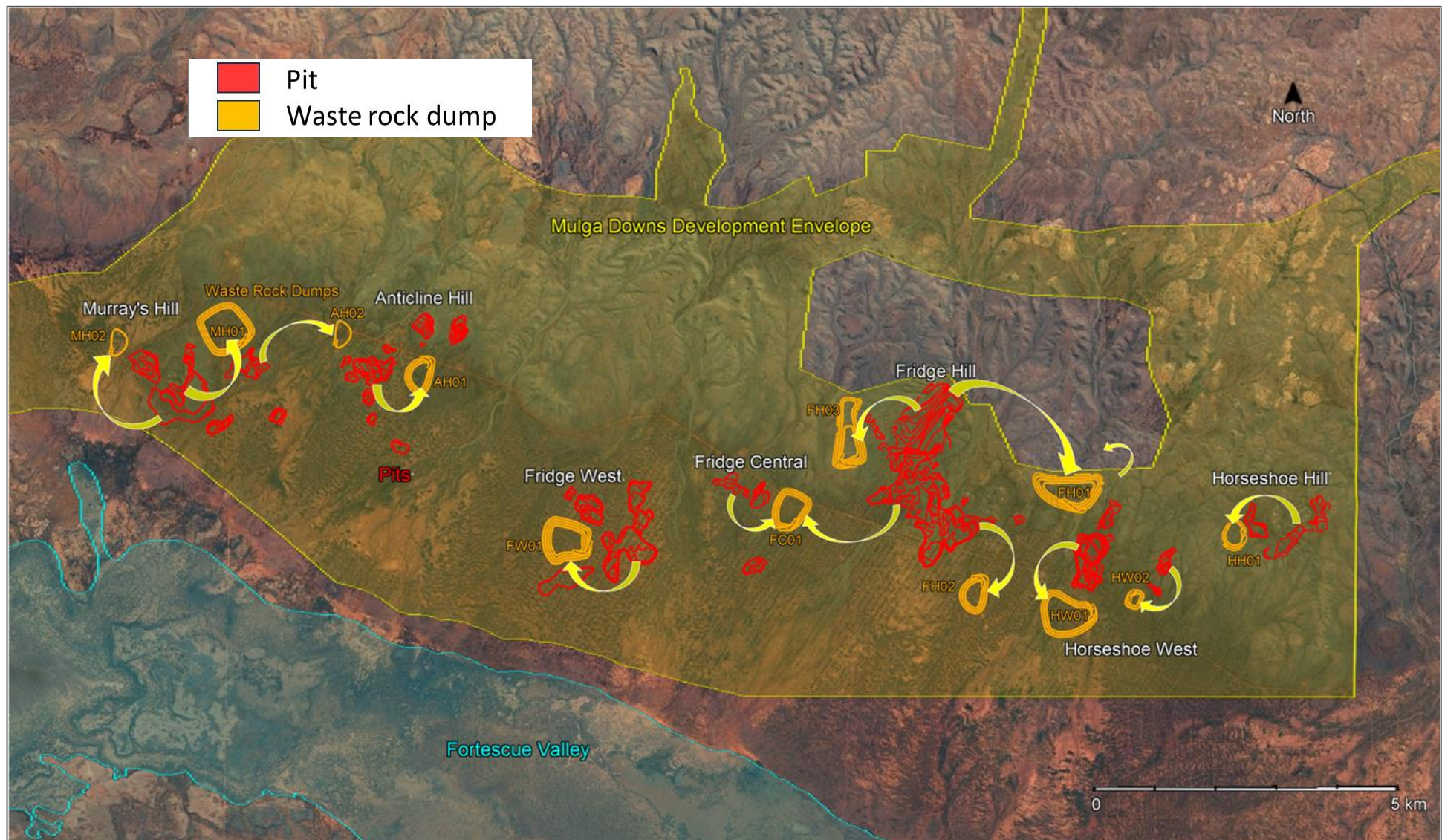
Approximately 150 Mt of waste rock could be mined. An estimated distribution of tonnages as a function of stratigraphy is presented in Table 2.1 Most waste rock will be sourced from the BIF units within the Marra Mamba Formation (68%). Alluvium (CzD3) is also a significant contributor to waste mass. No waste rock will be sourced from the Jeerinah Formation (JER) unit. Waste rock would be stored either in above-ground waste rock dumps (WRDs) or used to backfill pits. If suitable, some waste rock could be used in the construction of mine infrastructure (e.g. access roads).

Table 2.1: Summary of waste tonnages by stratigraphy

Waste (Mt)	Cover sequence		Marra Mamba Formation			Mass per pit (Mt)	Proportion of total
	CzD3 (Alluvium)	CzD2 (Channel Iron Deposits)	Newman Member	MacLeod Member	Nammuldi Member		
Murray's Hill	5.9	0.095	1.6	6.5	9.1	23	15%
Anticline Hill	1.0	-	0.31	5.0	3.5	9.8	7%
Fridge Central	0.9	-	1.5	1.2	-	3.6	2%
Fridge Hill	10	1.0	0.22	4.8	39	55	37%
Fridge West	18	-	12	4.9	0.003	35	24%
Horseshoe Hill	-	-	0.01	2.3	1.0	3.4	2%
Horseshoe West	6.2	3.5	1.3	5.4	2.6	19	13%
Total (Mt)	42	4.6	17	30	56	150	
Proportion of total	28%	3%	11%	20%	37%		

Source: MDE_LOM_20_Waste classification_v3.xlsx

Figure 2.3: Map showing the locations of proposed pits



Source: HPPL

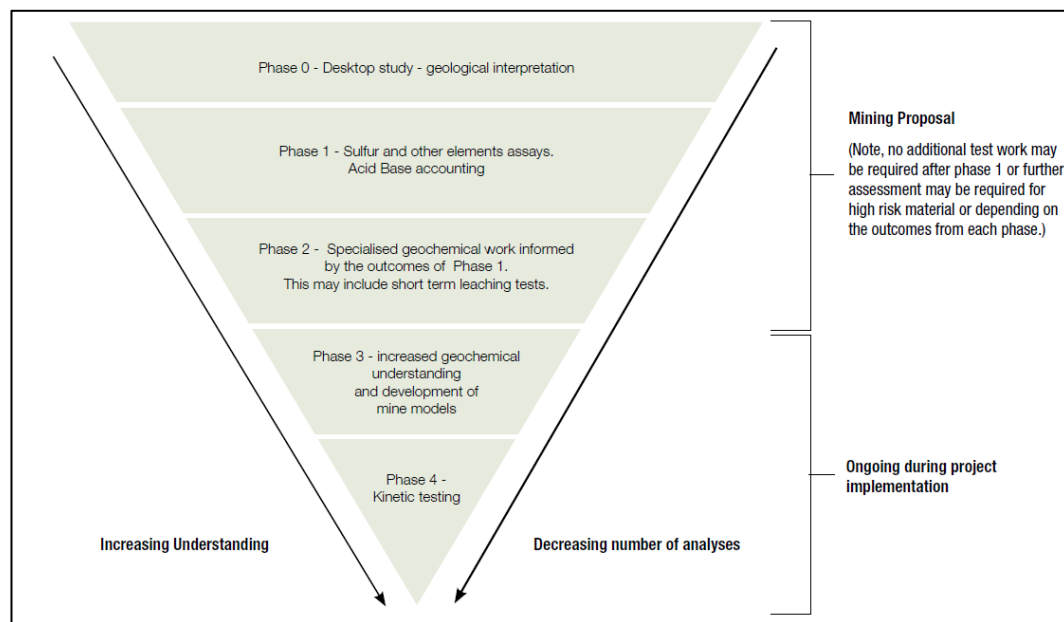
3 Geochemical assessment

3.1 Overview

Two initial geochemical assessments were completed for the Project (MWH, 2013; Mine Earth, 2023). Supplemental programs of work included a second phase of testing commissioned by Mine Earth during 2023 and additional testing on behalf of HPPL completed at ChemCentre (ongoing). Furthermore, HPPL also conducts ongoing geochemical characterisation of samples that become available from onsite drilling and sampling programs.

These assessments have followed a phased approach in accordance with the guidance provided by the Department of Mines, Industry Regulation and Safety (DMIRS) (DMP, 2016). Initial assessments focused on geological interpretations combined with total element assays performed on samples obtained from early exploration and resource evaluation programs (Phases 0 and 1; Figure 3.1). Outcomes from these initial assessments are described in the following sections.

Figure 3.1: Phase of geochemical characterisation



Source: DMP (2016)

Supplemental geochemical characterisation has comprised:

- mineralogical assessments (x-ray diffraction [XRD] to identify the key minerals – outcomes are summarised in Section 3.3
- ABA and NAG testing (Phase 1) to quantify the acid generating potential of materials, combined with short-term leach testing, including leach testing under a wide range of geochemical conditions (Phase 2 and 3) – outcomes are described in Section 3.4 and Section 3.5
- kinetic testing comprising free-draining columns and measurements of oxygen consumption rates (Phase 4) – outcomes are described in Section 3.5.3.

An overview of available assay and geochemical data for Mulga Downs samples is presented in Table 3.1. Samples are collected typically at 2 m intervals and analysed routinely for loss on ignition (LOI), sulfur, iron, and whole rock (major elements) and selected trace elements.

Table 3.1: Overview of sample numbers for routine assays and geochemical assessments

Data source	Sample count	Parameters and test suites
Internal to HPPL		
Drill hole assay database, XRF (Assay_combined_Oct24.csv)	313,187 (28,513 ¹ from in-pit volumes) typically 2 m intervals	Major oxides: Al ₂ O ₃ , CaO, MgO, K ₂ O, Na ₂ O, SiO ₂ , TiO ₂ Elements: As, Ba, Cl, Co, Cr, Cu, Fe, Mn, Ni, P, Pb, Se, S, Sn, Sr, V, Zn, Zr
Supplemental assessments		
MWH (2013)	46 (including 3 blind duplicates)	Paste pH, EC ABA ² and NAG DI leach (31 tests; 20:1 L:S contact ratio) XRD (7 samples)
Mine Earth (2023) – Phase 1	68 (mostly 4 m composites)	Bulk elemental assays ³ Paste pH, EC ABA ² and NAG XRD (32 samples) Oxygen consumption rates (9 tests) DI leach (26 tests; 2:1 L:S contact ratio)
Mine Earth – Phase 2 ³	15 (mostly 4 m, some 8 m composites)	Paste pH, EC ABA ² DI leach (2:1 L:S contact ratio) Saline leach (2:1 L:S contact ratio) LEA 1313 (leaching as a function of pH; 15 tests)
ChemCentre (ongoing)	167 (typically composites, 4 m or 6 m)	Bulk elemental assays ³ Paste pH, EC ABA ² and NAG DI leach (5:1 L:S contact ratio) ABCC (7 samples) XRD (25 samples) LEAF (5 samples) Synthetic groundwater leach (7 tests; 5:1 L:S contact ratio) AMIRA free-draining columns (4 tests) ⁵

Notes: XRF – x-ray fluorescence; EC – electrical conductivity; DI – deionised water; L:S – liquid: solid; LEAF – Leaching Environmental Assessment Framework (US EPA methodology); ABCC – acid buffering characteristic curve.

¹ Counts refer to number of samples in database. Not all parameters are available for all samples and so counts in some of the later figures and tables in this report may differ from the values presented here.

² Includes several or all of the following tests: total sulfur, sulfate sulfur, sulfide sulfur, acid neutralising capacity, total and inorganic carbon.

³ Testing methods vary in detail between the parameters listed and the different geochemical assessments but most involved four-acid digestion prior to elemental analysis.

⁴ Raw data made available to SRK for inclusion in the current assessment.

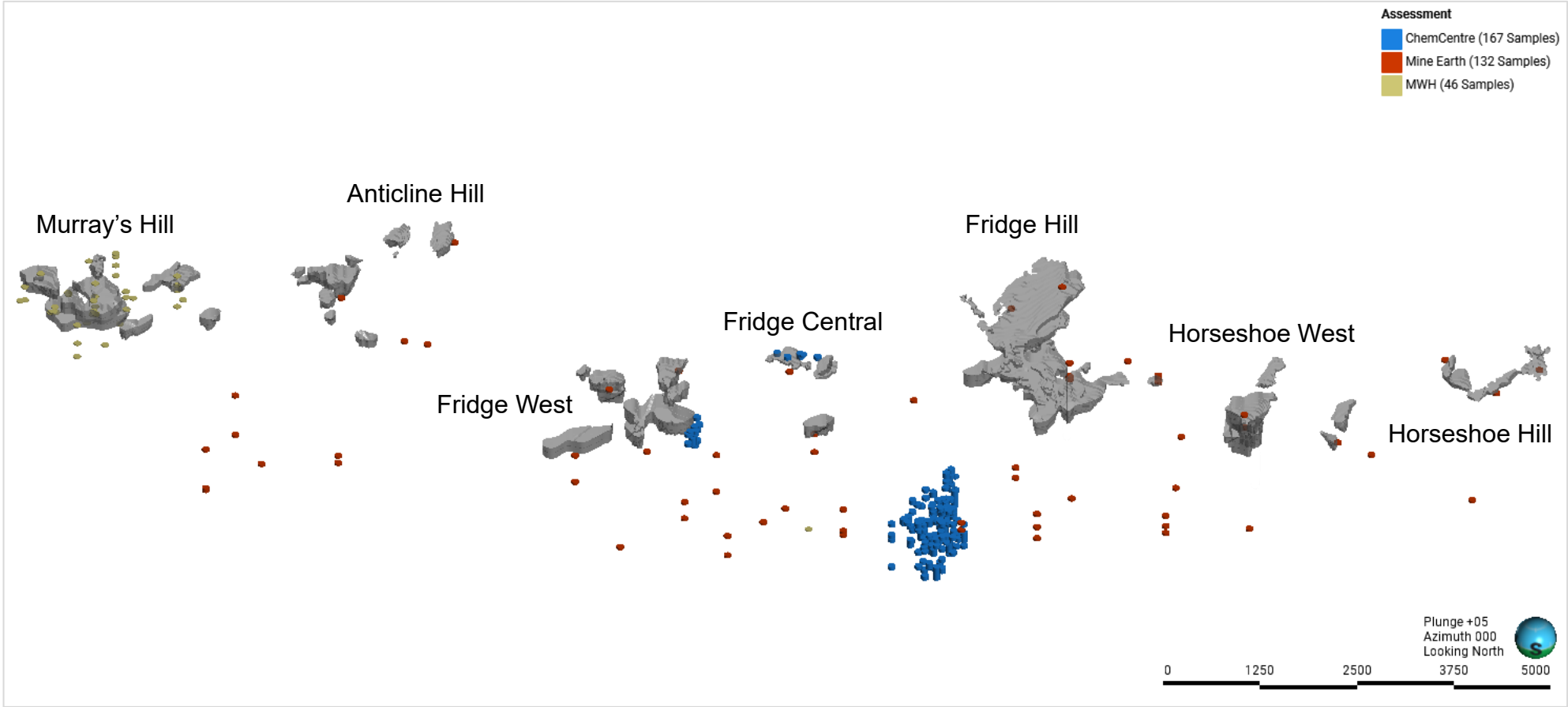
⁵ Three tests are complete, while one test is ongoing.

Results from the supplemental geochemical assessments have been collated and are presented in Appendix A. Full documentation of the MWH and Mine Earth datasets, including laboratory reports, can be found in the relevant reports (MWH, 2013; Mine Earth, 2023). ChemCentre analytical laboratory reports have been included in Appendix A.

The following subsections discuss the outcomes of the geochemical assessment. It should be noted that as the geochemical assessments progressed, changes to mine plans were made. Consequently, early assessments included some samples from waste rock volumes that are no longer included in the mine plans. Figure 3.2 shows the distribution of samples submitted for supplemental geochemical assessment compared to the current pit shell designs. Spatial variability in geochemical characteristics is assessed in the subsections that follow, and a discussion of sample representativity is given in Section 4.

Importantly, samples selected for characterisation included material from the deeper basal NAM, the JER and the WA units that will no longer be mined. As will be discussed in the following subsections, these materials may contain sulfidic mineralisation and pose a higher risk of acid generation. Final pit shell designs have been modified to minimise disturbance of such materials during mining.

Figure 3.2: Distribution of samples submitted for supplemental assessment



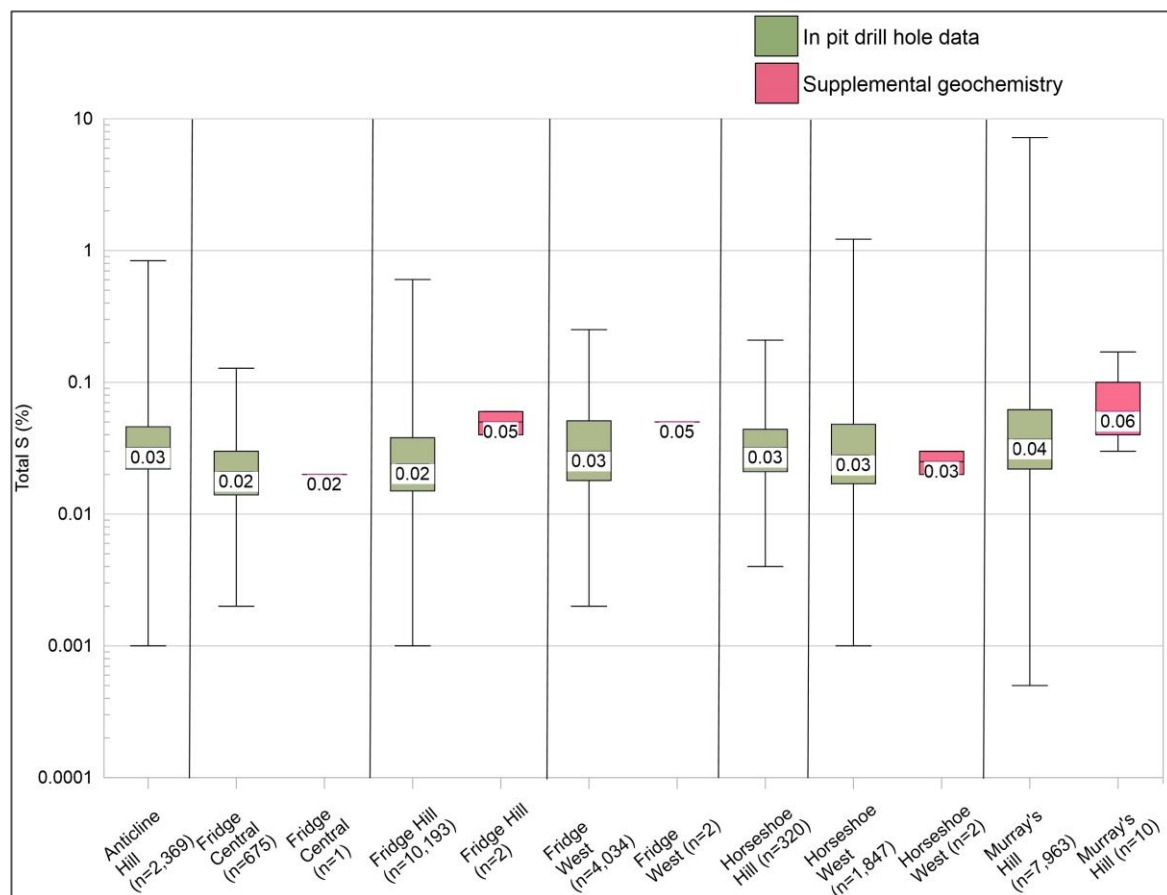
3.2 Available assay datasets

3.2.1 Distribution of sulfur

Routine drill hole assays include sulfur analysis by x-ray fluorescence (XRF). In supplemental geochemical assessments, sulfur was typically assayed using the LECO method, or equivalent.

A series of box-and-whisker plots showing the range of total sulfur content in the individual pit groupings is shown in Figure 3.3. The plots show the in-pit drill hole dataset for all available sulfur results from each of the pit shells, irrespective of the stratigraphy. Based on the drill hole datasets, there is little evidence of significant lateral variation in sulfur content among the different pit shells. The median sulfur content is low in all pits, ranging between 0.02% and 0.04%; the maximum sulfur content is at or below 1% for all pits, except for Murray's Hill pit which has a maximum of close to 10%. The plot also shows supplemental geochemical assessment data for samples located within the pit shells (noting that the sample numbers are limited as most assessed samples are from locations outside the current pit shells). As shown, there is relatively good agreement between the drill hole data and the supplemental geochemical assessment data, although sample selection is shown to be biased slightly high in the case of the Fridge Hill and Murray's Hill pits.

Figure 3.3: Box-and-whisker plot showing sulfur content as a function of pit grouping



Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/Grapher/\[HCK009_Boxplot_S_Oct24_Pits_RevB.gpj\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/Grapher/[HCK009_Boxplot_S_Oct24_Pits_RevB.gpj])

Notes: The horizontal line equates to the median value within the dataset, and the upper and lower limits of the boxes equate to the 75th and 25th percentiles of the data, respectively. The whiskers (lines that extend from the box) show the minimum and maximum values.

Box-and-whisker plots showing the range of total sulfur content as a function of stratigraphy are shown in Figure 3.4. Three sets of data are presented:

- All available drill hole data.
- An excerpt from the drill hole data corresponding to samples located within the pit shells.
- Data from supplemental geochemical assessments (in-pit and out-of-pit).

Due to the larger sample counts in the drill hole assay datasets, a wider range of sulfur content is indicated. For the geochemical assessment samples from the CzD3, MAC, NAM and JER units, there is a bias towards higher sulfur contents (sample representativity is discussed further in Section 4).

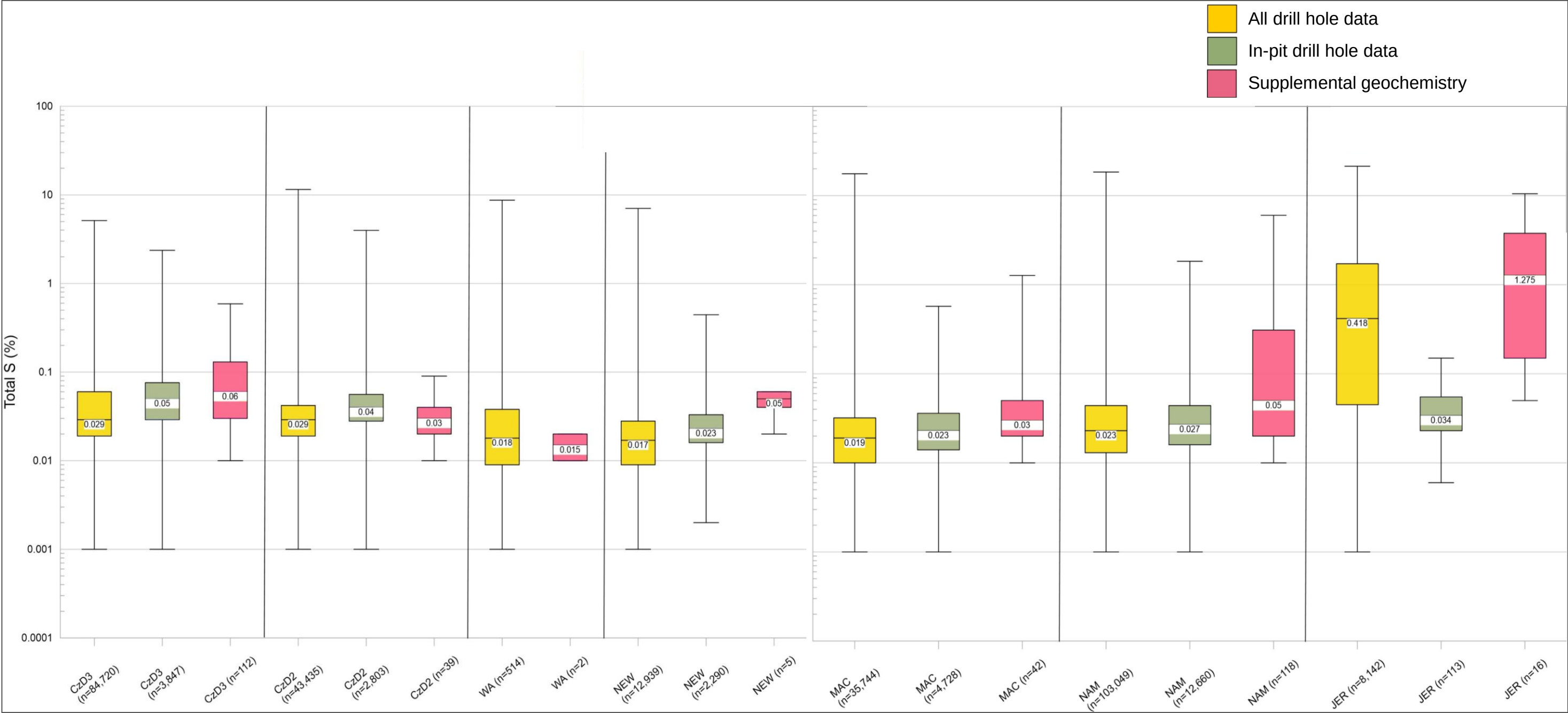
Based on the drill hole assay data, sulfur content is low in most of the stratigraphic units; median values are invariably below 0.05%, and 75th percentile values invariably below 0.1%. The basal MAC, NAM and JER units range to higher maxima, between 10% and 30%. Excluding the results for the JER unit, medians and 75th percentiles calculated for the in-pit data are similar to those calculated for the entire drill hole database. In the case of the JER unit, the results for the in-pit median and 75th percentile values are lower than those external to the pit shells, indicating the pit

shell designs intersect volumes with significantly lower sulfur values than the dataset as a whole. The samples selected for geochemical assessment from the NEW, NAM and JER units show a strong bias to higher sulfur contents.

The cover sequence units, CzD2 and CzD3, also range to relatively high maxima, but show fewer datapoints towards these higher values when compared to the JER unit.

As noted, the bias in the sulfur content represented by the supplemental geochemical datasets would be expected to lead conservative outcomes (from an acid generation and solute release perspective).

Figure 3.4: Box-and-whisker plot showing sulfur content as a function of stratigraphy



Source: https://srk.sharepoint.com/sites/AU_HCK009_-_General/2._Geochemical_data/Grapher/Grapher_Oct24/HCK009_Boxplot_S_Oct24.gpj

Notes:

The horizontal line equates to the median value within the dataset, and the upper and lower limits of the boxes equate to the 75th and 25th percentiles of the data, respectively. The whiskers (lines which extend from the box) show the minimum and maximum values.

A small number of samples logged as WA and JER are represented in the sample sets; these units are not expected to be intersected by mining and it is possible that these samples are located very close to the pit shell extents, or have been misclassified.

Lithologies with totals <1,000 samples in the drill hole database have been omitted from the plots (i.e. MM, CzD1, BOL, CF, DOL, MTS, and Nmg). Samples with no defined lithological classification have also been omitted.

3.2.2 Distribution of selected metals and metalloids

Geochemical Abundance Index (GAI) values provide a measure of the magnitude of the elemental content of a sample relative to average crustal abundances. A positive GAI value indicates enrichment relative to the average crustal abundance (Bowen, 1979). As a general rule, elements with GAI values of 3 or more are considered to be significantly enriched compared to average crustal abundance and may warrant further investigation.

Within the (in-pit) drill hole dataset (Table 3.2), the following elements are 'enriched' in at least one sample:

As, Cl, Co, Cr, Cu, Fe, Mn, Ni, Pb, S, Se, Sn, V and Zn.

Elements As and Fe were enriched in a high proportion of the samples from most stratigraphical units (often greater than 50%). Strong association between As and Fe is commonly observed for iron formations throughout the Pilbara. Elements Mn, Se and Sn are enriched in a significant number of samples – greater than 10% of samples in several units including CzD2, MAC and NEW. The remaining elements listed above were enriched only in a small number of samples (less than 1%).

The NAM unit showed enrichment in the widest range of elements.

A wider range of elements were included in the supplemental assessment datasets; a summary of the enriched elements is shown in Table 3.3. The following elements are enriched in at least one sample:

As, Bi, Cd, Co, Fe, Hg, Mn, S, Sb, Se and Zn.

Elements Ba, Ni and Pb, which were shown to be enriched in a small number of samples within the larger drill hole assay dataset, were not enriched in any of the samples selected for geochemical assessment.

It should be noted that an elevated GAI for an element does not necessarily mean that the element is readily leachable. The potential for leaching is discussed in Section 3.5.

Table 3.2: Summary of drill hole assays (XRF) with GAI values of ≥ 3 , as a function of stratigraphy

Stratigraphy	Number of samples	As		Cl		Co		Cr		Cu		Fe		Mn	
		Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
CzD1	28	28	100	-	-	-	-	-	-	-	-	17	61	4	14
CzD2	2,884	2,499	87	-	-	4	<1	4	<1	-	-	1,490	52	463	16
CzD3	3,897	3,640	93	12	<1	3	<1	-	-	-	-	72	2	445	11
DOL	8	8	100	-	-	-	-	-	-	-	-	-	-	1	13
JER	113	107	95	-	-	-	-	-	-	-	-	-	-	1	<1
MAC	4,934	2,778	56	6	<1	4	<1	-	-	-	-	3,842	78	932	19
MM	11	9	82	-	-	-	-	-	-	-	-	8	73	-	-
NAM	12,971	10,300	79	16	<1	16	<1	3	<1	1	<1	10,885	84	1,667	13
NEW	2,341	1,160	50	3	<1	-	-	-	-	-	-	1,968	84	635	27
Unknown	1,326	303	23	-	-	-	-	-	-	-	-	670	51	172	13

Stratigraphy	Number of samples	Ni		Pb		S		Se		Sn		V		Zn	
		Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
CzD1	28	-	-	-	-	-	-	1	4	27	96	-	-	-	-
CzD2	2,884	-	-	3	<1	4	<1	744	26	541	19	1	<1	-	-
CzD3	3,897	-	-	1	<1	83	2	200	5	800	21	-	-	-	-
DOL	8	-	-	-	-	-	-	-	-	2	25	-	-	-	-
JER	113	-	-	-	-	-	-	2	2	26	23	-	-	-	-
MAC	4,934	1	-	-	-	1	<1	3,182	64	1,077	22	1	<1	-	-
MM	11	-	-	-	-	-	-	5	45	6	55	-	-	-	-
NAM	12,971	4	<1	16	<1	13	<1	2,589	20	2,169	17	-	-	3	<1
NEW	2,341	-	-	-	-	1	<1	1,583	68	395	17	-	-	-	-
Unknown	1,326	-	-	-	-	13	<1	7	<1	19	1	-	-	-	-

Source: https://srk.sharepoint.com/sites/AU_HCK009_-_General/5._Variation_3/Data&Calcs/HCK009_DrillholeOct24_RevA.xlsx

Notes: The category 'Unknown' captures samples with no defined lithological grouping (recorded as either Blank, 0, or #N/A in the drill hole database).

Table 3.3: Summary of geochemical assays (acid digest) with GAI values of ≥ 3 , as a function of stratigraphy

Stratigraphy	Number of samples	As		Bi		Cd		Co		Fe		Hg	
		Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
CzD3	106	79	75	28	26	-	-	-	-	-	-	-	-
CzD2	34	8	24	4	12	4	12	1	3	-	-	2	6
JER	11	7	64	6	55	-	-	-	-	-	-	1	9
MAC	43	6	14	2	5	1	2	-	-	2	5	-	-
NAM	98	46	47	12	12	3	3	-	-	12	12	1	1
NEW	5	1	20	-	-	-	-	-	-	-	-	-	-
WA	2	-	-	-	-	-	-	-	-	-	-	-	-

Stratigraphy	Number of samples	Mn		S		Sb		Se		Zn	
		Count	%	Count	%	Count	%	Count	%	Count	%
CzD3	106	1	<1	13	12	11	10	68	64	-	-
CzD2	34	9	26	-	-	2	6	14	41	-	-
JER	11	3	27	9	82	4	36	10	91	-	-
MAC	43	4	9	2	5	1	2	25	58	1	2
NAM	98	21	21	25	26	15	15	66	67	-	-
NEW	5	-	-	-	-	-	-	2	40	-	-
WA	2	-	-	-	-	-	-	-	-	-	-

Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009_DrillholeData_RevA.xlsx\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009_DrillholeData_RevA.xlsx])

3.3 Mineralogical assessment

The MWH (2013), Mine Earth (2023) and ChemCentre (2023) assessments included mineralogical analyses by XRD. The complete results are presented in Appendix A.1 and selected results (sulfur-bearing minerals and carbonates) are summarised in Table 3.4.

The minerals most abundant in the samples analysed are quartz (SiO_2), layered silicate clay minerals (dominated by kaolinite) and iron oxides (hematite, goethite).

Sulfur-bearing minerals identified were:

- Pyrite – significant levels (2–18 wt%) were recorded in five JER samples.
- Alunite – recorded in 13 of 26 CzD3 (ALU) samples (up to a maximum of 4 wt%), more significant levels (6–11 wt%) were registered in some of the deeper, sulfide bearing NAM and JER samples.
- Jarosite – recorded in two of the JER samples (2–3 wt%).
- Gypsum – low levels (up to 1 wt%) recorded in one JER sample and two CzD3 samples. One NAM sample contained 3 wt% gypsum.

Carbonates (calcite, dolomite and ankerite) were identified within the materials, particularly in the cover sequence samples. One CzD3 sample, logged as calcrete, comprised 82 wt% calcite. Within the MWH (2013) dataset, a sample of alluvium contained 9 wt% ankerite and 8 wt% calcite. Significant levels of calcite (20 wt%) and dolomite (28%) were recorded in one CzD2 sample (CIDW) as reported in the ChemCentre dataset.

The JER and NAM units contained up to 34% siderite.

Table 3.4: Summary of mineralogical results

Stratigraphy		Semi-quantitative (Mine Earth and ChemCentre assessments) ¹						Quantitative (MWH assessment) ¹					
		CzD3	CzD2	JER	MAC	NAM	NEW	CzD3	JER	NAM	CzD2	MAC	NEW
No of samples analysed		26	5	6	6	13	1	2	2	4	0	0	0
Pyrite	wt%	-	-	2–18	1	1–2	0	-	17	-	-	-	-
	n	-	-	4	1	2	0	-	1	-	-	-	-
Alunite	wt%	1–4	-	<0.1–11	-	-	-	-	11	-	-	-	-
	n	13	-	3	-	2	-	-	1	-	-	-	-
Jarosite	wt%	-	-	2–3	-	-	-	-	-	-	-	-	-
	n	-	-	2	-	-	-	-	-	-	-	-	-
Gypsum	wt%	<0.1–1	-	<0.1	-	3	-	-	-	-	-	-	-
	n	2	-	1	-	1	-	-	-	-	-	-	-
Calcite	wt%	1–82 ²	20	-	-	-	1	8	-	-	-	-	-
	n	4	1	-	-	-	1	2	-	-	-	-	-
Dolomite	wt%	<0.1–3	28	-	-	-	-	-	1	<1	-	-	-
	n	2	1	-	-	-	-	-	1	1	-	-	-
Ankerite	wt%	-	-	-	-	-	-	7–9	-	-	-	-	-
	n	-	-	-	-	-	-	2	-	-	-	-	-
Siderite	wt%	-	-	9–34	-	5–26	-	-	-	-	-	-	-
	n	-	-	4	-	7	-	-	-	-	-	-	-

Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009_GeochemData_RevC.xlsv\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009_GeochemData_RevC.xlsv])

Notes:

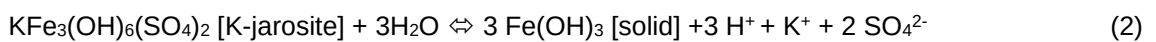
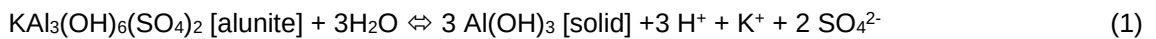
⁶ MWH (2013), Mine Earth (2023) and ChemCentre (2023) assessments.

⁷ Sample with 82 wt% calcite corresponds to a calcrete sample.

3.4 Potential for acid and metalliferous drainage

3.4.1 Acid potential

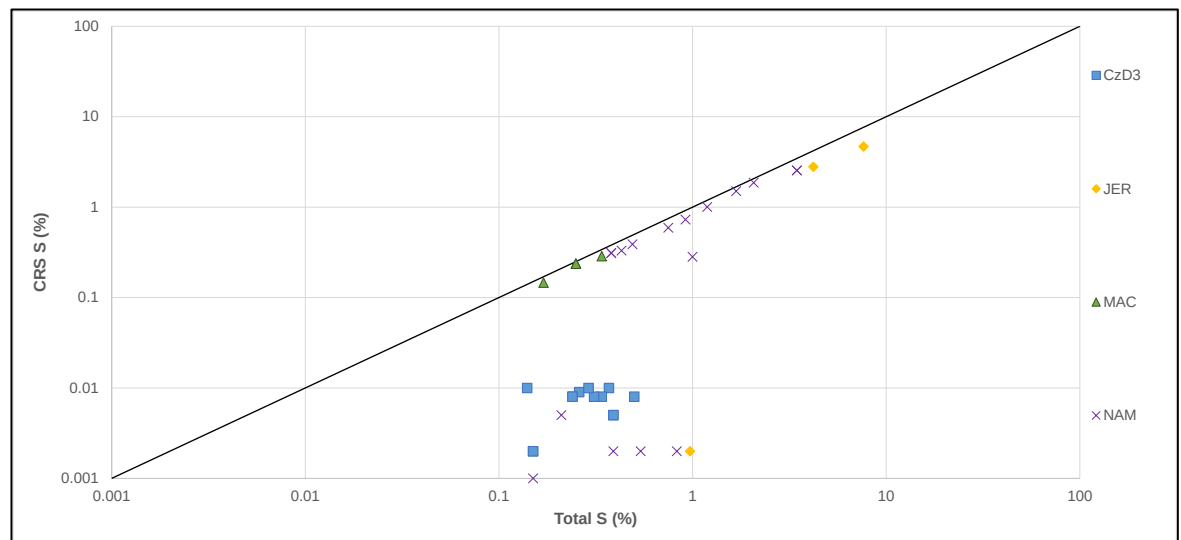
Maximum potential acidity (MPA) is calculated from the total sulfur content, conservatively assuming that all sulfur is present as pyrite. Other forms of sulfur may not generate acidity; for example, sulfate sulfur in a mineral such as gypsum does not contribute to acidity (although it may contribute to salinity). Less readily soluble hydroxysulfate minerals such as alunite and jarosite can represent stored acidity. For example, alunite or jarosite dissolution, when combined with precipitation of an Al or Fe hydroxide can be expressed by the overall net acid-generating reactions:



It should be noted that, due to low hydroxysulfate solubility, the amount of acidity released in an individual leach event is low. Acidic conditions are therefore only expected in the case where either the materials contain no neutralising capacity or contact water contains no alkalinity (this topic is discussed further below and later in this report, Section 3.5.2).

Figure 3.5 shows a plot of measured sulfide sulfur (based on chromium reducible sulfur (CRS) testing) as a function of total sulfur content. A portion of the data plots along the equivalence line, indicating the sulfur speciation is dominated by sulfidic-sulfur. There is, however, a significant cluster of data below the equivalence line comprising all the CzD3 samples, five NAM samples, and one JER sample. For these samples, the majority of the sulfur is not sulfidic (i.e. oxidisable with a corresponding potential for acid generation). As noted before the deeper basal NAM and JER units are not proposed to be mined.

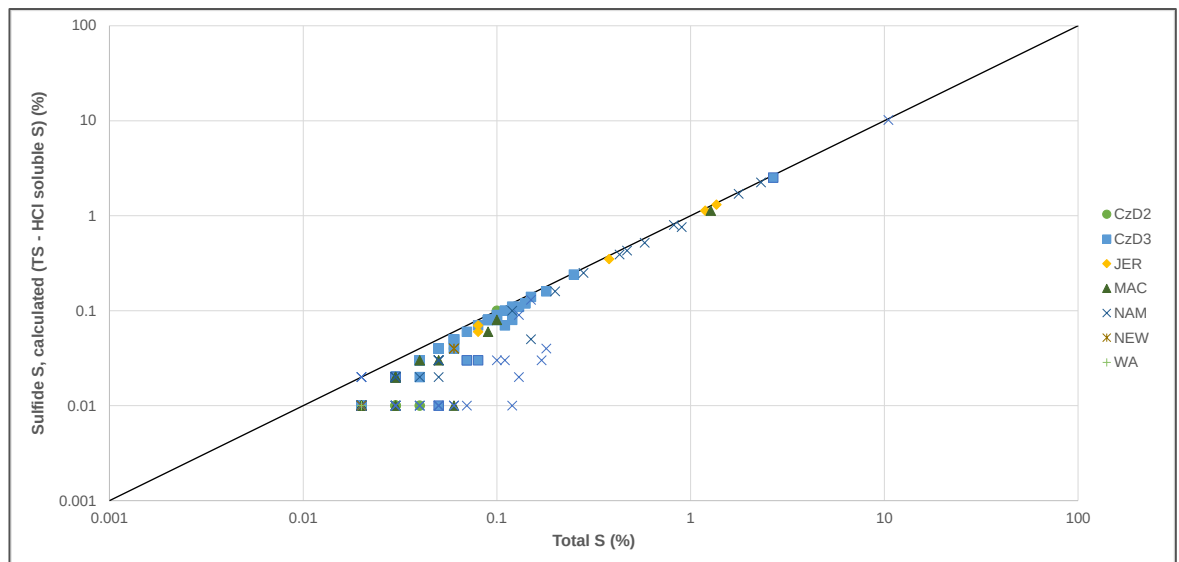
Figure 3.5: Measured sulfide-sulfur (CRS) as a function of total sulfur (LECO) content



Source: [https://srk.sharepoint.com/sites/AUHK009/Shared Documents/General/Geochemical data/\[HCK009_GeochemData_RevC.xlsb\]](https://srk.sharepoint.com/sites/AUHK009/Shared Documents/General/Geochemical data/[HCK009_GeochemData_RevC.xlsb])

Figure 3.6 is a similar plot with sulfidic sulfur content estimated based on the difference between the total sulfur content and the hydrochloric acid soluble sulfur (sulfate-sulfur). As before, many samples plot below the equivalence line, indicating that the samples contain non sulfidic-sulfur. It is notable, however, that the differentiation is less pronounced than was the case in Figure 3.5, and that many CzD3 samples plot close to the equivalence line. Mineralogical results indicated that CzD3 samples contain alunite. Alunite is resistant to digestion by hydrochloric acid (Linklater et al., 2012; 2014). The presence of alunite therefore invalidates estimation of sulfidic sulfur based on hydrochloric acid soluble sulfur testing alone because the sulfidic sulfur content will likely be overestimated. Where materials are known or suspected to contain alunite, a more reliable measure of sulfidic sulfur content is by the CRS-S analytical method. During operational classification of waste rock it may be necessary to complete check analyses using the CRS method for samples with higher sulfur content to verify the sulfide content and thus the acid potential (AP) prior to classification and management.

Figure 3.6: Calculated sulfide sulfur as a function of total sulfur (LECO) content



Source: [https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/\[HCK009_GeochemData_RevC.xlsb\]](https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/[HCK009_GeochemData_RevC.xlsb])

Alunite-sourced acid potential should be considered when assessing the overall acid potential. The geochemical behaviour of alunite, however, differs from that of sulfide minerals such as pyrite. Alunite solubility is low, and therefore the maximum release of acidity during an individual leach event is low and independent of residence time as the water passes through the material (Linklater et al., 2012). In contrast, release of acidity from sulfide mineralisation is controlled by many factors, including the type and abundance of the oxidising mineral phase(s) and the rate of oxidation (which in turn is influenced by supply of oxygen to reaction sites) and exposure time (between flushing events). In the case of sulfides, longer residence times would be expected to increase acidity in the contact water.

The presence of alunite in material containing negligible neutralising capacity may generate acidic conditions; however, the low levels of acidity could be easily neutralised should contact water contain sufficient alkalinity (this is tested by conducting leach tests with 'synthetic groundwater' as discussed in Section 3.5.2).

3.4.2 Acid neutralising capacity

Some minerals react readily to neutralise acidity, particularly calcium- and magnesium-bearing carbonates such as calcite and dolomite. Iron-bearing carbonates such as siderite do not contribute to effective neutralising capacity because, under oxidising conditions, Fe^{2+} is converted to Fe^{3+} which, under neutral pH conditions reacts with water and precipitates as $\text{Fe}(\text{OH})_3$ and releases acid (3H^+), resulting in no net neutralisation.

Silicate minerals contribute to neutralising capacity, though are generally slow to react unless conditions are acidic.

The ANC is a measure of all minerals that react to neutralise acid (at an acidic pH as defined in the test conditions).

ANC measurement

ANC measurement is carried out under aggressive acidic conditions (addition of excess strong acid to achieve a low pH) (AMIRA, 2002). The solution is then titrated with a strong base to a pH of 8.3 to measure the total acid consumed by the sample. The measurement provides a measure of the total neutralising capacity (i.e. all minerals that may react with a strong acid within the timeframe of the test).

The ANC values ranged from -6 to 586 $\text{kgH}_2\text{SO}_4/\text{t}$ (Table 3.5). Negative values indicate that the samples contain pre-existing stored acidity. Not all laboratories report negative values; some laboratories report such samples as giving an ANC below a detection limit. Negative detection limit values were only recorded for the CzD3 and NAM samples in the MWH study.

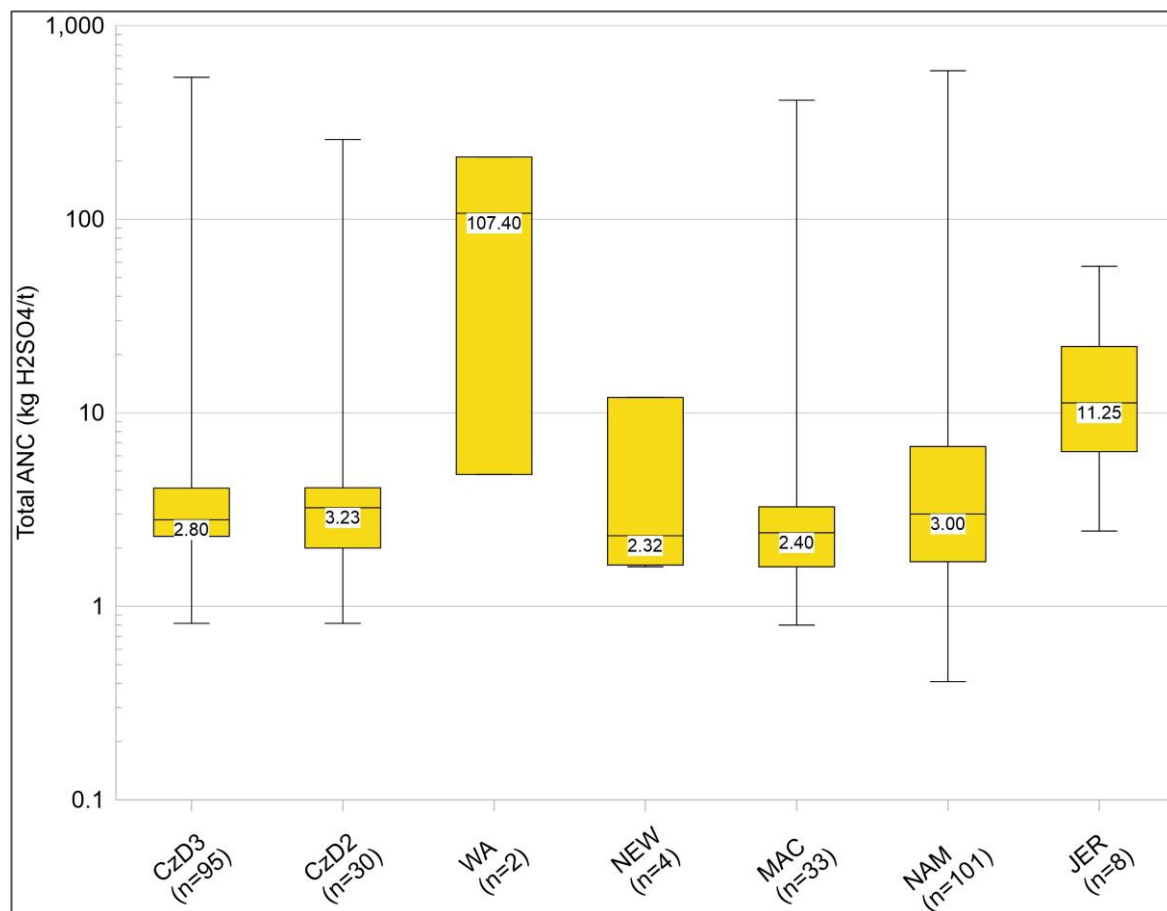
Figure 3.7 displays box-and-whisker plots showing the range of total ANC measured in different stratigraphical units. For some units the sample counts are low (e.g. WA, NEW, JER) and therefore low confidence can be placed on statistical outcomes. Some of these units, while sampled and included in the characterisation program are not expected to be mined (WA, JER). ANC is low in most units – median values are typically less than 10 $\text{kgH}_2\text{SO}_4/\text{t}$. While low, the values are sufficient to exceed the acid potential in most cases – as discussed in the next section.

Table 3.5: Total ANC of all available samples

ChemCentre data	Stratigraphic Unit						
	CzD2	CzD3	JER	MAC	NAM	NEW	WA
	n=22	n=72	n=5	n=22	n=44	n=2	n=2
	ANC (kgH ₂ SO ₄ /t)						
Minimum	1.3	1.1	2.8	0.8	1.1	1.6	4.8
Median	2.8	2.9	7.8	2.0	3.3	3.0	107
Average	7.2	3.5	11.8	2.5	14.9	5.5	107
Maximum	100	11.0	22.0	11.0	260	12.0	210
Mine Earth, 2023	Stratigraphic Unit						
	CzD2	CzD3	JER	MAC	NAM	NEW	WA
	n=6	n=17	n=3	n=11	n=28	n=1	n=0
	ANC (kgH ₂ SO ₄ /t)						
Minimum	0.82	0.82	2.45	1.63	0.41	1.6	0
Median	5.3	2.5	14.7	3.3	2.9	1.6	0
Average	49.3	36.0	24.8	63.4	53.3	1.6	0
Maximum	258	541	57	412	586	1.6	0
MWH, 2013	Stratigraphic Unit						
	CzD2	CzD3	JER	MAC	NAM	NEW	WA
	n=5	n=6	n=5	n=0	n=21	n=0	n=0
	ANC (kgH ₂ SO ₄ /t)						
Minimum	3	3	-6	0	-2	0	0
Median	4.0	31	0	0	2.0	0	0
Average	4.2	56.5	0	0	3.2	0	0
Maximum	6	143	8	0	12	0	0

Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009_GeochemData_RevC.xlsb\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009_GeochemData_RevC.xlsb])

Figure 3.7: Box-and-whisker plots showing total ANC as a function of stratigraphy



Source: [https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/Grapher/\[HCK009_Boxplot_ANC_Oct24.gpj\]](https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/Grapher/[HCK009_Boxplot_ANC_Oct24.gpj])

Notes: The horizontal line equates to the median value within the dataset, and the upper and lower limits of the boxes equate to the 75th and 25th percentiles of the data, respectively. The whiskers (lines that extend from the box) show the minimum and maximum values.

As the scale is logarithmic, negative ANC values have been excluded.

Acid buffering characteristic curves

The ABCC method involves the slow addition of a strong acid to the material over a period of time. At early stages in the test, chemical conditions are not as aggressive as is the case in an ANC test, and only readily reactive minerals react to neutralise the acid (such as carbonates), resulting in a buffered pH. Once the reactive carbonate phases are depleted, the pH decreases with increasing acid addition. The acid addition and pH are measured continually during the test, yielding a plot of acid consumed as a function of pH. Potential mineral phases reacting may be identified from the buffering characteristics observed on the plot.

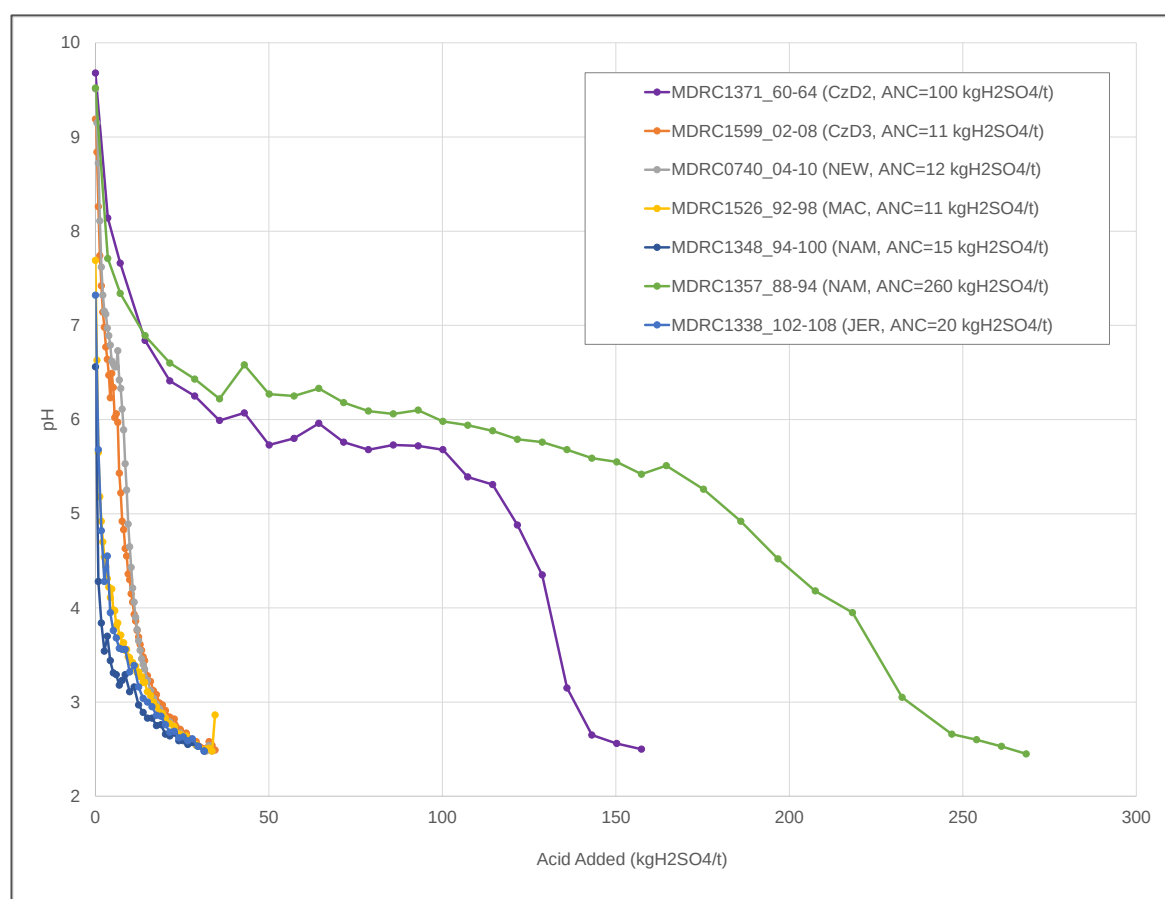
Seven samples were submitted for ABCC testing, and the resulting curves are shown in Figure 3.8. Table 3.6 compares estimates of neutralising capacity from ABA, ABCC and mineralogical data. Important points are:

- Two samples, the CzD2 sample and one of the NAM samples, show pronounced plateaus around pH 6–7, indicative of buffering by reactive carbonates (calcite, dolomite). Both samples

contained elevated ANC (100 and 260 kgH₂SO₄/t, respectively). Mineralogical results are available for the CzD2 sample, and confirm the presence of calcite and dolomite. The carbonate neutralisation potential (CarbNP) calculated from the XRD data is higher than measured in the ANC and the ABCC testing. This likely reflects the semi-quantitative nature of the XRD results for this sample; if the sample has a high amorphous content the calcite and dolomite content may have been over-estimated.

- Calcite was also recorded in the NEW sample (1 wt%); ANC, ABCC and CarbNP estimates show good agreement for this sample.
- In the case of samples containing siderite (one of the NAM samples and the JER sample), ABCC testing confirmed that the effective ANC is negligible. For such samples, CarbNP estimates will significantly overestimate ANC.

Figure 3.8: ABCC results



Source: [https://srk.sharepoint.com/sites/AUHK009/Shared Documents/General/Geochemical data/\[HCK009_GeochemData_RevC.xlsb\]](https://srk.sharepoint.com/sites/AUHK009/Shared Documents/General/Geochemical data/[HCK009_GeochemData_RevC.xlsb])

Table 3.6: Comparison of ABCC, ANC and XRD data

Sample	Units	MDRC137 1_60-64	MDRC159 9_02-08	MDRC074 0_04-10	MDRC152 6_92-98	MDRC134 8_94-100	MDRC135 7_88-94	MDRC133 8_102-108
Strat		CzD2	CzD3	NEW	MAC	NAM	NAM	JER
ANC	kgH ₂ SO ₄ /t	100	11	12	11	15	260	20
CarbNP (from TC)	kgH ₂ SO ₄ /t	162	10	10	6	407	331	250
CarbNP (from TIC)	kgH ₂ SO ₄ /t	140	n.a.	n.a.	n.a.	104	295	23
<i>XRD data (semi-quantitative)</i>								
Calcite	wt %	20	n.a.	1	n.a.	0	n.a.	0
Dolomite	wt %	28	n.a.	0	n.a.	0	n.a.	0
Siderite	wt %	0	n.a.	0	n.a.	26	n.a.	9
CarbNP (from XRD) ¹	kgH ₂ SO ₄ /t	494	n.a.	10	n.a.	0.0	n.a.	0.0
<i>ABCC data</i>								
ANC to pH 6		35	6	8	0.7	0.2	99	0.7
ANC to pH 4.5		127	9	10	3	0.8	197	4

Notes: n.a. – not analysed

¹ Calculated on the basis of the calcite and dolomite content.

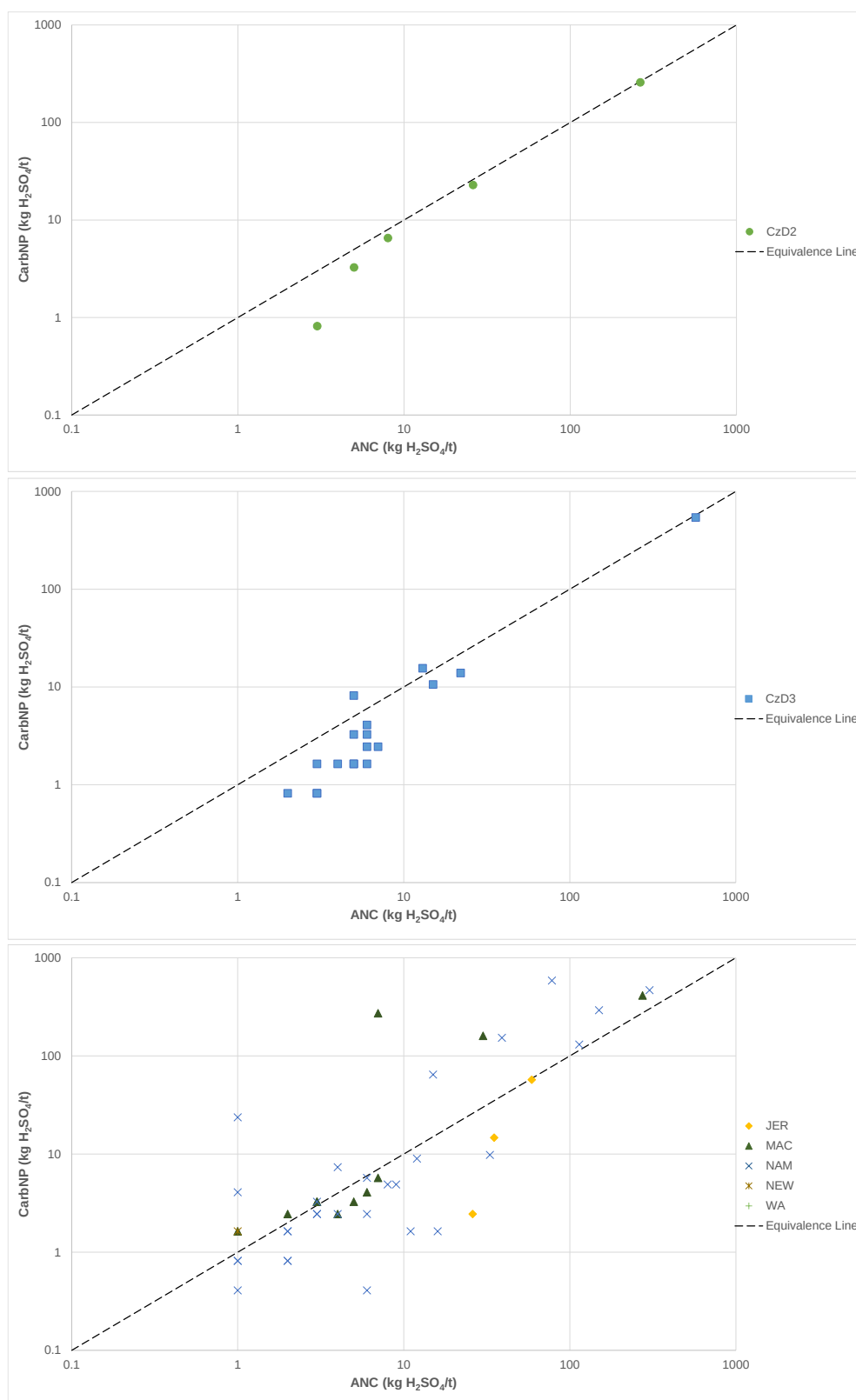
Analytical surrogates for ANC

Typical analytical surrogates for readily available ANC include calcium, magnesium, total inorganic carbon (TIC) or LOI data (to 1,000°C), the latter being a potential indirect measure of inorganic carbonate content. The presence of calcium and magnesium may be considered indicative of the Ca-bearing or Mg-bearing carbonate mineral content (if no other minerals also contain these constituents), whereas TIC may be representative of all carbonate phases, including phases (such as siderite) that do not contribute to ANC.

The CarbNP values calculated from TIC range from 0.4 to 586 kgH₂SO₄/t and are shown in Figure 3.9 plotted as a function of ANC. In the CzD2 and CzD3 units, although the dataset is small, the calculated CarbNP values correlate well with the measured ANC. For lower ANC samples, it is noted that there is a spread below the line of equivalence i.e. CarbNP underestimates ANC. At these low ANC values, perhaps some reactive silicate minerals are contributing to the ANC measurement. For the other stratigraphic units, there is considerable scatter both below and above the line of equivalence. Overestimation of ANC, sometimes by orders of magnitude, could be explained by the presence of Fe-bearing carbonates (such as siderite), especially in some of the deeper NAM and JER samples (Section 3.3).

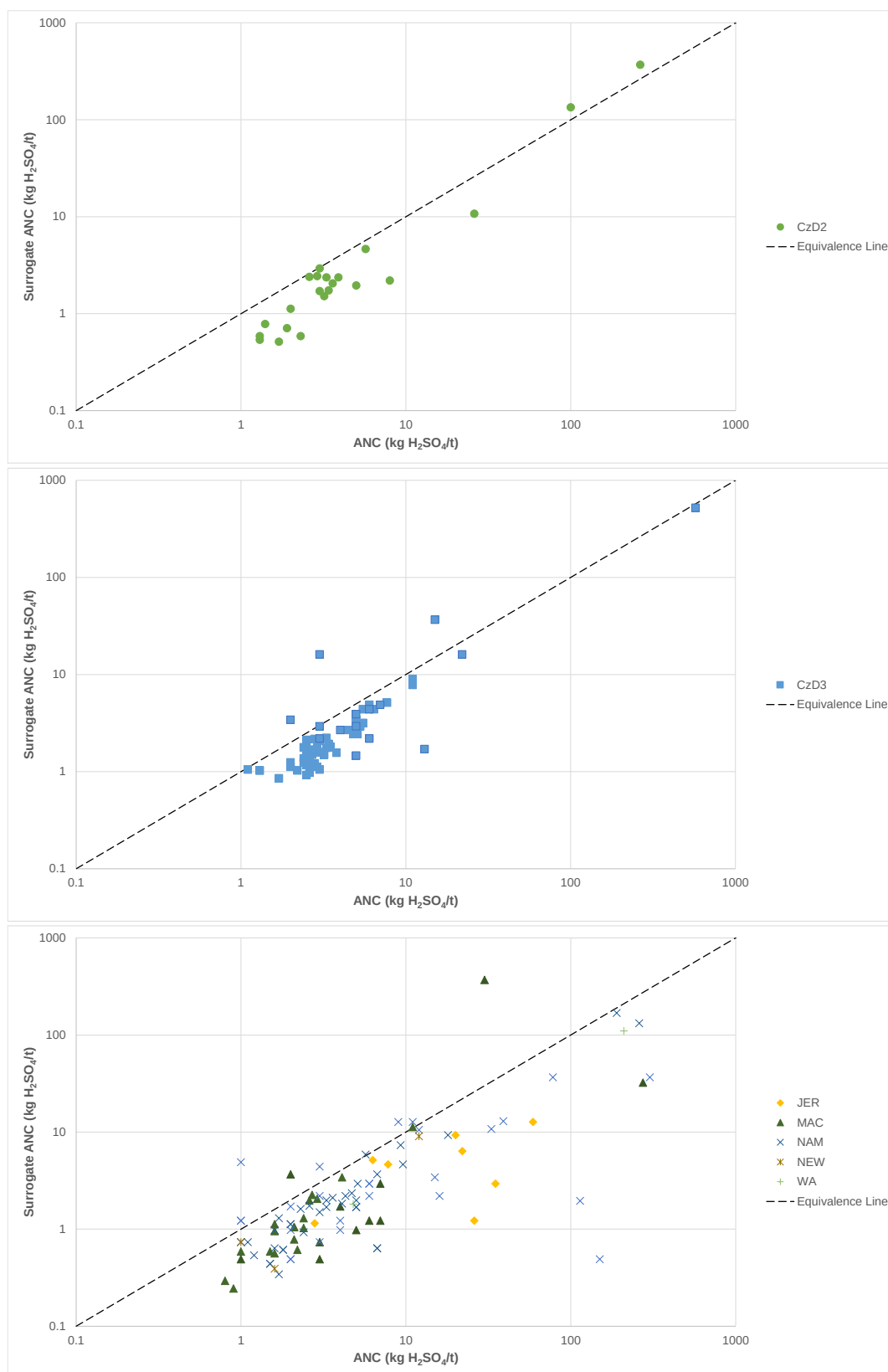
Figure 3.10 shows the calculated surrogate ANC using calcium content versus total ANC. For the cover sequence units, CzD2 and CzD3, there is broad agreement, acknowledging that there are a few outlying datapoints. There is a tendency to plot slightly below the line of equivalence, indicating that the surrogate ANC value would be conservative, i.e. underestimate the ANC. Similar observations could be made for the remaining stratigraphic units, with the exception of NAM. Datapoints for NAM samples show considerable scatter, either side of the equivalence line. This would suggest that NAM contains Ca-bearing minerals that do not contribute to ANC. The identity of the minerals is not immediately clear from the available mineralogical results but might include gypsum (identified in one NAM sample) and/or substitution in clay or mica mineral content (significant kaolinite, and some muscovite, was identified in NAM samples).

Figure 3.9: CarbNP calculated from TIC plotted as a function of total ANC for CzD2 (top), CzD3 (middle) and remaining units (bottom)



Source: [https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/\[HCK009_GeochemData_RevC.xlsm\]](https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/[HCK009_GeochemData_RevC.xlsm])

Figure 3.10: Surrogate ANC from calcium content (ANC_{surr_Ca}) plotted as a function of total ANC for CzD2 (top), CzD3 (middle) and remaining units (bottom)



Source: [https://srk.sharepoint.com/sites/AUHK009/Shared Documents/General/Geochemical data/\[HCK009_GeochemData_RevC.xlsm\]](https://srk.sharepoint.com/sites/AUHK009/Shared Documents/General/Geochemical data/[HCK009_GeochemData_RevC.xlsm])

3.4.3 Acid-base accounting and net acid generation

The ABA and NAG test results are summarised in Table 3.7.

The paste tests provide an indication of acidic conditions (pH) and stored, readily soluble oxidation products (EC). Paste pH results are typically neutral to alkaline, although ranges extend to acidic values in the case of NAM and JER, and mildly acidic values in the case of MAC. Paste EC values are comparatively low (typically $<1,000 \mu\text{S}/\text{cm}$), suggesting the samples may not contain significant quantities of readily soluble salts.

The difference between MPA and ANC is the NAPP. A positive NAPP indicates a potential for net acid generation, whereas a negative NAPP suggests that, theoretically on the assumption that all of the ANC is available for neutralisation, the material has sufficient ANC to consume acid that may be generated. While NAPP values ranged widely (from -540 to $325 \text{ kgH}_2\text{SO}_4/\text{t}$), the majority of samples (90%) were close to zero (ranging from -10 to $10 \text{ kgH}_2\text{SO}_4/\text{t}$).

The NPR is commonly used in conjunction with other ABA metrics to assess the potential for acid generation. The NPR represents the ratio of ANC to MPA and indicates the excess ANC available for acid neutralisation. An NPR of <1 indicates potential for acid generation because MPA exceeds ANC. Since not all ANC may be readily reactive or available, waste rock is usually only categorised as NAF if the NPR is greater than 2, or 3 for greater conservatism (Price, 2009; DITR, 2016). Waste rock with intermediate NPR is considered to be of UC acid producing potential. The NPR values of the majority of the samples tested (80%) were either within the range of UC (1 to 3) or NAF (>3).

Based on summary statistics, the only unit that would be considered, on average, to be PAF is the JER unit. To mitigate the risk of AMD, pit shell designs do not intersect this unit. Other units may, however, contain small proportions of PAF or UC material that may require management during mining. Waste classification is discussed further in Section 3.4.4.

Table 3.7: Summary of ABA and NAG data for each stratigraphical unit

Stratigraphy		Paste pH	Paste EC	Total S	Total Inorganic Carbon	NAG pH ¹	NAG to pH 4.5	NAG to pH 7.5	ANC	MPA	NAPP ² (MPA - ANC)	NPR ² (ANC/MPA)
		s.u.	mS/cm	%		s.u.	kgH ₂ SO ₄ /t					
CzD3	Count	96	96	96	18	89	72	72	96	96		
	Minimum	9.4	0.13	<0.005	0.01	9	<0.5	0.5	0.82	0.2		
	Median	7.3	180	0.06	0.03	6.6	<0.5	0.5	2.9	1.8		
	Average	7.2	289	0.1	0.42	6.3	<0.5	0.5	12.6	2.7	-9.9	4.7
	Maximum	6.3	3,300	0.5	6.63	4.8	<0.5	3.1	541	15.3		
CzD2	Count	33	33	33	7	27	22	22	33	33		
	Minimum	8.6	0.06	<0.005	0.01	9	<0.5	<0.5	0.82	0.15		
	Median	7.2	150	0.03	0.08	6.8	<0.5	0.5	3.20	0.92		
	Average	7.1	174	0.03	0.76	5.7	<0.5	0.4	14.4	0.9	-13.5	16.1
	Maximum	6.5	450	0.07	3.16	5.6	<0.5	2.3	258	2.142		
WA	Count	2	2	2	0	2	2	2	2	2		
	Minimum	8.7	140	0.01		7.7	<0.5	<0.5	4.8	0.3		
	Median	8.4	185	0.015		7.4	<0.5	<0.5	107	0.5		
	Average	8.3	185	0.015		7.4	<0.5	<0.5	107	0.5	-107	234
	Maximum	8.1	230	0.02		7.1	<0.5	<0.5	210	0.6		
NEW	Count	4	4	4	1	3	3	3	4	4		
	Minimum	8.6	70	0.02	0.02	9.3	<0.5	<0.5	1.6	0.61		
	Median	6.9	175	0.04		6.1	<0.5	<0.5	2.3	1.2		
	Average	6.4	193	0.04		5.4	<0.5	<0.5	4.6	1.2	-3.3	3.7
	Maximum	6	350	0.06		6	<0.5	<0.5	12	1.8		
MAC	Count	32	32	32	11	25	22	22	32	32		
	Minimum	8.7	60	<0.005	0.02	8.5	<0.5	<0.5	0.8	0.15		
	Median	7.1	165	0.025	0.05	6.75	0.5	0.5	2.4	0.77		
	Average	6.7	290	0.09	0.98	5.4	0.5	0.8	28.8	2.7	-26.1	10.5
	Maximum	5.4	1,400	1.27	5.05	2.8	6.7	16	412	38.9		
NAM	Count	90	90	92	40	77	46	48	92	92		
	Minimum	8.7	0.07	<0.005	<0.005	9.2	<0.5	<0.5	-2	0.15		
	Median	7.1	200	0.035	0.07	6.9	0.25	0.5	3	1.071		
	Average	6.8	562	0.27	0.83	5.6	1.9	3.5	27.1	8.3	-18.8	3.3
	Maximum	2.8	6,060	3.46	7.17	2.2	40	71	586	105.9		
JER	Count	13	13	13	7	13	9	11	13	13		
	Minimum	8.2	0.34	0.05	0.03	8.8	<0.5	<0.5	-6	1.53		
	Median	7.4	290	0.97	0.28	4.2	0.5	3.1	6.3	29.7		
	Average	5.9	1,890	2.3	0.56	4.7	41.1	50.1	10.6	69.3	58.7	0.2
	Maximum	2.2	11,210	10.5	1.8	1.8	256	275	57.2	321		

Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009_GeochemData_RevC.xlsx\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009_GeochemData_RevC.xlsx])

Notes:

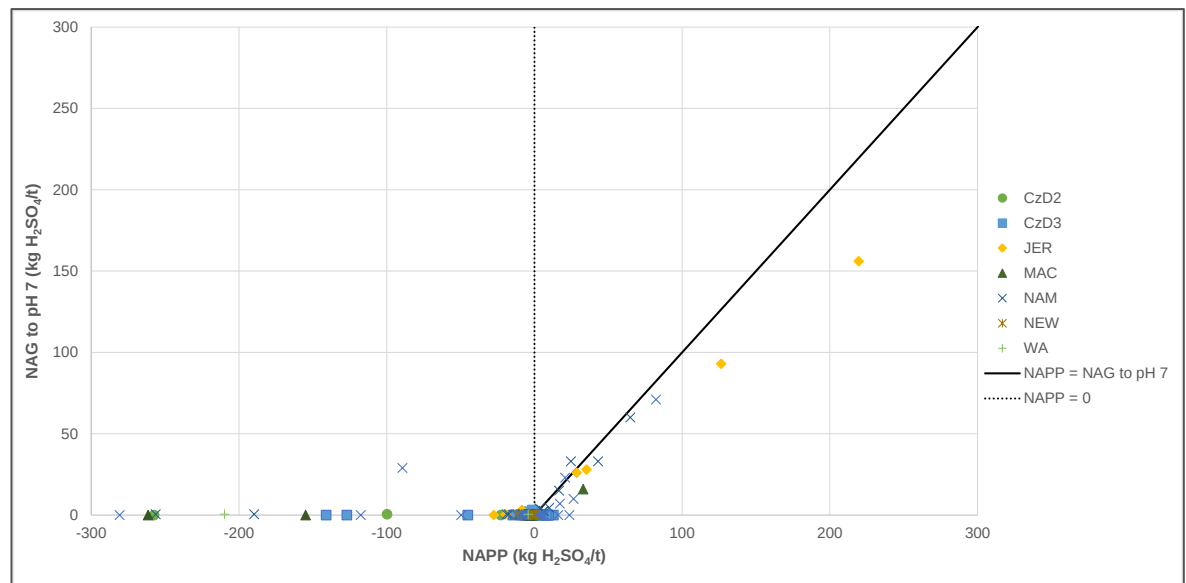
¹ Paste pH and NAG pH minimum and maximum values are inversely displayed to demonstrate the minimum as the highest pH and maximum as lowest pH to correspond to EC values and NAG acidities.

² NAPP and NPR values calculated from average ANC and MPA values.

During the NAG test, the samples are contacted with a strong oxidant, hydrogen peroxide, to oxidise sulfide minerals contained in the sample. Single addition NAG testing is undertaken to provide an evaluation of the acid generating potential of samples with low sulfur (high sulfur samples generally require multiple additions to oxidise all of the sulfides). Oxidation of the sulfide minerals release acidity; concurrently, neutralising minerals present in the sample consume the acidity generated until either the ANC or sulfide is depleted. Should the ANC be depleted first, excess acidity is generated, and the sample pH decreases. Following a predetermined contact time, the solution pH (NAG pH) is recorded, and the acidity of the sample is quantified by titration with a base (sodium hydroxide). The acidity measured below a pH of 4.5 is generally attributed to free sulfuric acid and ferric iron resulting from the oxidation of iron sulfide minerals. The acidity measured between pH 4.5 and pH 7 includes acidity from metals such as copper that are soluble at pH 4.5 but insoluble at pH 7.

In general, the results of the single addition NAG testing support the ABA findings. Positive NAPP values were usually coincident with the generation of acidity (to pH 7) in the NAG tests. Figure 3.11 is a comparison of NAG acidity to pH 7 and calculated NAPP. Where NAPP values are positive, there is good agreement between the calculated NAPP values and the NAG acidity (to pH 7). For higher NAPP samples, the NAG acidity to pH 7 tends to be lower which may suggest that not all the sulfide has reacted in the single addition NAG test.

Figure 3.11: NAG acidity (to pH 7) plotted as a function of NAPP value



Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009_GeochemData_RevC.xlsb\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009_GeochemData_RevC.xlsb])

3.4.4 Sample classification

The most commonly adopted waste classification criteria to identify materials at risk of generating AMD are those proposed by AMIRA (AMIRA, 2002) and MEND (Price, 2009) – both sets of criteria are based on geochemical characteristics determined from static laboratory tests as shown in Table 3.8. The AMIRA approach, using a combination of ABA and NAG results (with both conditions to be satisfied) to classify the material type, is widely adopted in Australia and is included in the key regulatory guidance documents (DMP, 2016; DITR, 2016). Both approaches classify materials into PAF, NAF and UC categories.

Table 3.8: Waste rock classification schemes

Category	AMIRA (2002)		MEND (Price, 2009)
	NAPP (MPA-ANC)	NAG pH	NPR (ANC/MPA)
NAF	<0	>4.5	>2 or >3 ¹
PAF	>0	<4.5	<1
UC	<0	<4.5	Between 1 and 3 (or 2 as above)
	>0	>4.5	

Notes:

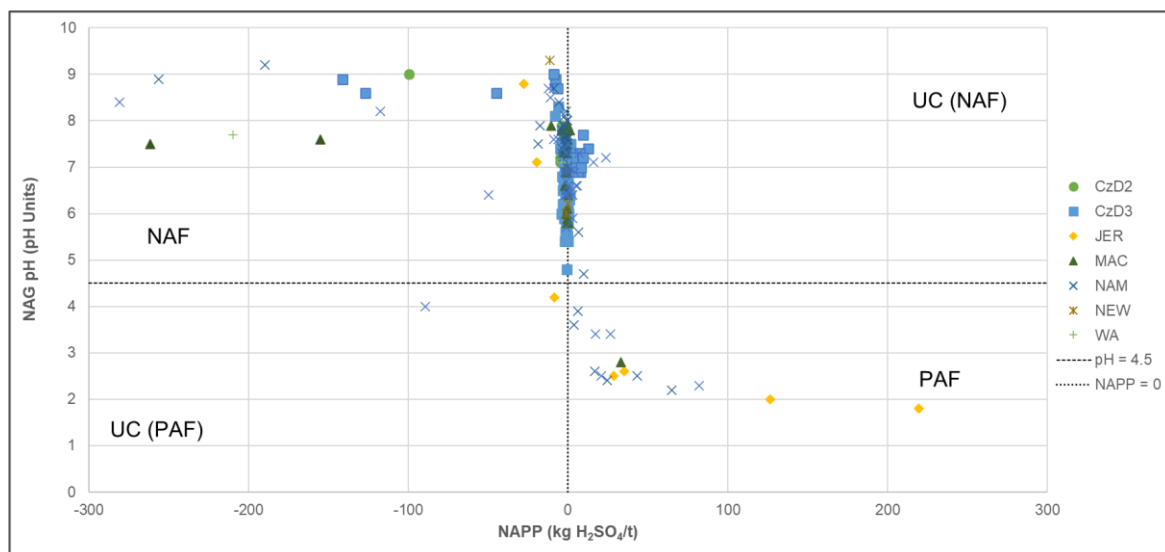
¹ In the MEND approach, materials are categorised as net neutralising if the NPR is greater than 2. Values of up to 3 can be adopted for greater conservatism (DITR, 2016; DMP 2016).

In addition to the above classification approaches, sulfur cut-offs are frequently used for rapid screening of material considered to be at low risk of generating AMD (INAP, 2009; DMP, 2016; DITR, 2016). Appropriate cut-off values need to be determined based on site-specific assessments. Commonly adopted cut-off values used in the Pilbara region range from 0.1% to 0.3% S (Green and Borden, 2011), with values in the higher end of the range adopted at sites where significant ANC-bearing material is known to be present. The results for the AMIRA classification approach are illustrated in Figure 3.12. Only a few samples fall within the PAF region of the plot and originate from the following units: NAM (11 samples), JER (4 samples), MAC (1 sample). In total, PAF samples represent less than 10% of the samples assessed. The MEND classification approach is represented in Figure 3.13. The plot also includes the HPPL sulfur cut-off values for reference. Using the MEND approach, a greater number of samples are classed as PAF, but still represent a small proportion of the samples (approximately 20%).

One contributing factor to the differences in outcome between the two approaches likely relates to the presence of alunitic sulfur in the samples. Using the AMIRA criteria, high sulfur alunitic samples would report to UC classes as NAG testing would generate lower than expected acidities (due to the low solubility of alunite). In comparison, the MEND criteria would be considered conservative in that the number of PAF-classed samples would be overestimated rather than underestimated.

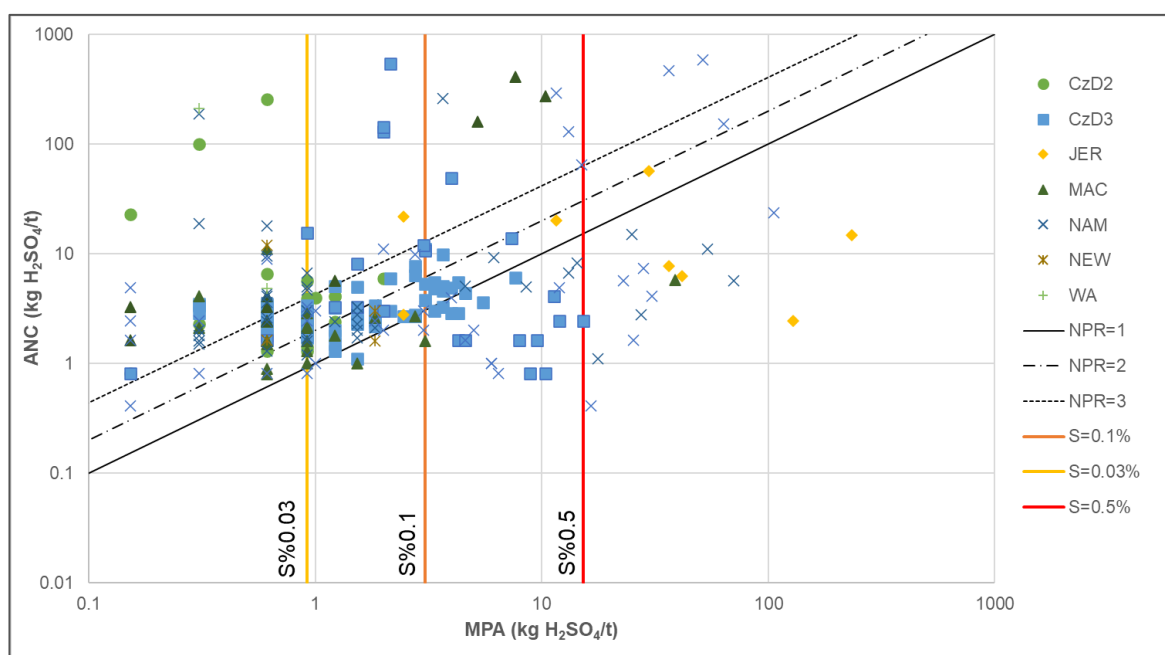
Another contributing factor is that the NAG test is completed on a pulverised sample and the influence of ANC availability at field conditions (i.e. lower available ANC for coarse waste rock) is not accounted for within the criteria. A NAPP of zero effectively assumes that all of the ANC is available to neutralise acidity. In contrast, an NPR provides a factor of safety to accommodate lower availability of ANC at field conditions. The AMIRA approach also allows for samples that have an MPA that exceeds the ANC to be classified as UC if the NAG has a pH above 4.5, whereas such a sample would be classed as PAF using the MEND approach.

Figure 3.12: Classification according to AMIRA approach, differentiated by stratigraphy



Source: [https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/\[HCK009_GeochemData_RevC.xlsm\]](https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/[HCK009_GeochemData_RevC.xlsm])

Figure 3.13: Classification according to MEND approach, differentiated by stratigraphy



Source: [https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/\[HCK009_GeochemData_RevC.xlsm\]](https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/[HCK009_GeochemData_RevC.xlsm])

Table 3.9 compares the proportions of samples falling into PAF, NAF and UC categories based on different conventional approaches.

The outcomes should be viewed in the context of the following:

- In the supplemental characterisation programs, sample selection was biased toward materials with higher sulfur content (i.e. MPA would be biased high – see Section 3.2.1).

- Using calcium as a surrogate to estimate ANC (Section 3.4.2) is generally conservative since ANC would be underestimated for most materials (excepting the NAM).

Considering these factors, the results from the supplemental testing program (the upper dataset in Table 3.9) indicate that:

- The proportion of samples classed as PAF is significantly higher using the MEND approach when compared to using the AMIRA approach, indicating that the MEND approach would provide a more conservative outcome.
- For the MEND approach, using a lower NPR of 2 compared to 3 increases the proportion of NAF classed samples.
- Using the calcium surrogate, ANC increases the proportion of PAF-classed samples significantly, from 21% to 54%, consistent with the conservatism associated with the ANC estimation (excepting the NAM unit as mentioned above).
- Using sulfur cut-off as the sole criterion:
 - A cut-off of 0.1% is likely to be conservative with respect to PAF classification since the proportion of samples classified as PAF (25%) is higher than that indicated by the standard AMIRA and MEND methods but could result in UC-classed materials being classified as NAF, which may not be conservative.
 - A cut-off value of 0.5% would result in a proportion of samples classified as PAF similar to that indicated by the AMIRA approach, but a higher proportion of UC material would be classed as NAF, which could increase the risk of localised AMD.

When considering the drill hole dataset (the second set of results in Table 3.9), it is noted that:

- Using Ca-based surrogate ANC values and MEND criteria, the proportion of samples classed as PAF is significantly lower than in the supplemental testing program (as explained by the bias in sample selection in the latter). There may also be a difference in the sample representation for the stratigraphical units between the supplemental testing programs and the drill hole dataset (some stratigraphies may be over-represented or under-represented in the supplemental testing).
- Using a sulfur cut-off criterion, a similar outcome is observed, however, compared to the MEND criteria, the proportion of PAF classed material is low.

Since drill hole datasets will be used for mine planning and waste estimation, an appropriate set of criteria is required that can be as reliable as possible (without being overly conservative) as a basis for classification of the waste rock. Using the sulfur only criterion at a cut-off of 0.1% appears to be overly conservative since the proportion of PAF classification estimate exceeds both the conventional AMIRA and MEND methods (25% compared to 7% and 21% respectively).

Table 3.9: Comparison of alternative AMD classification approaches

Class	AMIRA	MEND (NPR=3)	MEND (NPR=2)	MEND surrogate ¹ (NPR=3)	MEND surrogate ¹ (NPR=2)	Only S cut- off 0.1% S	Only S cut-off 0.5% S
Supplemental geochemical assessments (n=281; bias to higher S content samples)							
PAF	7%	21%	21%	54%	54%	25%	8%
NAF	66%	40%	54%	20%	31%	75%	92%
UC	27%	40%	25%	26%	15%	-	-
Drill hole assays (n=27,401²)							
PAF				36%	36%	5%	0.2%
NAF				24%	37%	95%	99.8%
UC				39%	27%	-	-

Notes:

¹ MEND approach applied using a surrogate ANC value, estimated from sample Ca content.

² The n count here is slightly lower than the number of samples in the in-pit drill hole dataset (Table 3.1) because not all samples were assayed for sulfur and CaO.

The MEND approach is likely to overestimate, rather than underestimate, the proportion of UC and PAF material present within the pit shells. The presence of alunitic sulfur (rather than sulfidic sulfur) in a proportion of the PAF-classed samples also reduces the likelihood that acid conditions could develop. The low solubility of alunite limits the maximum acidity that can be released from this source to the in contact water, and even material with low readily available ANC encountered along downgradient seepage pathways should be sufficient to maintain pH neutral conditions.

The exception is materials that may originate from the NAM unit, for which the surrogate ANC calculation may overestimate the ANC. It is noted that PAF-classed NAM samples tend to come from the deeper basal NAM, which will not be mined. Future geochemical assessments should target improved methods for estimating ANC within these units where it may be mined.

Geochemical characterisation programs will continue, and, with additional data, it should be possible to verify, or adjust, these threshold values, as the relationships between acid and neutralising potential become more accurately established.

For the purposes of waste management, a simplified but conservative approach, based solely on sulfur criteria has been adopted, as discussed in Section 5.1.

3.5 Potential for contaminant leaching

3.5.1 Overview of methods

Short-term leach extraction tests provide an indication of the readily soluble constituents present in a sample. The results are dependent on several factors, including sample handling and storage, weathering state at the time of sampling, subsequent duration of exposure before testing, the abundance and reactivity of reactive mineral phases present in the sample, the test conditions (solid:liquid contact ratio, leachant, aeration, etc.) and so on.

The most common short-term test is a DI water leach extraction test, but often standard DI leach testing is supplemented by other tests to generate data representing a wider range of geochemical conditions. As summarised in Table 3.1, the geochemical assessments have adopted a range of short-term leach test methodologies including:

- DI water leach extracts – a range of contact ratios have been adopted: 2:1 (Mine Earth, 2023); 5:1 (ChemCentre); and 20:1 (MWH, 2013).
- Saline leach tests – either using 2 g/L NaCl solution as the leachant (2:1 contact ratio) or ‘synthetic groundwater’ (a solution prepared in the laboratory so that the major ion chemistry provides a reasonable representation of groundwater encountered at the Project site) (5:1 contact ratio).
- LEAF testing (US EPA, 2022). The LEAF methods applied were:
 - LEAF1313, which comprises a series of batch tests to determine leachability as a function of pH (completed at a 10:1 contact ratio). Fifteen samples were studied as part of the Mine Earth study (2023) and five samples formed part of the current ChemCentre program.
 - LEAF 1314 and LEAF 1316, both of which are designed to determine leachability as a function of contact ratio. In the LEAF 1314 method, the leachant (DI water) percolates upwards through loosely packed material and leachate is collected periodically at the column outlet. Leachate concentrations are used to define cumulative release as a function of contact ratio. The LEAF 1316 method comprises a series of batch tests conducted at different contact ratios. Five samples were submitted for LEAF 1314 testing and one sample for LEAF1316.

As noted above, the results from these short-term leach extraction tests are dependent on several factors, including the physical and chemical conditions under which the tests are carried out in the laboratory. This is of significance since the test conditions will not be the same as those that would occur in the field. Thus, dissolved concentrations in the leachates cannot necessarily be used directly to represent concentrations that could occur in seepage from WRDs and stockpiles. However, the tests do provide an indication of the potential for minor and trace element release from readily leachable components in the materials.

Short-term tests do not generate results suitable for the derivation of reaction rates. For mineral-water interactions controlled by slow, kinetically-controlled processes – e.g. sulfide oxidation – other test methods, such as free-draining column tests, are required (see Section 3.5.3).

The full leach datasets have been collated in Appendix A.3 (tabulated leachate chemistry) and Appendix A.4 presents series of plots showing dissolved concentrations as a function of pH.

3.5.2 Short-term static leach extraction test results

Deionised water leach extraction tests

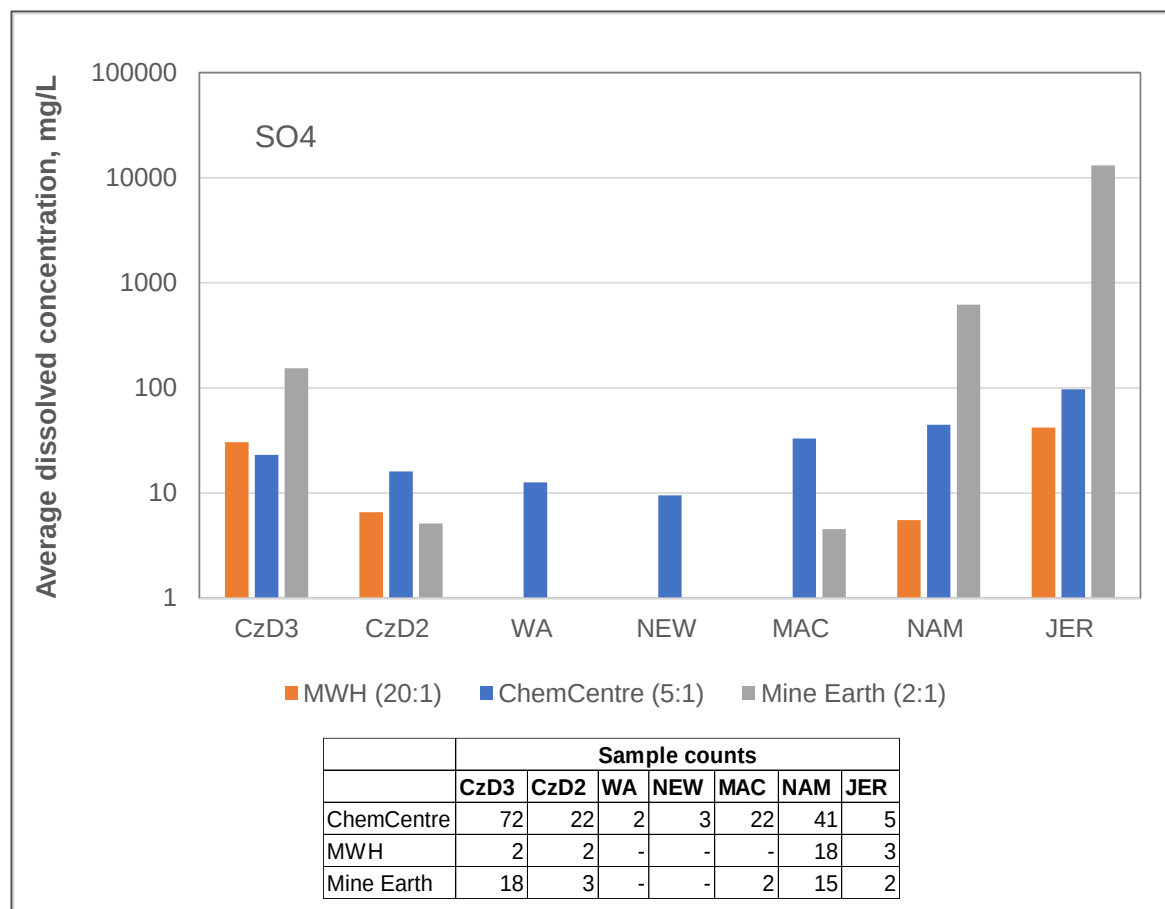
All testing was conducted using a bottle roll methodology and 18-hour contact times. The main difference between the assessments was the liquid to solid (L:S) contact ratios, which were 20:1 L/kg (MWH, 2013), 2:1 L/kg (Mine Earth, 2023) and 5:1 L/kg (ChemCentre testing). The highest (20:1) contact ratio is consistent with the Australian Standard Leaching Procedure (as outlined in Australian Standards AS 4439-1997). However, the relatively high volumes of water

represent considerable dilution where very small, finite masses of leachable elements are present. The lower contact ratios adopted in the later assessments are more likely to allow detection of small quantities of leachable mass in the samples.

In the majority of the tests, the final leachate pH was near-neutral, with low salinity (i.e. the total dissolved solids (TDS) concentration was generally less than 300 mg/L). A small number of tests (4 from over 200 leach tests) generated strongly acidic leachate (pH 2 to 3) and high salinity (>3,000 mg/L); these results were obtained for samples from the NAM or JER units at contact ratios of 5:1 (one NAM sample; two JER samples) and 20:1 (one JER sample). There were also a few tests (6) that generated mildly acidic, non-saline leachate (pH 4–6; TDS 100–800 mg/L) at a contact ratio of 5:1; the samples were sourced from the CzD3, MAC and NAM units. The results are generally consistent with the ABA results which identified PAF materials to be present in the MAC, NAM and JER units. In the case of CzD3, known to contain alunite, acidic conditions are considered unlikely under most expected field conditions (discussed in Section 3.4.1).

Figure 3.14 presents the average dissolved sulfate in the DI leach extract testing as a function of the stratigraphical units. The sample counts are also shown; it should be noted that the sample numbers tested in the MWH and MineEarth are small compared to the sample selections tested by ChemCentre for all but the NAM and JER units. Except for the NAM and JER units, direct comparison of the results between the different methods is not valid (since the not all programs represent the full range of material properties). Based on the ChemCentre dataset (not subject to sample number constraints), the results of the NAM and JER units yielded the highest dissolved concentrations, consistent with the expectation that these units are more likely to host sulfide mineralisation and associated soluble weathering and oxidation products. Furthermore, within the ChemCentre results, samples from the CzD3 unit yielded slightly higher dissolved sulfate concentrations when compared with CzD2, WA and the NEW units, which may reflect the presence of sulfate minerals. Gypsum and alunite are documented to be present in the CzD3 unit (see mineralogical results in Section 3.3).

Figure 3.14: Average dissolved sulfate, DI leach extract testing



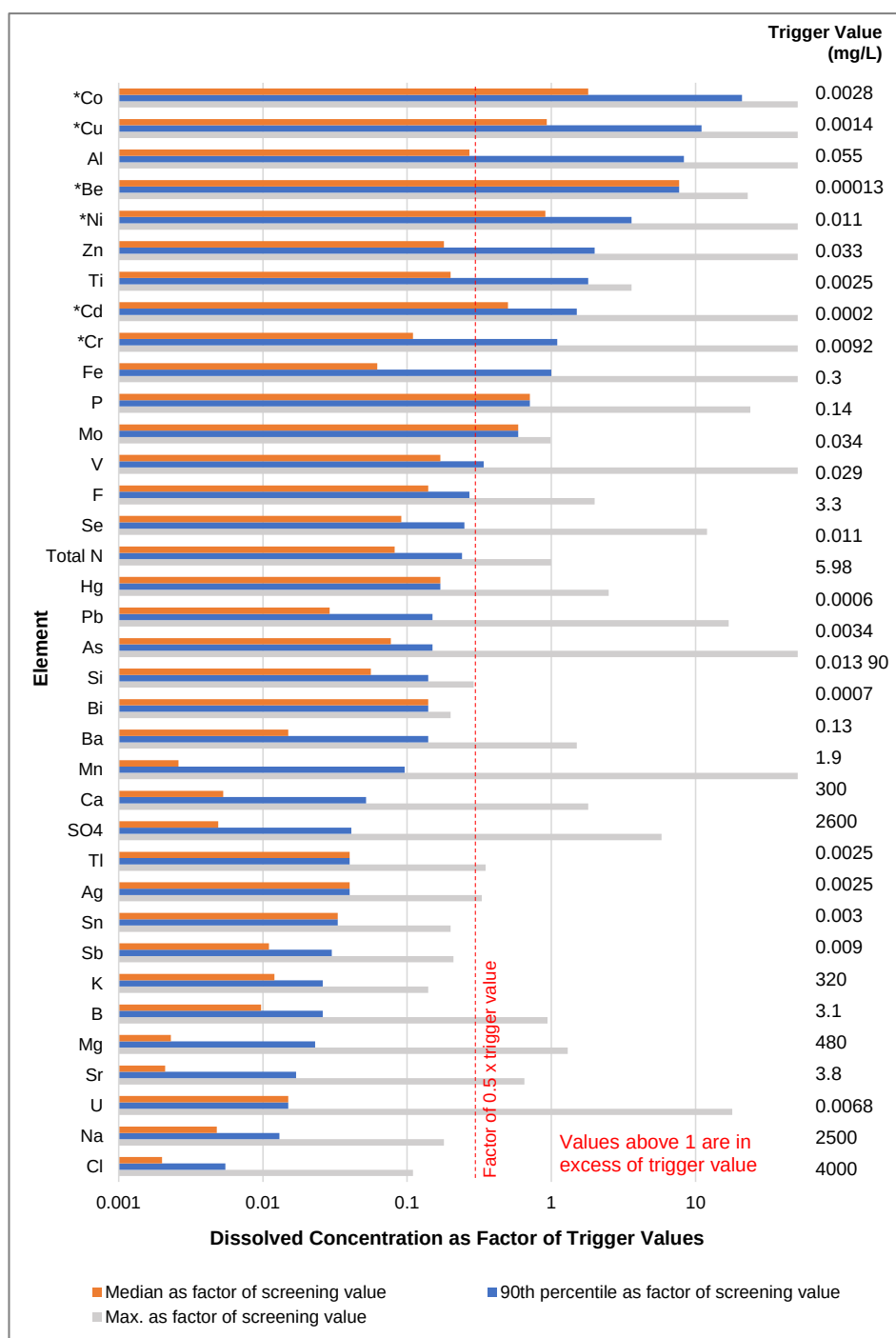
Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009 LEAF and Leach Data_RevB.xlsx\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009 LEAF and Leach Data_RevB.xlsx])

There is evidence that contact ratio influences the results where sample numbers are comparative between the test methods. In the case of the NAM and JER results, the highest sulfate concentrations were observed for the 2:1 leach extraction (Mine Earth). When compared to the other contact ratios adopted, generally the concentrations decrease with increasing dilution (contact ratio). Therefore, contact ratio is an important factor in determining solute concentrations in the contact water, especially where the soluble mineral quantity is finite. At the relatively high contact ratios in laboratory tests, it is possible that such minerals may dissolve completely, and the resultant dissolved concentrations of associated constituents are proportional to the mass available for dissolution. In such cases, the dissolved concentrations would be highest for the lower contact ratios, i.e. less volume of water added in the tests (the influence of contact ratio is discussed further in Section 3.5.4). In contrast, where solute concentrations are controlled by solubility constraints across all contact ratios, no material difference in the solute concentration would be noted between the different test methods.

In an effort to screen the available data and highlight elements that could be of greater concern with respect to site conditions, the median and 90th percentile dissolved concentrations in the DI leach extract dataset (2:1 and 5:1 contact ratios only to avoid including the more dilute leachate solutions in the analysis) were compared to draft site-specific investigation trigger values (Hanroy, 2024). Outcomes are presented in Figure 3.15 and indicate that leaching of Al, Cd, Co,

Cu, Cr, Fe, Mo, Ni, P, Ti and Zn could be considered to be of concern. For these elements, either the 90th percentile concentrations exceeded trigger values (i.e. exceeded a ratio of 1) or the median concentrations were half of a given trigger value (i.e. median values exceeded a ratio of 0.5). It is emphasised that this is a screening exercise, and – as mentioned earlier – the DI extract data are not necessarily reliable indicators of the dissolved concentrations that would be expected in seepage from WRDs and stockpiles (as indicated by the inverse proportionality of contact ratio with solute concentrations; field contact ratios would be much lower than the lowest ratio (1:2) used in the tests, and solute concentrations could be higher under field conditions). Furthermore, for some of the elements noted to be of potential concern (as identified by an asterisk in the plot), detection limits were close to or greater than the relevant trigger values. The leachability, as a percentage of the initial elemental content of the solid, is discussed below.

Figure 3.15: Median and 90th percentile dissolved concentrations in DI leachates expressed as a ratio of the corresponding site trigger value



Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009 LEAF and Leach Data_RevC.xlsx\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009 LEAF and Leach Data_RevC.xlsx])

Notes:

- ¹ Median, maximum and 90th percentiles calculated from entire DI leach extract data (i.e. multiple contact ratios and range of pH conditions represented). Note the x-axis is truncated to 50 to improve clarity.
- ² Elements marked with an asterisk denote where detection limits (greater among multiple datasets) are close to or greater than the respective trigger value.

Where possible, mass leached (as a percentage of the elemental concentration of the solid) was calculated for the elements identified above as of concern, as well as elements identified as enriched (As, Ba, Hg, Mn, Pb, Sb and Se) in at least one geochemical sample or drill assay (Section 3.2.2).

Results are summarised in Table 3.10 and indicate the following:

- JER units: Samples broadly had the highest solute release, and significant (>10%) leaching was noted for As, Cd, Co, Cu, Fe, Mn, Ni, Se and Zn. These elevated values relate to two PAF samples that generated acidic leachates (pH 2.2–2.3). Leachability of these elements was minor in near-neutral pH leachates.
- NAM unit: One sample yielded an acidic DI leachate with significant proportions of Co, Ni and Zn (MD8226) leached, and one sample with a circumneutral extract (MDRC1415_92-98) leached Se at a significant concentration (considered to be an outlier with respect to the overall dataset). Leachability under near-neutral conditions was otherwise limited in NAM samples.
- Cover sequence: Samples representing cover sequence materials (CzD2, CzD3) did not typically leach solutes at significant concentrations. An isolated instance of moderate Co release (13%) was noted for a CzD2 sample (MDRC1572_60-66) under circumneutral conditions.
- NEW and WA units: Results are not presented for the NEW and the WA stratigraphic groups, given that only one or two samples were tested, and the results are not considered representative of these units.

While only a low fraction of the initial mass (not to be confused with concentrations) for several elements were leached across all stratigraphic groups, including Al, Ba, Cr, Mo, Pb, Sb and Ti (i.e. <10% of the mass present was leached), the total mass released will be function of the contact ratio and applicable solubility limits. Consequently, these elements are inferred to be present as relatively insoluble mineral forms that are not readily leachable under typically circumneutral, non-saline conditions. It is noted, however, that leachable concentrations may still be significant (as noted above) and in particular under acidic conditions for PAF materials (e.g. Al). The leachability results suggest that, for some elements noted as of potential concern in relation to site-specific investigation trigger values (Al, Cr, Mo and Ti), long-term solute release may be limited by their mineralogical associations, changes in physico-chemical conditions (e.g. pH, contact ratio, salinity) and ongoing reactions (e.g. oxidation) that may contribute to increased solute release. Leaching as a function of pH, contact ratio and salinity is discussed in the subsections below. Kinetic test results indicating potential effects of ongoing reactions are discussed in Section 3.5.3, and mineralogical controls on leaching are discussed in 3.5.4..

As a whole, the DI extraction test results suggest that the potential for leaching of solutes of concern is comparatively low unless acidic conditions occur.

Table 3.10: Statistical summary of fraction leached (as a percentage of the whole-rock acid digest content) in DI extracts

Stratigraphy	Statistic	Al	As	Ba	Cd	Co	Cr	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Ti	Zn
		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
CzD2	n	10	1	2	2	6	6	11	13	11	1	4	2	3	1	5	6
	Min	<0.01	<0.01	<0.01	0.77	0.26	0.01	<0.01	<0.01	<0.01	0.013	0.3	0.01	0.022	4	<0.01	<0.01
	Median	-	-	-	-	0.84	0.026	0.037	<0.01	<0.01	-	0.54	-	0.25	-	<0.01	0.069
	P90	-	-	-	-	-	-	0.52	<0.01	0.016	-	-	-	-	-	-	-
	Max	<0.01	<0.01	0.021	0.83	13	0.052	0.69	<0.01	0.02	0.013	1	0.039	0.56	4	<0.01	0.89
CzD3	n	52	19	35	1	23	5	51	49	46	10	7	15	26	6	41	9
	Min	<0.01	<0.01	<0.01	0.032	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	<0.01	0.015	0.064	<0.01	0.025
	Median	<0.01	0.042	0.033	-	0.27	<0.01	0.016	<0.01	<0.01	0.16	0.83	<0.01	0.17	1	<0.01	0.053
	P90	0.026	0.11	0.063	-	4.2	-	0.13	<0.01	0.06	1.8	-	0.019	0.29	-	0.012	-
	Max	0.039	0.6	0.12	0.032	6.7	<0.01	1.8	<0.01	0.13	6.7	1.7	0.048	0.49	2.8	0.023	0.23
JER	n	4	2	4	3	4	2	6	3	6	2	4	2	3	6	0	6
	Min	<0.01	10	<0.01	1.9	0.34	1.9	0.047	<0.01	<0.01	0.16	0.22	0.079	0.028	1	-	<0.01
	Median	0.8	-	0.11	8.1	35	-	0.31	6.6	0.17	-	18	-	0.075	2.9	-	0.52
	Max	2.6	16	1.5	32	69	4.3	69	16	58	0.68	40	0.16	0.48	11	-	54
MAC	n	8	1	5	3	7	3	10	8	12	1	3	1	1	1	3	5
	Min	<0.01	<0.01	<0.01	1.7	<0.01	0.019	0.011	<0.01	<0.01	0.021	0.42	0.58	0.33	0.048	<0.01	0.038
	Median	<0.01	-	0.16	1.8	1.1	0.026	0.036	<0.01	<0.01	-	0.63	-	-	-	<0.01	0.41
	P90	<0.01	-	-	-	-	-	0.45	-	0.013	-	-	-	-	-	-	-
	Max	<0.01	<0.01	0.8	5	4.7	0.052	0.74	<0.01	0.016	0.021	1.4	0.58	0.33	0.048	<0.01	1.3
NAM	n	14	10	11	4	17	8	22	9	32	8	9	7	9	15	0	17
	Min	<0.01	<0.01	0.05	0.04	<0.01	0.011	<0.01	<0.01	<0.01	0.025	0.081	<0.01	<0.01	0.04	-	0.011
	Median	<0.01	<0.01	0.13	0.12	0.092	0.05	0.02	<0.01	<0.01	0.12	0.24	0.033	0.018	1.7	-	0.027
	P90	<0.01	0.027	0.7	-	4.7	-	0.13	-	0.15	-	-	-	-	7.1	-	0.88
	Max	0.33	0.072	1.2	7.7	28	0.15	0.9	0.24	2	0.96	26	0.56	0.67	15	-	42

Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009 LEAF and Leach Data_RevC.xlsx\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009 LEAF and Leach Data_RevC.xlsx])

Notes:

- ¹ Leachability was calculated where leachate concentrations exceeded the analytical limit of reporting (LOR/LOD), and where corresponding multi-element composition data were available. Percentage leached was not calculated for the high contact ratio DI extract data (MWH, 2013) as corresponding compositional results were not reported.
- ² Values exceeding 10% are shaded.
- ³ Results for NEW and WA stratigraphic groups are not presented, given that only 1–2 samples provided the requisite data.
- ⁴ P90: 90th percentile value.

Leaching as a function of pH

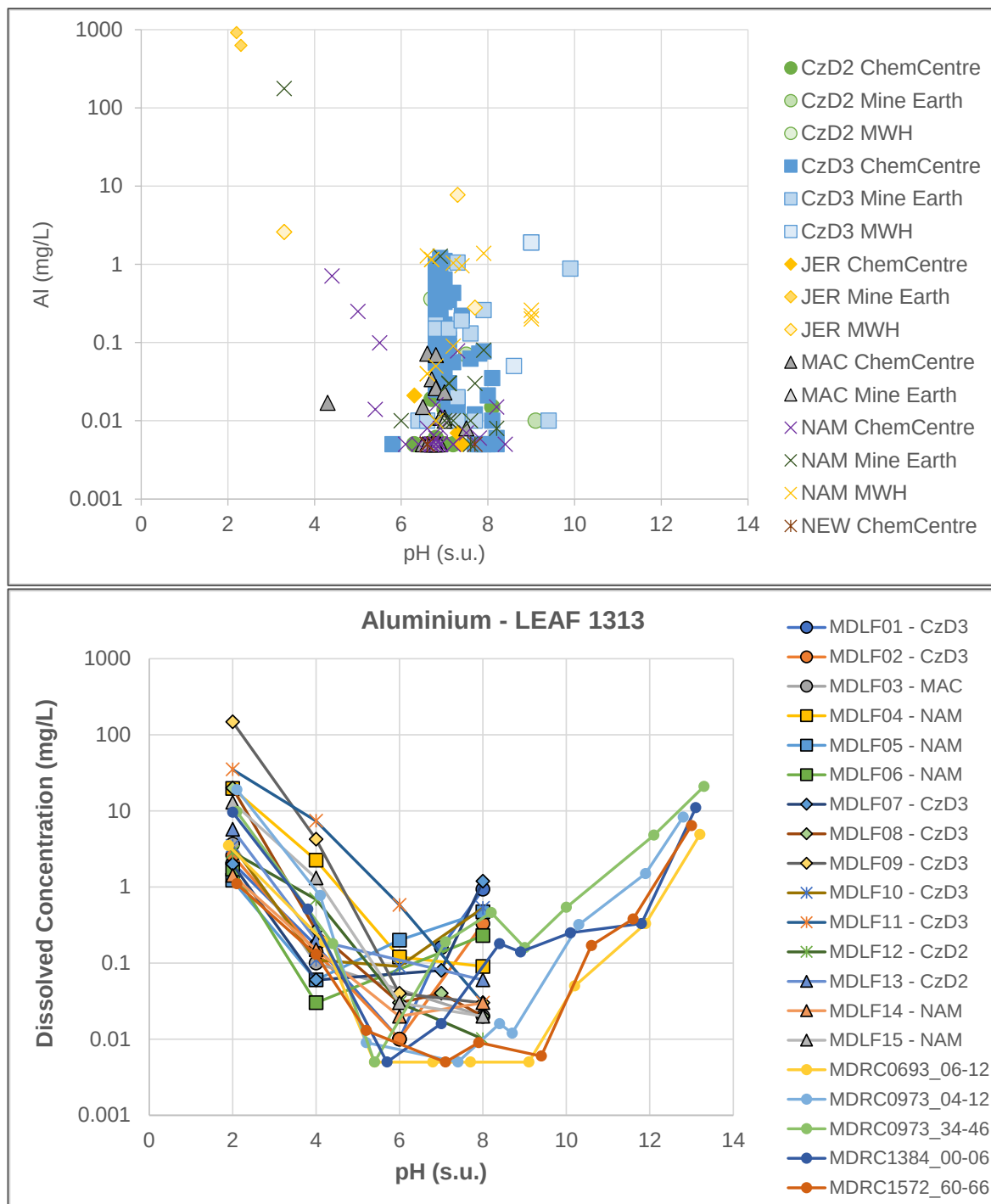
Solution pH is often a primary influence on the leachability of contaminants. For many elements, leachability is controlled by (i) the solubility of host mineral phases, (ii) the reactivity of the host mineral phases with the leachant (e.g. carbonate minerals reacting with free acid), or (iii) the nature of interactions with mineral surfaces, i.e. surface adsorption/desorption. Solubility and sorption are both strongly influenced by solution pH. Examining solute concentrations as a function of pH assists in identifying solubility controlling phases.

Appendix A.4 presents outcomes from the DI leach extraction testing and the LEAF 1313 assessments; a series of figures are presented showing dissolved concentrations of some key elements plotted as a function of pH.

The following is noted:

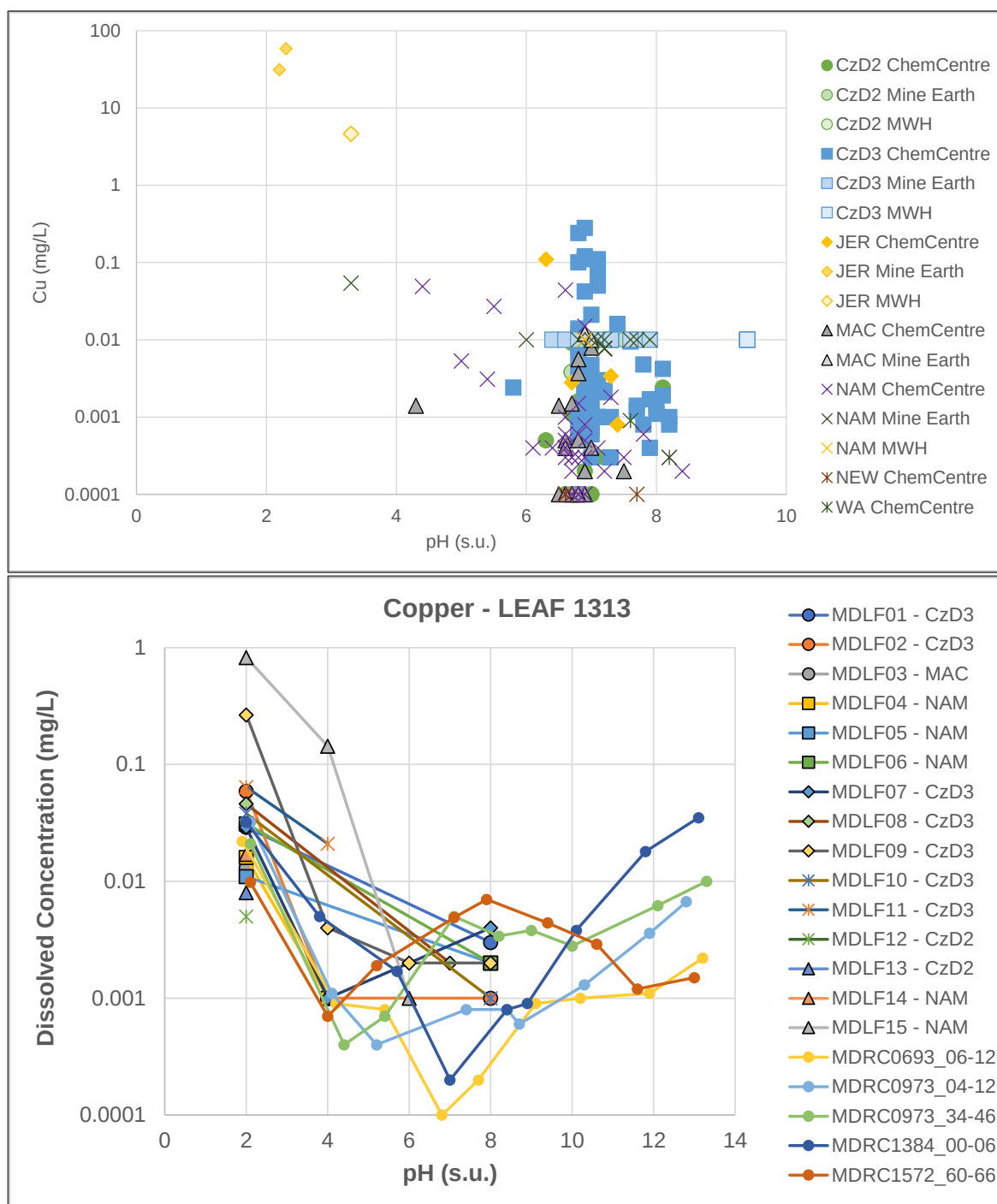
- Several elements exhibit amphoteric behaviour when subjected to leaching over a broad pH range (pH 2–13), whereby dissolved concentrations increase with increasingly acidic conditions (decreasing pH) and with increasing alkaline conditions (increasing pH) either side of neutral pH. The LEAF 1313 test results for Al (Figure 3.16) and Cu (Figure 3.17) illustrate this behaviour. Arsenic is shown to be most soluble above pH 10 (Appendix A.5). Arsenic concentrations generally were below 0.01 mg/L for pH circum-neutral pH values and reached a maximum of 0.21 mg/L at a pH of 13.1 (i.e. conditions unlikely to occur under field conditions).
- Most elements have the highest dissolved concentrations under acidic conditions, particularly below pH 6. This is clearly observed for Co (Figure 3.18) but evident for many elements including Al and Cu (Figure 3.16 and Figure 3.17, respectively). Such trends are consistent with the expected higher solubility and/or weaker sorption of many elements under acidic conditions.
- Dissolved concentrations of several elements in DI leachates for cover sequence materials (CzD2 and CzD3) vary by multiple orders of magnitude within a relatively narrow pH range (pH 6–9) as shown for Cu and Co (Figure 3.19). This suggests that, in addition to pH, other factors are affecting dissolved concentrations, including the abundance of the soluble phases present in the samples (i.e. insufficient mass is available to reach equilibrium), composition of the leachate (i.e. presence/absence of potential complexing ions), and possibly the presence of colloids that passed through the filter medium (most evident for measured elevated Al concentrations in circum-neutral pH conditions).

Figure 3.16: Dissolved aluminium concentration as a function of pH – DI leach extracts (top) and LEAF 1313 (bottom)



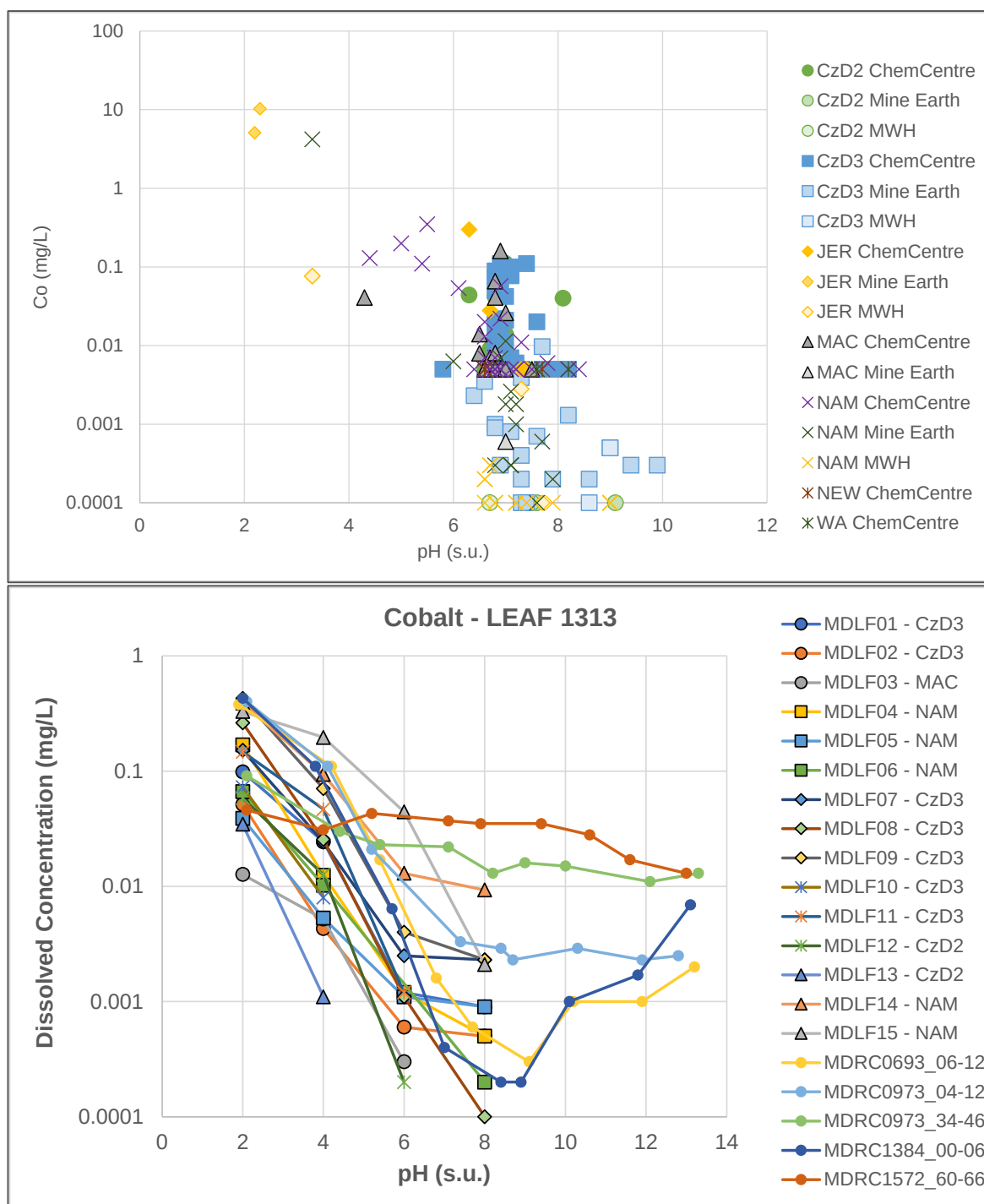
Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009 LEAF and Leach Data_RevB.xlsx\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009 LEAF and Leach Data_RevB.xlsx])

Figure 3.17: Dissolved copper concentration as a function of pH – DI leach extracts (top) and LEAF 1313 (bottom)



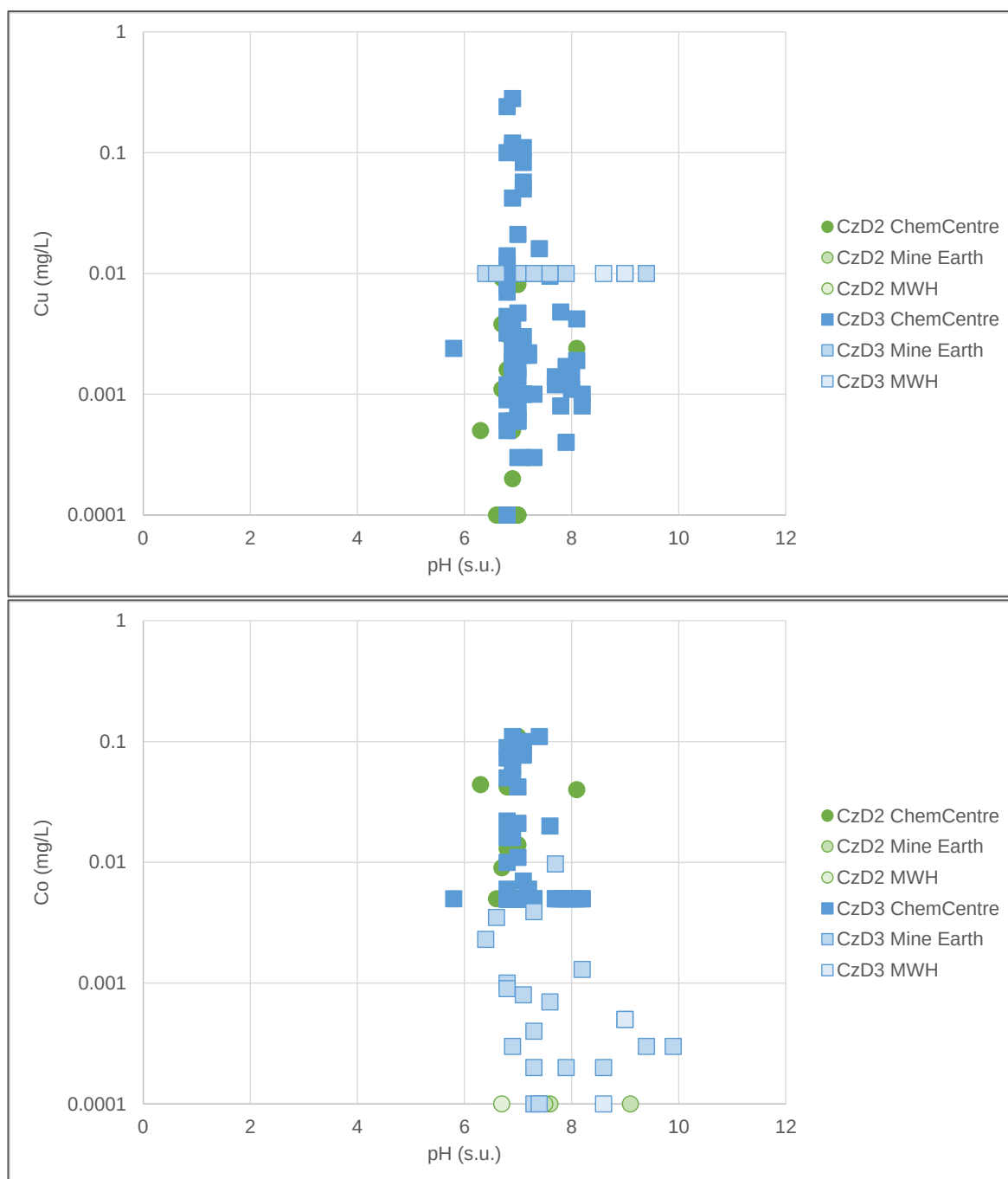
Source: [https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/\[HCK009 LEAF and Leach Data_RevB.xlsx\]](https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/[HCK009 LEAF and Leach Data_RevB.xlsx])

Figure 3.18: Dissolved cobalt concentration as a function of pH – DI leach extracts (top) and LEAF 1313 (bottom)



Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009 LEAF and Leach Data_RevB.xlsx\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009 LEAF and Leach Data_RevB.xlsx])

Figure 3.19: Dissolved DI leach extract concentrations for CzD2 and CzD3 samples as a function of pH – copper (top) and cobalt (bottom)



Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009 LEAF and Leach Data_RevB.xlsx\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009 LEAF and Leach Data_RevB.xlsx])

Notes: Some concentrations for copper are clustered at 0.01 mg/L, which reflects the detection limit for these data (CzD3).

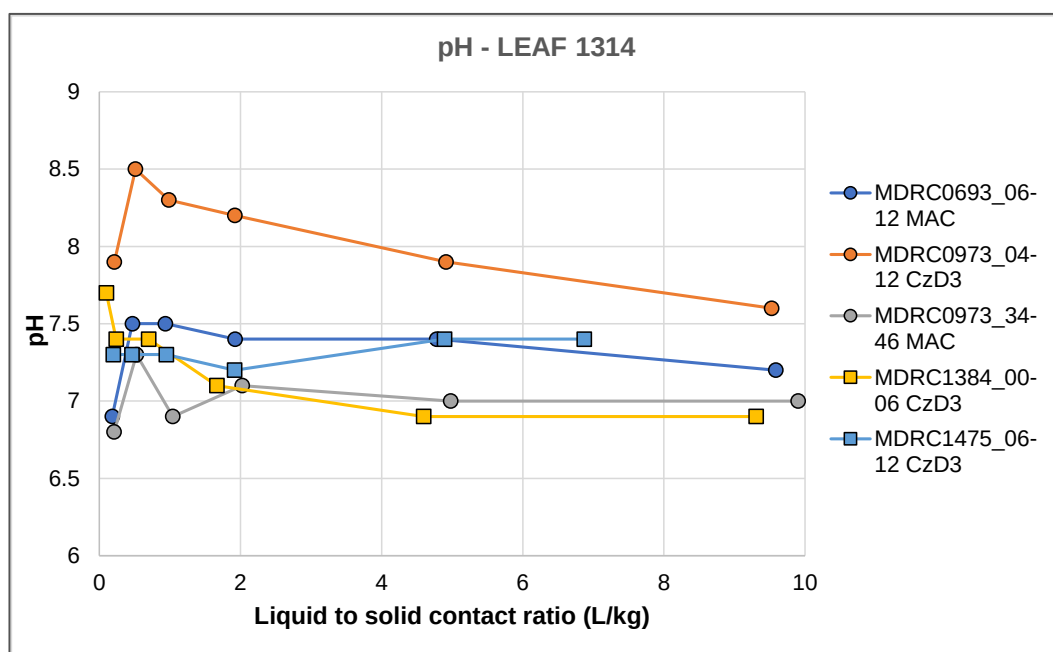
Leaching as a function of contact ratio

Key controls on contaminant leaching are (i) release from sparingly soluble solutes to reach equilibrium (referred to as 'solubility control'), or (ii) flushing of a finite mass of readily soluble salt without reaching equilibrated conditions (referred to as 'source control'). A third outcome is also possible, where the dissolution of the phases is kinetically controlled and equilibrium is not reached within the contact time available (i.e. the rate of release is not rapid enough to reach equilibrium within the time that the phase is contacted), or the rate of product generation is controlled by preceding reaction (such as oxidation); such an outcome is also referred to as a 'source controlled' process.

Where the leachable mass of an element is very low, or where an element is extremely soluble, dissolved concentrations reflect the finite mass of element present in the solid. In such cases, other primary factors (e.g. pH, leachate composition, etc.) may have limited influence on dissolved concentrations. Instead, the dissolved concentrations are dictated by the L:S ratio; the lower the L:S ratio (i.e. lower volume of contact water), the higher the dissolved concentration. In the LEAF 1314 test, the contact ratio is changed dynamically by displacing the pore water through the sample contained in the column (as opposed to a single contact ratio used in standard leach extraction tests). Where the leachable mass of an element is controlled by the solubility of mineral phases and equilibrium is reached, the displacement contact L:S ratio would not influence the dissolved concentrations unless all available mass is completely dissolved and displaced from the sample.

As shown in the graphs in Appendix A.5 the highest dissolved concentrations are typically at the lowest contact ratio. As the test progresses to higher cumulative displacement contact ratio L:S, the dissolved concentrations decrease – often to low levels, close to or below detection limits. This trend is typical of flushing of readily soluble salt content from the samples.

Figure 3.20: Leachate pH as a function of contact ratio – LEAF 1314



Source: [https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/\[HCK009 LEAF and Leach Data_RevB.xlsx\]](https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/[HCK009 LEAF and Leach Data_RevB.xlsx])

It is noted that leachate pH did not vary significantly during the LEAF 1314 tests (Figure 3.20); variation was generally within 0.5 of a pH unit, and all tests remained circumneutral (pH 6.5–8.5). It is not expected, therefore, that pH variation during the test would have unduly influenced leaching behaviour. Plots of the cumulative mass leached as a function of displacement contact ratio L:S (using a logarithmic scale) can be used to determine if the data are consistent with a solubility or source control. A slope of unity is indicative of a solubility control.

Plots for a range of elements considered to have the highest potential for contaminant leaching and impacts to environmental values (see Figure 3.15) are shown in Appendix A.5. The results for several elements (Ag, Be, Bi, Cd, Hg, Se, Sn, Th, Ti, Tl and U) were typically below detection limits; an assessment of the dissolution of any associated phases could therefore not be undertaken for these elements. Most of these elements would not be expected to be soluble at significant concentrations at circum-neutral pH conditions.

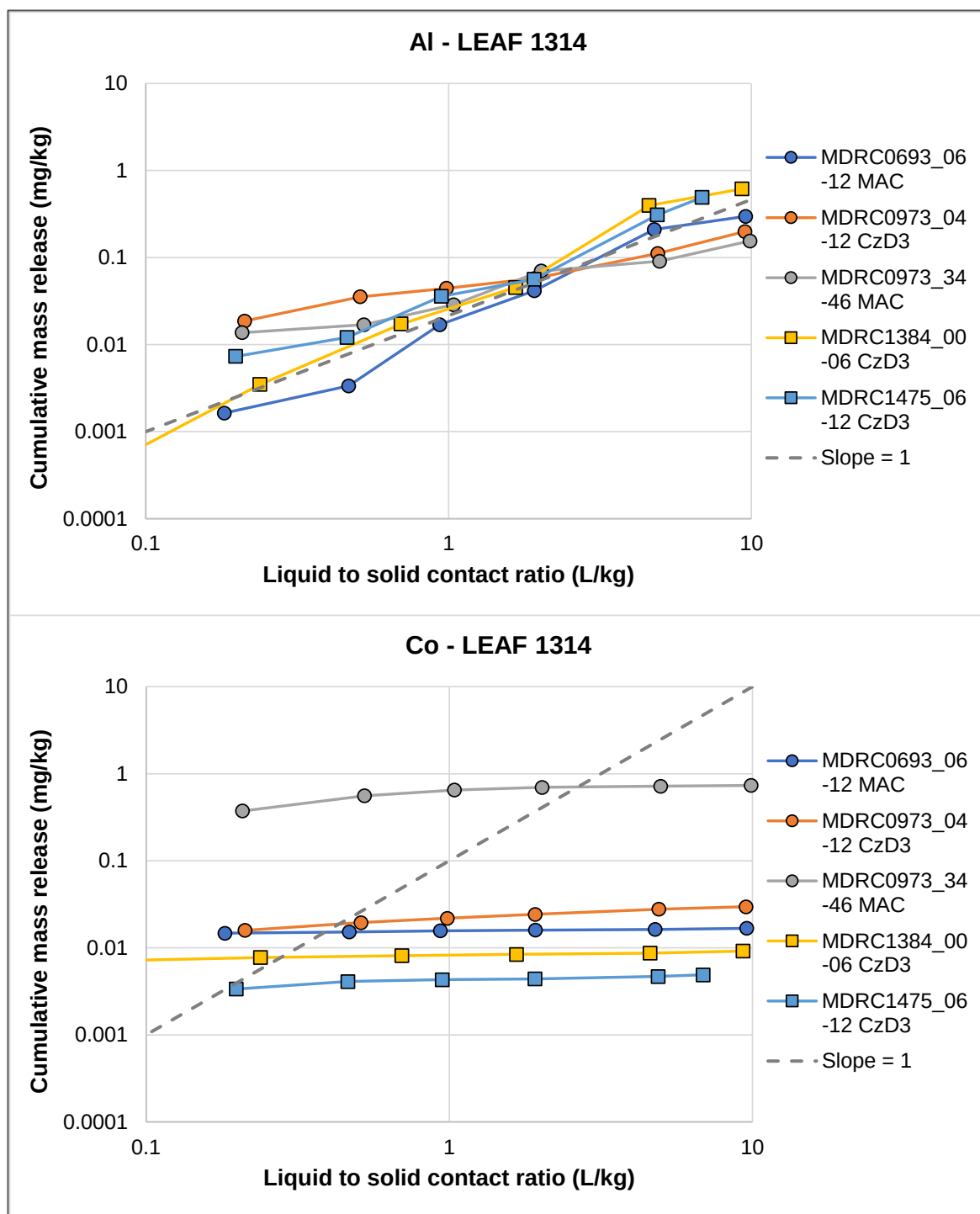
Results were variable for different stratigraphical units across the range of solutes released. Solubility controlled release was indicated for some samples with respect to Al (as illustrated in Figure 3.21) and Fe. Solubility controlled release of Al and Fe is discussed in Section 3.5.4.

As noted before, As release is minimal at near-neutral pH and only under highly alkaline conditions do As concentrations show an increase. Two of the samples from CzD3 unit appears to show trends consistent with solubility controlled release, whereas the results for the remaining samples are inconclusive. At circum-neutral pH, dissolved As concentrations are expected to be of order 0.01 mg/L or less, irrespective of displacement contact ratio.

Washout behaviour (i.e. source control) was observed for: Ba, Co (as illustrated in Figure 3.21), Cu, Mn, Ni and Zn. In most cases, the initial leachable mass would be expected to flush readily from mined materials. Some of these elements are, however, associated with sulfides (e.g. Co, Cu, Ni, and Zn) and carbonates (e.g. Mn) and may represent long-term ongoing contaminant sources under oxidising conditions where sulfide minerals are oxidised, and carbonate minerals are dissolved in response to acid generation.

Results for some elements (Mo and Cr) were less conclusive and suggest variable controls on leaching depending on the sample. However, the low leachability of these elements in DI extracts (Section 3.5.2) suggests that contact water concentrations are unlikely to be significantly elevated unless acidic conditions should develop.

Figure 3.21: Examples of solubility (top) and source control (bottom) leaching behaviour



Source: [https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/\[HCK009 LEAF and Leach Data_RevB.xlsx\]](https://srk.sharepoint.com/sites/AUHC009/Shared Documents/General/Geochemical data/[HCK009 LEAF and Leach Data_RevB.xlsx])

Influence of salinity

Fifteen samples were submitted for leach testing using 2 g/L NaCl as the leachant. The objective of the testing is to determine the influence of salinity on solute leachability.

The results from saline extract tests have been compared to the results from equivalent DI leach extracts. The following is noted:

- Final pH in the saline leaches is near-neutral, as was the case in the equivalent DI leach extracts.
- Dissolved concentrations of Ca, Mg and K are higher in the saline extracts than in the DI extracts – by factors of between 2 and 10. This is interpreted as evidence of ion exchange, i.e. higher concentrations of Na⁺ displacing K⁺, Ca²⁺ and Mg²⁺ ions from exchange sites on the solids.
- For trace elements, proximity to analytical detection limits precluded comparisons for many elements. In the case of those elements that were above detection limits, the results were as follows:
 - Ba and Sr concentrations showed trends similar to those observed for Ca, Mg and K and may also be participating in ion exchange reactions.
 - Concentrations of As showed a trend opposite to that of Ba and Sr, i.e. lower concentrations at higher salinity values. The reason for this trend is not clear at present.
 - Concentrations of some elements, such as F, showed trends that were both proportional and inversely correlated to salinity – indicating that leaching controls for F might include a combination of ion exchange (for Cl⁻) and/or mineral solubility (CaF₂ – fluoride – inversely influenced by dissolved calcium concentration).

Leaching with synthetic groundwater

Five samples were submitted for leach testing using synthetic groundwater as the leachant. The outcomes of these tests could apply to waste rock backfill to pits placed below the water table.

The synthetic groundwater was prepared in the laboratory by mixing of a number of chemical reagents to prepare a solution with major ion chemistry analogous to groundwater encountered at the Project site. The synthetic groundwater composition is presented in Table 3.11.

Table 3.11: Synthetic groundwater composition

Parameter	Units	Target range ¹			Prepared solution
		Min.	Optimum	Max.	
Alkalinity	mg/L CaCO ₃	31	303	390	141
EC	μS/cm	192	6,454	12,000	6,510
pH	-	7	7.5	5.9	8
Ca	mg/L	7.1	134	190	131
Mg	mg/L	9.1	160	260	150
Na	mg/L	20	1,042	2,100	1,050
K	mg/L	0.05	113	200	121
Cl	mg/L	28	1,711	3,400	1,670
SO ₄	mg/L	0.5	907	1,600	851

Notes:

¹ Target ranges were guided by HPPL and are based on an undisturbed groundwater composition.

The samples selected for testing were those suspected of containing alunite as indicated by the DI tests, i.e. the DI extracts were mildly acidic and non-saline. The objective of the sample selection was to assess the neutralising effect of groundwater-sourced alkalinity on the alunite-sourced acidity.

The results from the synthetic groundwater extraction tests have been compared to results from equivalent DI leachates (both sets of tests were undertaken at a contact ratio of 5:1). Selected results are presented in Figure 3.22.

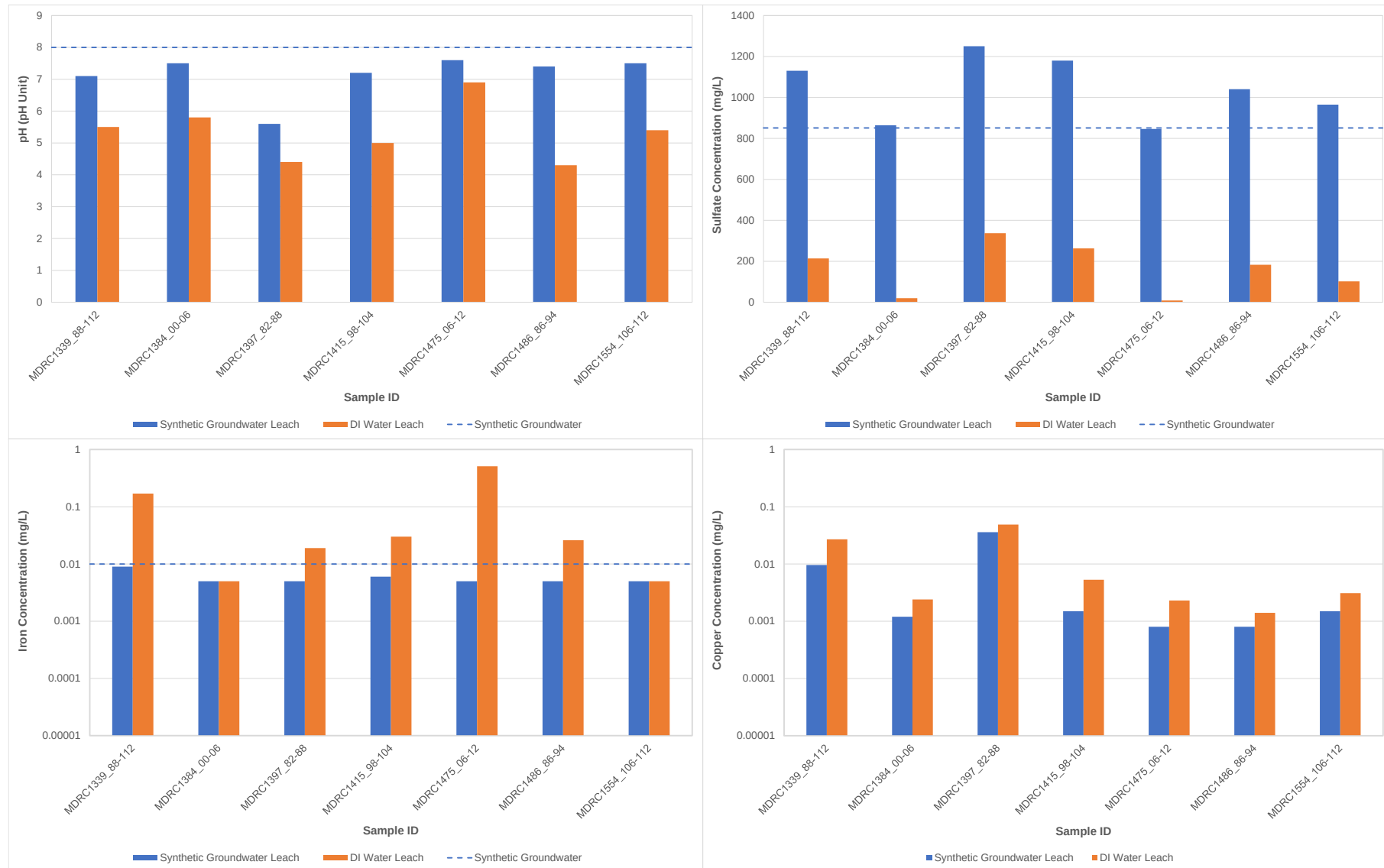
The following is noted:

- The final pH in four of the five synthetic groundwater tests is near-neutral, compared to mildly acidic in the DI leach extracts (pH 4 to 6).
- The final pH in the fifth test, while still mildly acidic (pH 5.6), is significantly higher than in the DI leach extract test (pH 4.4).

The end-point pH will depend on the actual mass of alunite present and the contact ratio – a higher contact ratio will contribute more alkalinity. These outcomes suggest that the alkalinity present in groundwater will neutralise acidity released by the alunite. A key to understanding in-field outcomes will be understanding the distribution and quantities of alunite that may be present in the backfill and verifying the outcome at a contact ratio equivalent to porewater passage through the backfill.

Further consideration of the plots in Figure 3.22 shows that results for other parameters are either controlled by small, finite quantities of leachable mass present in the samples (e.g. sulfate), or by pH-dependent solubility and/or sorption, i.e. dissolved concentrations of Fe and Cu are higher in the mildly acidic conditions of the DI leach extracts when compared to the synthetic groundwater extracts. These results do not consider ongoing sources such as that represented by sulfide mineral oxidation and actual field conditions (contact ratios) that will be encountered.

Figure 3.22: Comparison of outcomes from DI leach extracts and the synthetic groundwater extract – selected parameters



Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009 LEAF and Leach Data_RevB.xlsx\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009 LEAF and Leach Data_RevB.xlsx])

3.5.3 Kinetic testing

Four samples were selected for free-draining kinetic column tests, based on the procedure described in AMIRA (2002). Briefly, 0.9 kg (dry weight) of crushed rock (<10 mm) was placed on a mesh in a free-draining container (Buchner funnel, approximately 170 mm diameter). Samples were moistened weekly to avoid moisture-limited conditions, and were subjected to a monthly leaching cycle with a known volume of DI water (0.4 L/kg). The samples were maintained at an approximately constant temperature under heat lamps. Leachates were collected and analysed for pH, major anions/cations and a suite of metals/metalloids and nutrients. Three tests were terminated at 48 weeks once it was observed that stable leaching conditions had been attained. The fourth test is ongoing as the leachate trends have not yet stabilised.

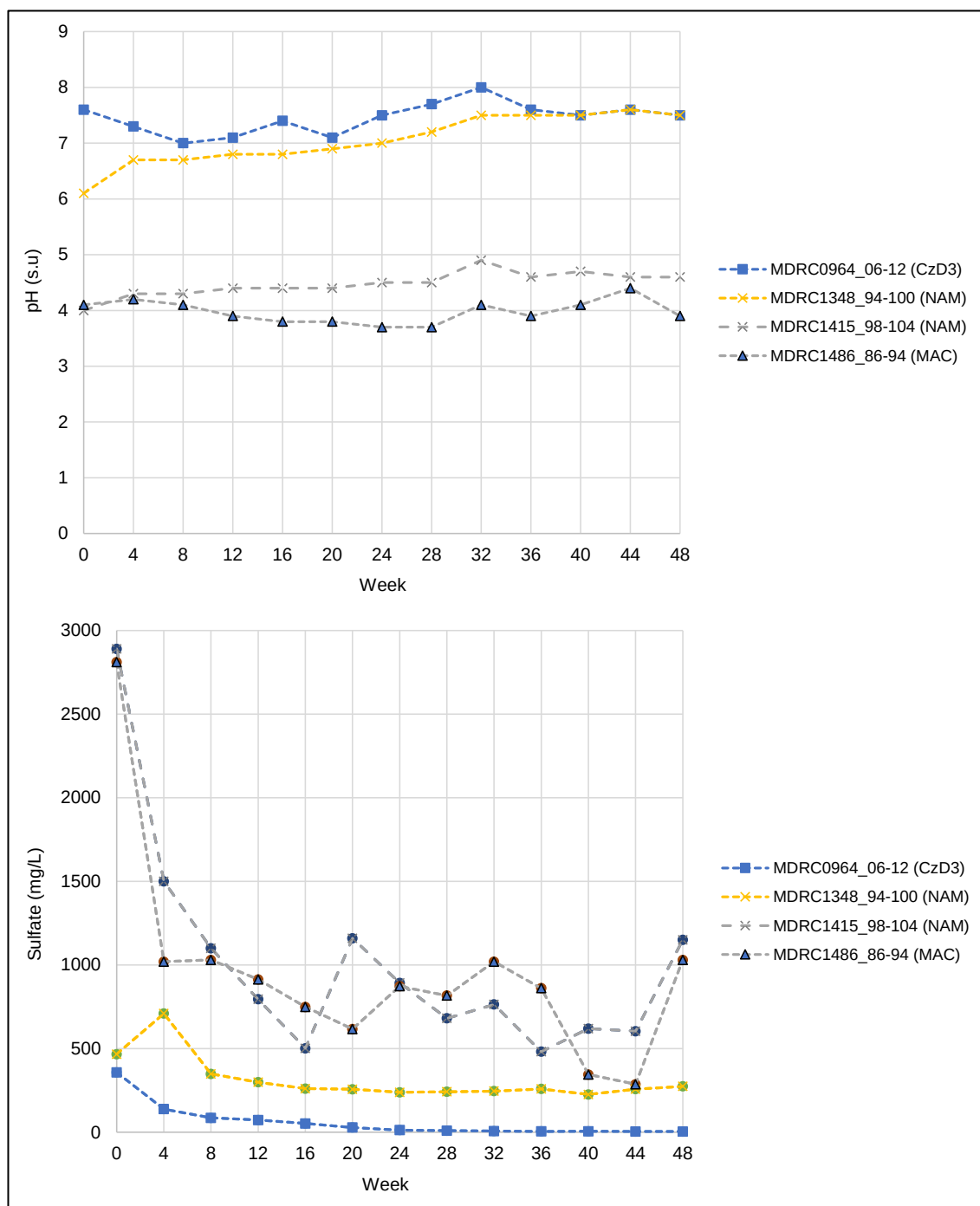
Leachate pH and dissolved sulfate concentrations are shown in Figure 3.23 as a function of time. Table 3.12 presents average calculated solute release rates.

For the two PAF (AMIRA) samples, onset of acidic conditions was immediate and sustained during the test (pH 3.7–4.6). Rapid onset of acidic conditions is consistent with their low ANC (6 kg H₂SO₄/t) and the observation that siderite, which does not provide effective ANC (Section 3.4.2), is the dominant carbonate mineral in these samples. Relative to UC(NAF) samples, average solute release rates were elevated for Al, Co, Cu, Li, Mn, Ni, Se, Sr and Zn.

Leachates from MDRC1348_94-100 (NAM), originally classified as UC(NAF), were circumneutral, although average sulfate release was significant. Molar SO₄:(Ca+Mg) ratios were at approximate parity (1:1), which is consistent with acid neutralisation by Ca and Mg-bearing carbonate minerals. Siderite was the only carbonate mineral detected in the sample and ABCC testing (Section 3.4.2) indicated that the effective ANC of the sample was negligible (<1 kg H₂SO₄/t). Using steady-state assumptions, ANC would be consumed prior to oxidisable sulfur is depleted; therefore, the material should be considered PAF. Average solute release rates presented for initial circumneutral conditions may not be representative of long-term solute release rates, since these would be expected to increase under more acidic conditions.

Sample MDRC0964_06-12 (CzD3) is inferred to represent alunite containing cover sequence (alluvial) material based on sulfur speciation (0.18 wt% total S, 0.02 wt% S SO₄-S, <0.01 wt% CRS). Leachate pH is circumneutral pH (7–8) and stable sulfate release rates are very low, consistent with the low solubility of alunite. Release of acidity is therefore inferred to be low, and near-neutral conditions are expected to be maintained despite the low ANC of the sample. The kinetic test results indicate the sample is NAF, corroborating the initial UC(NAF) AMIRA classification. Dissolved concentrations of most analytes have decreased during the test, with very low to negligible average release rates for most elements. Notable exceptions were Al, As, Cr and V, which show increasing trends. Average release rates based on the results to date suggest release of As, Cr, F and V is higher or comparable to the PAF samples. Silicon release from this sample is also relatively high (compared to the acidic PAF samples), which may indicate the presence of a relatively reactive silicate-based mineral phase; this phase may be contributing to the release of some of these elements.

Figure 3.23: AMIRA column leachate pH and sulfate as a function of time



Source: https://srk.sharepoint.com/sites/AUHC009/Shared%20Documents/General/2.%20Geochemical%20data/HCK009_LEAF%20and%20Leach%20Data_RevC.xlsb?web=1

Table 3.12: Summary of steady state release rates

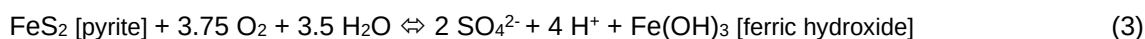
Sample ID	Unit	MDRC0964_06-12	MDRC1348_94-100	MDRC1415_98-104	MDRC1486_86-94
Stratigraphy		CzD3	NAM	NAM	MAC
AMIRA Class		UC(NAF)	UC(NAF)	PAF	PAF
Stable Period	Weeks	32–48 (test ongoing)	32–48	12–48	4–48
Average pH	s.u.	7.5	7.5	4.6	3.9
Alkalinity	mg/kg/week	1.6	2.4	0.094	0.09
SO ₄	mg/kg/week	0.35	24	71	67
Cl	mg/kg/week	0.068	0.55	0.43	0.39
F	mg/kg/week	0.1	0.02	0.031	0.041
Ca	mg/kg/week	0.029	1	7.2	7.5
Mg	mg/kg/week	0.031	5.9	0.27	4.7
K	mg/kg/week	0.19	0.048	<0.0001	1.8
Na	mg/kg/week	0.8	0.026	<0.0001	0.66
Al	mg/kg/week	0.0068	<0.0001	0.035	0.21
As	mg/kg/week	0.0042	<0.0001	<0.0001	<0.0001
B	mg/kg/week	0.012	<0.0001	0.003	0.014
Ba	mg/kg/week	<0.0001	<0.0001	0.001	0.0013
Be	mg/kg/week	<0.0001	<0.0001	<0.0001	0.0017
Co	mg/kg/week	<0.0001	<0.0001	0.018	0.043
Cr	mg/kg/week	0.0017	<0.0001	<0.0001	<0.0001
Cu	mg/kg/week	<0.0001	<0.0001	<0.0001	0.014
Fe	mg/kg/week	0.0047	<0.0001	0.013	0.0058
Li	mg/kg/week	<0.0001	<0.0001	0.0017	0.017
Mn	mg/kg/week	0.011	0.012	16	14
N	mg/kg/week	0.044	0.026	0.014	0.024
Ni	mg/kg/week	<0.0001	<0.0001	0.084	0.2
Se	mg/kg/week	<0.0001	<0.0001	0.0022	<0.0001
Si	mg/kg/week	1.7	0.0062	0.46	0.96
Sr	mg/kg/week	<0.0001	<0.0001	0.011	0.054
V	mg/kg/week	0.0024	<0.0001	<0.0001	<0.0001
Zn	mg/kg/week	<0.0001	<0.0001	0.042	0.68

Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009 LEAF and Leach Data_RevC.xlsx\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009 LEAF and Leach Data_RevC.xlsx])

Notes:

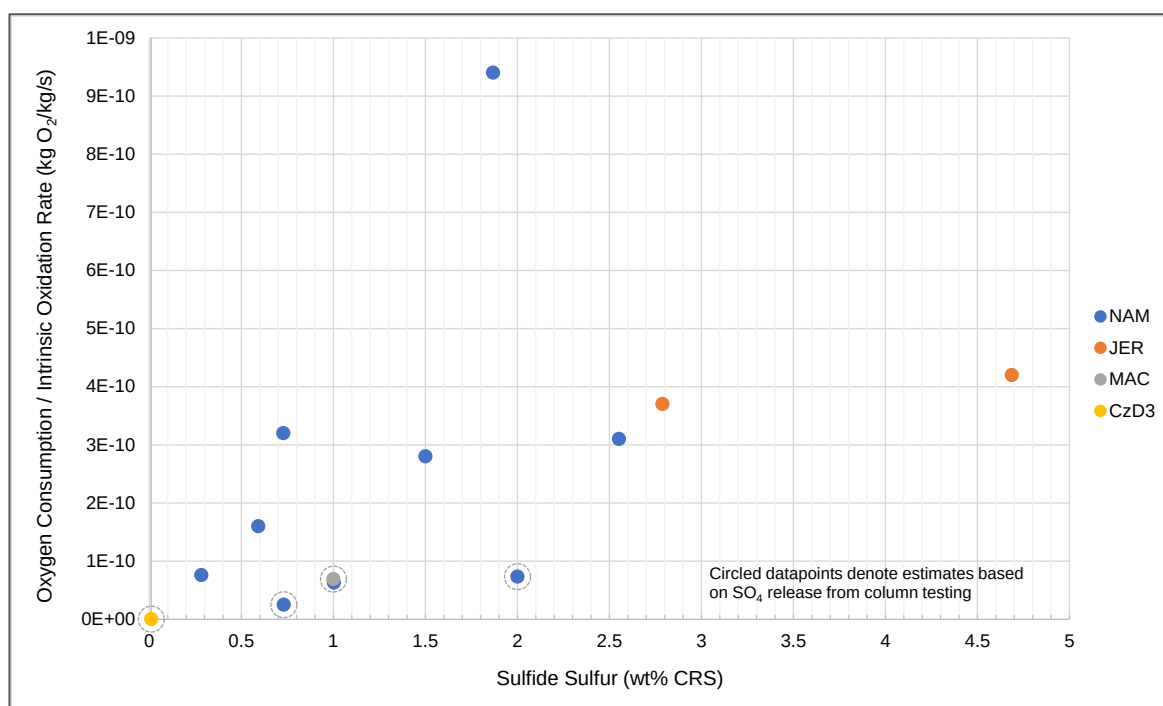
- ¹ Stable period refers to the test period (e.g. weeks 32–48) where trends were judged to be stable. Tests were terminated at 48 weeks apart from for MDRC0964_06-12 (ongoing at the time this report was issued).
- ² Average pH during stable period was calculated from average H⁺ concentration.
- ³ Alkalinity presented as total alkalinity (CaCO₃ equivalent).
- ⁴ Where average release rates are below a nominal cutoff of 0.0001 mg/kg/week, rates are simplified to “<0.0001”. Where release rates for all tests are below detection, they have not been included (Ag, Cd, Pb, Sb, Ti, Tl, and U).

Intrinsic oxidation rates (IORs) were calculated from sulfate release rates. The IOR calculations assumed that the sulfur was present as pyrite, sulfide is oxidised to sulfate, and, all the sulfate is fully leached from the sample. The calculation is based on stoichiometry for the oxidation of pyrite as follows:



The IORs from the AMIRA column tests (n=4) were combined with those generated from oxygen consumption rate (OCR) testing (n=9) (Mine Earth, 2023) and plotted as a function of sulfidic sulfur contained in the sample, as shown in Figure 3.24. Calculated OCRs for NAM samples (n=9), which were predominantly described as shale, varied between 3.2×10^{-11} and 9.4×10^{-9} kg O₂/kg/s, and were poorly correlated to sulfide sulfur content). Sulfidic JER samples (n=2) containing 1.3 and 4.2 wt% sulfur respectively, had IORs in the order of 4×10^{-10} kg O₂/kg/s and a sample of PAF material from the MAC unit had an IOR of 8.6×10^{-11} kg O₂/kg/s, within the range for NAM materials tested. The IOR for one sample representing CzD3 was several orders of magnitude lower than others tested (3.6×10^{-13} kg O₂/kg/s), consistent with the presence of alunite rather than pyrite in this sample. Note that, unlike IORs derived from AMIRA column data (denoted in Figure 3.24), OCRs may be influenced by oxidation of organic carbon (e.g. reactive organic carbon contained in shales).

Figure 3.24: Measured IOR and OCR by stratigraphic grouping



Source: Partial dataset from Mine Earth (2023).

Notes: IOR values presented in scientific notation, where nE-n denotes $n \times 10^{-n}$.

3.5.4 Mineralogical controls on leaching

Based on the leach extraction tests, major ions in the leachates are typically dominated by Na, SO_4 and Cl. While Ca, Mg and HCO_3 are often present, concentrations are very low.

The main soluble mineral sources are inferred to be Na-bearing minerals, e.g. halites (salt – NaCl) and sulfates, and to a lesser extent less soluble silicate minerals. The mineralogical assessment (Section 3.3) identified several potential Na sources in the samples (jarosite, micas, feldspars and montmorillonite).

Possible sources for Ca and Mg could be soluble or sparingly soluble minerals such as sulfates (gypsum), carbonates (calcite and dolomite) or fluorides. These phases may be present in very limited quantities, explaining the low concentrations of constituent ions in the leachates.

Geochemical modelling (PHREEQC modelling software) was undertaken on the leach extraction test results to identify possible solubility controls that may be limiting solute concentrations in the leachates. Measured leachate concentrations were used as input to calculate saturation indices for key mineral phases. Saturation indices close to zero for a given mineral phase can be used to infer a state of equilibration with the leachate (and thus the presence/absence of the phase in the contacting solids).

The main minerals and mineral groups identified as possible solubility controlling phases are summarised in Table 3.13. Based on the dissolved constituents in the leachates, many minerals were undersaturated in most of the leachates and did not reach equilibrium with the contacting solution. Only very low solubility phases such as iron and aluminium hydroxides were consistently close to saturation. Figure 3.25 shows an aluminium activity diagram; aluminium solubility is expressed as a function of the activity of the Al^{3+} aqueous species, calculated using PHREEQC. For simplicity, other aluminium aqueous species were excluded from the diagram. Lines on the diagram indicate the theoretical solubility of some key Al-bearing minerals. These theoretical lines should be considered as indicative only. Their positions on the figure are based on thermodynamic equilibrium constants usually derived for pure phases. The minerals dissolving in the tests may not be pure solids and accordingly, their solubility may be higher or lower than that indicated by the theoretical lines. The majority of the leachates are in the pH range 6 to 9, and the results plot close to, or above, the solubility lines for Al hydroxides (gibbsite, diaspore, boehmite). The large number of datapoints above the line could indicate the presence of colloidal particulates in the solutions. In the few acidic solutions represented, the datapoints plot close to, or below, the alunite solubility line.

It is possible that some the mineral controls discussed above are key to contaminant leaching; metals and metalloids may be present as impurities within these phases. Where solution pH remains near neutral, and mineral solubility is low, contaminant leaching would also be expected to remain low.

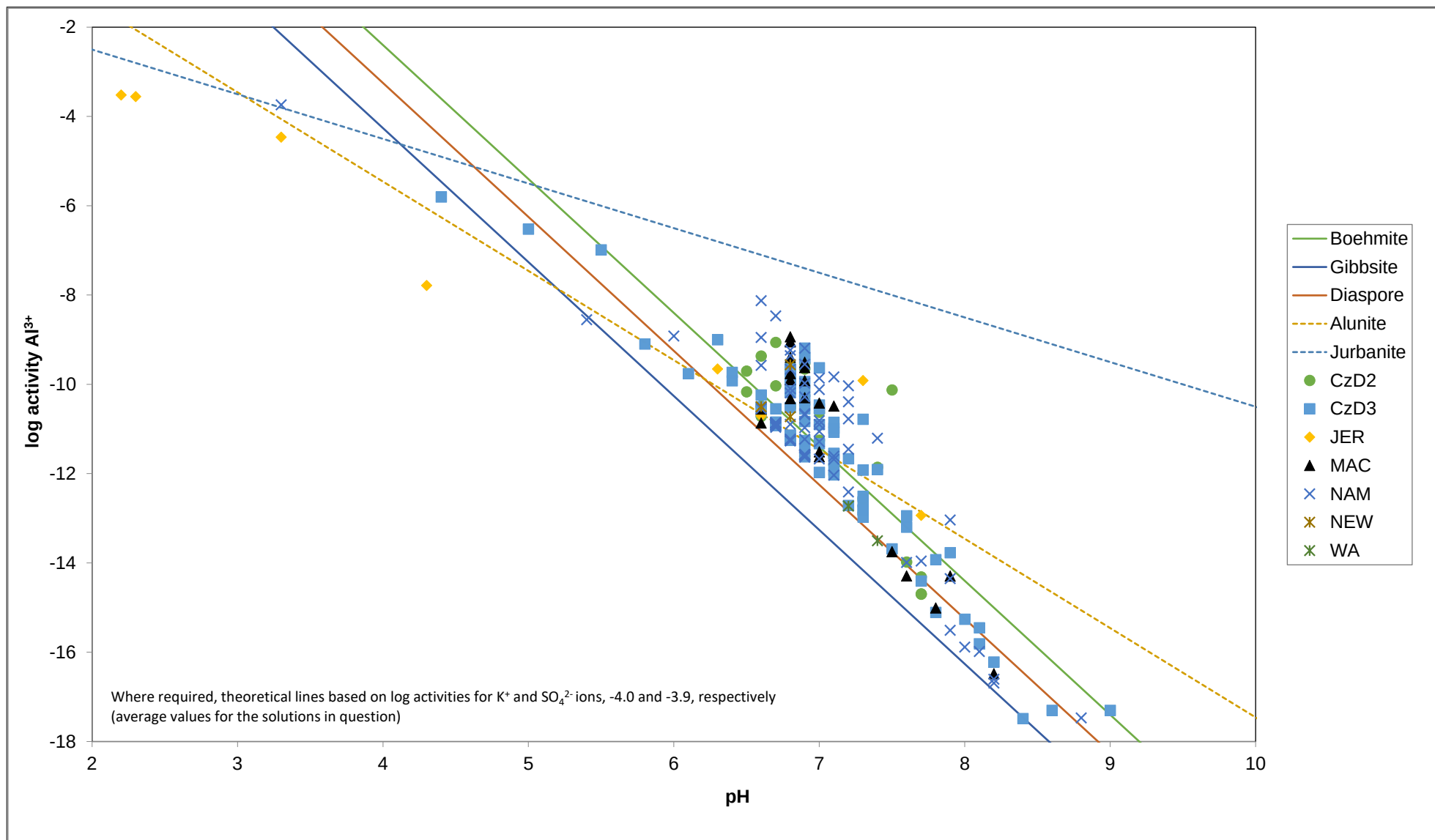
At neutral pH, sorption onto mineral surfaces is generally expected to be strong. Most of the materials contain high quantities of iron oxides/hydroxides and clays. These mineral types have a strong adsorptive capacity. Sorption may provide another mechanism that controls contaminant leachability.

Table 3.13: Summary of possible mineral solubility controls

Mineral groups	Specific minerals identified as possible solubility controls	Comments
Hydroxides and oxyhydroxides	Gibbsite ($\text{Al}(\text{OH})_3$) Ferrihydrite ($\text{Fe}(\text{OH})_3$) Boehmite ($\text{AlO}(\text{OH})$) Diaspore ($\text{AlO}(\text{OH})$)	A range of iron and aluminium hydroxides were either oversaturated or close to saturation in many leachates. Oversaturation may indicate presence of particulates or colloids.
	Manganese oxyhydroxide (MnOOH)	MnOOH was close to saturation only in the most alkaline leachates.
Hydroxysulfates	Alunite ($\text{KAl}_3(\text{OH})_6(\text{SO}_4)_2$) K-jarosite ($\text{KFe}_3(\text{OH})_6(\text{SO}_4)_2$) (leachates at low end of the pH range only, pH <6)	Hydroxysulfates were undersaturated in the majority of leachates.
Sulfates	Barite (BaSO_4) Gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$)	Close to saturation in a few leachates only.
Carbonates	Calcite (CaCO_3) Dolomite ($\text{CaMg}(\text{CO}_3)_2$)	Calcite and dolomite close to saturation in some leachates but were more typically undersaturated.
	Rhodochrosite (MnCO_3)	Rhodochrosite was close to saturation in only one of the leachates. Siderite (and by analogy ankerite), and trace metal carbonates were typically undersaturated.
Silicates	Chalcedony (SiO_2)	Chalcedony close to saturation in many solutions, but more usually undersaturated.

Notes: Minerals identified as close to saturated had calculated saturation indices between -0.5 and +0.5.

Figure 3.25: DI leach extract data plotted on an aluminium activity (at 25°C)



Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009 LEAF and Leach Data_RevB.xlsx\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009 LEAF and Leach Data_RevB.xlsx])

3.6 Other geochemical risks

Other geochemical risks include the presence of fibrous minerals or radioactive substrates in the materials to be mined. These risks were not assessed directly.

However, the geological setting is not consistent with a high abundance of asbestiform minerals. The mineralogical assessment identified serpentine at low levels (<1 to 1 wt%) in many of the samples assessed, and an unspecified amphibole mineral was identified in two of the samples assessed in the MWH (2013) assessment (at levels between 3 wt% (mineralised BIF sample) and 6 wt% (Detrital sample, assumed to be from one of the cover sequence units, CzD2 or CzD3)).

Supplemental mineralogical assessment will be required to assess the presence of fibrous minerals, but to-date, none have been observed by HPPL during resource drilling.

Total uranium content ranged from <0.01 to 13 ppm. Mass-based uranium content can be combined with specific activities (Bq/g) to calculate U-238 activity (the most abundant radionuclide in natural materials). The calculated U-238 activities range to a maximum of 0.2 Bq/g – well below the definition of a radioactive material as given in DMP guidance (2010), i.e. material containing more than 1 Bq/g U-238.

4 Sample representativity

4.1 Spatial representation

There are multiple pits represented in the proposed mine development (Figure 2.3). In Appendix B, Leapfrog images have been collated that show the distribution of (i) samples from the drill hole dataset and (ii) samples submitted for detailed geochemical assessment. As mentioned previously, the geochemical assessments have progressed over an extended time period, and there have been changes to mine plans during that period. As a result, many of the samples assessed in the geochemical characterisation programs were sourced from outside the current pit shells.

To develop a general understanding of spatial variability, the distribution of sulfur and CaO in the drill hole dataset was examined. These parameters are potential analytical surrogates for MPA and ANC, respectively (Section 3.4). The outcomes are presented in Appendix B. The following is noted:

Sulfur distribution

- Lateral variability is limited; sulfur content is uniformly low across the materials captured within the various pit shells.
- There are occasional clusters of samples with higher sulfur content (0.2% and greater). These are associated with near-surface materials particularly on the western perimeter of one of the Murray's Hill sub-pits and the Horseshoe West pit (close-up views of each pit area are included in Appendix B). This is considered indicative of vertical variability associated with higher incidence of sulfate minerals (gypsum and alunite) in the near-surface materials (CzD2 and CzD3 units).

CaO distribution

- CaO shows a similar range of values irrespective of the pit area.
- There is a higher density of higher CaO content samples in the western portions of the larger Murray's Hill sub-pit, largely within the CzD2 and CzD3 units, and probably reflecting greater incidence of calcite and dolomite within these units.

In summary, lateral variability in sulfur and CaO content appears limited. Vertical variability exists, with higher values for both parameters linked to near-surface stratigraphies (often coincident with CzD3 samples).

On the basis of this analysis, it is concluded that, despite poor spatial representation with respect to the current pit shells, the results of the geochemical characterisation programs provided adequate representation of the geochemical properties of the stratigraphic units as a whole. Going forward, SRK understands that HPPL will continue to collect samples from the proposed developments and spatial representation of samples selected for geochemical characterisation is expected to improve.

4.2 Stratigraphical representation

Table 4.1 shows a summary of the samples assessed within each stratigraphic unit and the approximate proportions anticipated to be mined (Section 2.3). Although the samples were sourced from different spatial areas, the sample selection and distribution that has been subjected to

geochemical characterisation provides reasonable proportional representation of the units to be mined, with the exception of the NEW and MAC units. These latter units are underrepresented in the geochemical sample selection when compared to the proportion of waste production from the proposed mining areas.

Table 4.1: Distribution of samples assessed, by stratigraphy

Stratigraphy	Waste rock (%)	Drill hole assays		Supplemental geochemical assessment samples ¹	
		n	%	n	%
CzD3	28	3,847	15	112	34
CzD2	3	2,803	11	39	12
WA		0	0	2	1
NEW	11	2,290	9	5	1
MAC	20	4,728	18	42	13
NAM	37	12,660	48	118	35
JER		113	0	16	5
Total		26,441²	100	334	

Source: [https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/\[HCK009_GeochemData_RevC.xlsx\]](https://srk.sharepoint.com/sites/AUHCK009/Shared Documents/General/Geochemical data/[HCK009_GeochemData_RevC.xlsx])

Notes:

¹ MWH (2013), Mine Earth (2023) and ChemCentre program combined – many samples located outside current pit shell designs.

² Based on number of sulfur assays

4.3 Geochemical representation

Spatial distribution of sulfur and CaO content within the drill hole datasets is discussed above. In addition, as discussed previously in Section 3.2.1, box-and-whisker plots comparing the sulfur ranges indicated by the drill hole datasets with the supplemental geochemical results showed that sulfur content generally is low and showed low variability, with median values invariably less than 0.1%.

The range of sulfur content extends to higher maxima in the JER, NAM, CzD2 and CzD3 units, and the samples selected for supplemental geochemical assessments have tended to be biased towards higher sulfur contents. This bias probably was deliberate to ensure that the geochemical assessments can adequately characterise the AMD risk for materials with higher sulfur content.

Within the current pit shells, the majority of higher sulfur materials are near the surface, coinciding with cover sequence units containing alunite.

While the supplemental geochemical assessments are more limited in terms of sample numbers, the full range of sulfur characteristics is represented, giving confidence that outcomes from the assessments adequately address the range of potential AMD risks associated with the different stratigraphical units.

5 AMD block modelling and scheduling

5.1 AMD classification approach

A MEND-based classification approach (as discussed in Section 3.4.4) requires the calcium content to be used as a surrogate to infer ANC. Classification of the waste rock into NAF, PAF and UC categories is possible on this basis, but considering the assessed accuracy of the surrogate, was considered likely to overestimate the proportion of UC and PAF material present within the pit shells.

An alternative approach, based solely on sulfur data, and using a cut-off criterion of 0.1% S, has also been shown to be conservative (i.e. the proportion of PAF-classed material is likely to be overestimated).

Adopting a higher cut-off sulfur threshold may not capture all PAF and UC classed materials and so an approach is proposed which combines a primary criterion (0.1% S) with a secondary sulfur criterion (0.25% S). The secondary criterion differentiates between the UC and PAF categories, with material between 0.1% S and 0.25% S considered as UC. The threshold value was selected on the basis that: i) material containing 0.25% S has an MPA of about 7.6 kg H₂SO₄/t, and, ii) all stratigraphical units have an average ANC of 10.6 kg H₂SO₄/t or greater (see Table 3.7), with the exception of the NEW unit. Therefore, on average the ANC should exceed the MPA marginally for material containing a sulfur content between 0.1% and 0.25%, justifying an UC classification. In the case of the NEW unit, the maximum sulfur content is 0.06%, and this material would be classed as NAF irrespective; the UC category would therefore not apply. Thus, for the purposes of waste management, a simplified but conservative approach, based entirely on sulfur criteria, is proposed as shown in Table 5.1.

Table 5.1: Material classification categories

Category	Sulfur content (%)
NAF	<0.1%
UC	0.1% ≤ S <0.25%
PAF	S ≥ 0.25%

5.2 Provisional material balance

A preliminary material balance based on the proposed classification approach is shown in Table 5.2. Overall, 1% of material to be mined would be categorised as PAF, around 50% of which would be encountered within the Horseshoe West pit. Material categorised as UC would comprise about 4% of material to be mined and is distributed across most pits.

Table 5.2: Preliminary material balance, waste rock per pit

Pit	NAF	UC	PAF	Total per pit	Fraction of total mass to be mined
	Mass (Mt)				
Murray's Hill	21	1.9	0.29	23	15%
Anticline Hill	8.8	0.68	0.37	9.8	7%
Fridge Central	3.6	0.039	-	3.6	2%
Fridge Hill	55	0.61	-	55	37%
Fridge West	35	0.56	-	35	24%
Horseshoe Hill	3.4	0.015	-	3.4	2%
Horseshoe West	16	2.1	0.65	19	13%
Total mass (Mt)	143	6.0	1.3	150	100%
Distribution (%)	95%	4%	1%	100%	

Source: MDE_LOM_20_Waste classification_v3.xlsx

Notes: data distribution is different to that in Table 3.9.

5.3 Material management requirements

The preliminary material balance suggests that the majority of the waste rock will be classed as NAF. The NAF category is based on low sulfur content (<0.1% S), and the potential for acidic or saline (but neutral) drainage is considered to be low. While posing a low risk of impacting water quality, the physical properties of NAF materials should be evaluated to determine if other hazardous materials may be present (e.g. dispersive or highly erodible materials) that would require specific management measures. For example, highly erodible materials should not be placed on the outer surfaces of waste rock landforms.

While materials classed as UC and PAF represent a low proportion of the waste rock (~5% of total mass to be mined), HPPL recognises that such materials could represent a risk of AMD if not managed appropriately. Waste rock management plans and conceptual dump designs are in development and are likely to include controls such as:

- Segregation and isolation of UC or PAF classed materials by placing these within the internal volumes of dumps (to limit oxygen availability thus reducing oxidation rates, and minimising flushing by infiltrating water). Similarly, materials containing alunite or gypsum should not be placed on external surfaces of WRDs to prevent contamination of surface runoff from the landforms.
- Ensuring that only competent NAF material is placed on the outer surfaces of dumps, to reduce the risk of dump run-off contacting reactive materials, and ensuring long-term stability.

6 Conclusions and recommendations

Available geochemical information has been reviewed herein and used to develop an understanding of the material properties and criteria for assessing the potential for AMD/NMD and contaminant leaching.

6.1 Conclusions

6.1.1 AMD potential

The findings can be summarised as follows.

Waste rock

- Based on the drill hole assay data, within the pit shells the sulfur content is low in all the stratigraphic units; median values are invariably below 0.05% (representing an acid potential of 1.5 kg H₂SO₄/t), and 75th percentile values are invariably below 0.1% (acid potential, 3.1 kg H₂SO₄/t).
- Basal NAM and JER units (which will not be mined) and parts of the cover sequence (CzD2 and CzD3) range to higher maxima. Mineralogical assessment and sulfur speciation tests suggest that within the cover sequence, alunite may form a significant portion of the sulfur present.
- ANC is generally low; median values are typically less than 10 kg H₂SO₄/t. Calcium was found to be a reasonably reliable, and conservative, indicator of sample ANC for all units except the NAM. In the NAM unit, a Ca-based surrogate did not correlate well with measured ANC, presumably due to the presence of Ca-bearing minerals that do not contribute to ANC. Due to the presence of siderite in some samples, the calculated CarbNP values would overestimate the available ANC; this conclusion was confirmed by ABCC testing.
- ABA indicated that the majority of samples (90%) had NAPP values close to zero (from -10 to 10 kg H₂SO₄/t) – reflecting the low sulfur (and therefore MPA) and ANC present in much of the material.
- In the few samples where NAPP values were appreciable (>10 kg H₂SO₄/t), NAG tests generated acidity (to pH 7) in good agreement with the calculated NAPP values.
- Alunite-sourced acid potential led to different outcomes when using the AMIRA and MEND classification approaches. Using the AMIRA scheme, fewer samples classed as PAF; high sulfur alunitic samples reported to UC classes as NAG testing generated lower than expected acidity (due to the low solubility of alunite).

AMD classification

The AMIRA classification approach was considered to be the most reliable indicator of potential for acid generation. Under this approach, high sulfur samples containing alunite would be classed as UC since NAG testing would generate lower than expected acidities (due to the low solubility of alunite).

The MEND classification approach also could be considered conservative in that the number of PAF-classed samples would be overestimated rather than underestimated. However, the MEND

classification system, based on ANC to MPA ratios, may result in the classification of some samples as PAF despite negligible NAPP.

Using a sulfur cut-off of 0.1% as a sole criterion for classification will likely capture all UC and PAF classed materials but may be overly conservative, whereas higher cut-off thresholds may not capture all PAF and UC classed materials and may not be suitable for waste management at the site.

6.1.2 Contaminant leaching potential

Outcomes from leach testing indicated that:

- Leachate pH is a primary control on contaminant solubility and therefore leaching. Under neutral pH conditions, leaching would be limited. The dissolved concentrations of many minor and trace elements are expected to be close to, or below, limits of detection. The results from LEAF 1313 testing demonstrated that increased minor/trace element leaching would typically require either strongly acidic or strongly alkaline pH conditions.
- Acidic leachate solutions were only generated in:
 - a small number of DI leach extract tests:
 - strongly acidic for sulfidic samples that containing acidic oxidation products (JER unit)
 - mildly acidic in the case of samples containing alunite
 - kinetic testing of PAF-classed samples from the MAC and NAM units.
- Dissolved concentrations of some minor/trace elements (Co, Cu, Mn, Ni, Zn) ranged widely even at near-neutral pH conditions; this is interpreted as dissolution of finite masses of readily soluble salts (Co, Cu, Mn, Ni, Zn). Dissolved concentrations are strongly influenced by the mass of salt present combined with the contact ratio. Such salts are not expected to represent an ongoing contaminant source.
- Kinetic testing suggests that CzD3 material may represent an ongoing source of As, Cr and V. This observation is broadly consistent with recent water quality monitoring results obtained at site; readily detectable concentrations of these elements have been observed in shallow groundwaters.

6.2 Recommendations

Conventional AMIRA and MEND classification criteria rely on NAG and ANC testing respectively, and cannot be directly applied to the drill hole dataset because such dataset do not include NAG and ANC data.

Given the low proportion of materials containing sulfur above the 0.1% S threshold, as a simplified approach, the sulfur content may be used exclusively to classify the waste materials. For the simplified approach, all material below 0.1% S would be classified as NAF. For the material containing more than 0.1% S, a secondary sulfur criterion (0.25% S) may be used to differentiate between UC and PAF, with material containing between 0.1% S and 0.25% S classified as UC. All material containing more than 0.25% S would be considered PAF.

Based on the drill hole datasets, and using assay results for core intervals that fall within the pit volumes, PAF-classed material would represent approximately 1% of the material to be mined. An additional 4% of the waste material would be classed as UC. In total 95% of the waste material would be classed as NAF.

Considering the small volume of PAF material that would be produced, the development of the waste management plan should consider the placement of PAF materials in distinct PAF cells that can be isolated deep within the waste rock landforms to limit oxidation and thus acid generation (by limiting oxygen ingress to the material) and control acid mobilisation and solute release from these materials. Since the PAF volumes are comparatively small, consideration may also be given to direct backfilling of the PAF materials to mined-out sections of the pit that will be inundated below the long-term water table (if available during operations), or segregating and backfilling such waste when space becomes available within the mined-out pits. An optimised waste management plan should be developed based on the updated block model and mine schedule, current landform designs and using the recommended classification criteria presented herein.

Closure

This report, Mulga Downs Iron Ore Project: Geochemical Assessment, was prepared by



Claire Linklater
Principal Consultant

and reviewed by



John Chapman
Corporate Consultant

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.

References

- AMIRA, 2002. ARD Test Handbook. Project P387A Prediction and Control of Acid Mine Drainage, AMIRA International, May 2002.
- Australian and New Zealand Environment Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000. Australian Water Guidelines for Fresh and Marine Waters (and updates).
- Bowen, H J M, 1979. *Environmental chemistry of the elements*. London, New York, Academic Press.
- Hanroy, 2024. Mulga Downs Project Provisional Water Quality Trigger Values_Rev4. Memorandum from Colleen Burgers, 1 October 2024.
- CBEC, 2023. Hancock Prospecting Mulga Downs Project – Alunite review and occurrence at Mulga Downs. Memorandum from Colleen Burgers, 21 June. Document No. 2305-HPPL-MD-EIV-MEM_Final.
- DITR, 2016. Preventing Acid and Metalliferous Drainage, September 2016, Leading Practice Sustainable Development Program for the Mining Industry (LPSDP), developed by the Australian Government, Department of Industry, Tourism and Resources.
- DMP, 2010. Managing naturally occurring radioactive material (NORM) in mining and mineral processing – guideline.
- DMP, 2016. Materials Characterisation Baseline Data Requirements for Mining Proposals, March 2016, Department of Mines and Petroleum (DMP) (now Department of Mines, Industry Regulation and Safety (DMIRS)), Government of Western Australia.
- Green, R and Borden, R K, 2011. Geochemical risk assessment process for Rio Tinto's Pilbara iron ore mines, Integrated Waste Management – Volume I (Ed. Sunil Kumar), 365-390. ISBN 978-953-307-469-6.
- INAP, 2009. International Network for Acid Prevention: Global Acid Rock Drainage (GARD) Guide [online]. Available from <<http://www.gardguide.com/>>.
- Linklater, C M, Chapman, J T, Brown, P L, Green, R and Leake, S, 2014. Assessing metal leachability from low sulfur wastes - sequential extraction methods, in *Proceedings of the 8th Australian Workshop on Acid and Metalliferous Drainage* (eds: H Miller and L Preuss), pp 325–338 (JKTech Pty Ltd: Brisbane).
- Linklater, C M, Chapman, J T, Brown, P L, Green, R and Terrusi, L, 2012. Acid Generation from Alunite and Jarosite Bearing Materials, in *Proceedings 9th International Conference Acid Rock Drainage* (eds: W A Price, C Hogan and G Tremblay), pp 1051–1062 (Curran Associates, Inc.: Red Hook, New York).
- Mine Earth, 2023. Waste Characterisation for Mulga Downs. 25 May. Revision 1.
- MWH, 2013. Acid Rock Drainage/Metal Leaching Assessment of the Murray's Hill Deposit, Project No. 83500463, March 2013.
- Price, W A, 2009. Prediction Manual for Drainage Chemistry from Sulfidic Geologic Materials, Natural Resources Canada, MEND Report 1.20.1.
- US EPA, 2012. Method 1313. Liquid-Solid Partitioning as a Function of Extract pH using a Parallel Batch Extraction Procedure, Revision 0, October 2012.

US EPA, 2017. Method 1314. Liquid-Solid Partitioning as a Function of Liquid-Solid Ratio for Constituents in Solid Materials using an Up-Flow Percolation Column Procedure, Revision 1, July 2017.

US EPA, 2022. Leaching Environmental Assessment Framework (LEAF) Methods and Guidance. Leaching Environmental Assessment Framework (LEAF) Methods and Guidance [online]. Available from: <[Leaching Environmental Assessment Framework \(LEAF\) Methods and Guidance | US EPA](#)>. Accessed 7 November 2022.

Appendix A Supplemental geochemical assessment data

Appendix A.1 Mineralogical assessment

Appendix A.1 - Mineralogical assessment, semi-quantitative results

Crystalline mineral phase		MD7687_0-04	MD7687_0-04	MD7877_0-04	MD8304_02-06	MD8304_02-06	MD7814_02-06	MD7814_02-06	MD7918_02-06	MD7601_02-06	MD8434_04-08	MD8434_04-08	MD7855_04-08	MD7191_06-08
	Sample ID	CzD3	CzD3	CzD3	CzD3	CzD3	CzD3	CzD3	CzD3	CzD3	CzD3	CzD3	CzD3	CzD3
	Strat	ALU	ALU	ALU	ALU	ALU	ALU	ALU	ALU	ALU	ALU	ALU	ALU	ALU
	Strand	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth
	Assessment													
Formula														
Pyrite	FeS ₂	-	-	-	-	-	-	-	-	-	-	-	-	-
Alunite	KAl ₃ (SO ₄) ₂ (OH) ₆	3	2	3	3	2	-	-	2	2	4	3	3	1
Jarosite	KFe ₃ (SO ₄) ₂ (OH) ₆	-	-	-	-	-	-	-	-	-	-	-	-	-
Gypsum	CaSO ₄ · 2H ₂ O	-	-	-	-	-	<1	1	-	-	-	-	-	-
Calcite	CaCO ₃	-	-	-	-	-	-	2	-	-	-	-	-	-
Dolomite	CaMg(CO ₃) ₂	-	-	-	-	-	-	-	-	-	-	-	-	-
Ankerite	Ca (Mg, Fe2+, Mn) (CO ₃) ₂	-	-	-	-	-	-	-	-	-	-	-	-	-
Siderite	FeCO ₃													
Hematite	Fe ₂ O ₃	6	8	9	10	19	5	7	7	8	5	9	10	7
Goethite	FeO(OH)	3	8	8	5	11	5	8	7	8	2	6	8	8
Gibbsite	Al(OH) ₃	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrolusite	MnO ₂	-	-	-	-	-	-	-	-	-	-	-	-	-
Anatase	TiO ₂	1	-	-	1	-	1	-	-	-	1	-	-	-
Magnetite	Fe ₃ O ₄	-	1	1	-	1	-	1	2	1	-	1	1	1
Quartz	SiO ₂	79	53	55	72	47	73	52	59	52	77	54	52	53
Plagioclase	NaAlSi ₃ O ₈	1	-	-	<0.1	-	1	-	-	-	-	-	-	-
K-feldspar and/or rutile	KAlSi ₃ O ₈	1	-	-	1	-	2	-	-	-	1	-	-	-
Rutile	TiO ₂													
Spinel	Mg _{0.73} Al _{2.17} O ₄													
Microcline	KAlSi ₃ O ₈	-	3	3	-	2	-	3	3	6	-	2	3	6
Annite - biotite - phlogopite	KFe ³⁺ ₂ AlSi ₃ O ₁₀ (OH) ₂	1	-	-	<1	-	1	-	-	-	1	-	-	-
Illite - smectite	(K H ₃ O)•(Al, Mg, Fe) ₂ (Si Al) ₄ •O ₁₀ [(OH) ₂ (H ₂ O)]	<0.1		-	-	-	-	-	-	-	<0.1	-	-	-
Clinocllore	Mg,Fe)6(Si,Al)4O10(OH)8													
Montmorillonite	(Na,Ca) _{0.3} (Al,Mg) ₂ Si ₂ O ₁₀ (OH) ₂ ·nH ₂ O	-	-	-	-	-	-	-	-	-	-	-	-	-
Illite	K _{0.78} Mg _{0.34} Al _{2.34} Si _{3.35} O ₁₀ (OH) ₂ (H ₂ O) _{0.15}													
Vermiculite	Mg ₃ (Si,Al)4O ₁₀ (OH) ₂ ·4H ₂ O													
Palygorskite	(Mg,Al) ₂ Si ₄ O ₁₀ (OH)·4(H ₂ O)	-	-	-	-	-	-	-	-	-	-	-	-	-
Serpentine	Mg ₃ Si ₂ O ₅ (OH) ₄	-	-	-	<1	-	-	-	-	-	1	-	-	-
Amphibole	(Ca,Na) ₂ (Mg,Fe,Al) ₅ (Al,Si) ₈ O ₂₂ (OH) ₂	-	-	-	-	-	-	-	-	-	-	-	-	-
Muscovite	KAl ₂ (Si ₃ Al)O ₁₀ (OH) ₂	1	7	6	1	3	2	5	7	2	2	5	4	7
Kaolinite	Al ₂ Si ₂ O ₅ (OH) ₄	5	17	16	6	16	11	22	15	21	6	18	19	17
Kaolin	Al2Si2O5(OH) ₄	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix A.1 - Mineralogical assessment, semi-quantitative results

Crystalline mineral phase		MD8226_06-10	MD8222_16-20	MD8222_16-20	MD7918_28-32	MD7433_0-04	MD8374_0-04	MD7433_14-18	MD7390_22-26	MD7169_34-38	MD7616_62-66	MD8365_16-20	MD7530_12-16	MD7090_22-26
	Sample ID													
	Strat	CzD3	CzD3	CzD3	CzD3	CzD3	CzD3	CzD2	CzD2	JER	JER	MAC	MAC	MAC
	Strand	ALU	ALU	ALU	ALU	CC	SCR	CIDW	CIDW	JER	JER	MAC	MAC	MAC
	Assessment	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth
Formula														
Pyrite	FeS ₂	-	-	-	-	-	-	-	-	18	13	-	-	-
Alunite	KAl ₃ (SO ₄) ₂ (OH) ₆	4	-	1	-	-	-	-	-	10	<0.1	-	-	-
Jarosite	KFe ₃ (SO ₄) ₂ (OH) ₆	-	-	-	-	-	-	-	-	3	2	-	-	-
Gypsum	CaSO ₄ · 2H ₂ O	-	-	-	-	-	-	-	-	-	<1	-	-	-
Calcite	CaCO ₃	-	1	-	-	82	1	-	-	-	-	-	-	-
Dolomite	CaMg(CO ₃) ₂	-	<0.1	-	-	3	-	-	-	-	-	-	-	-
Ankerite	Ca (Mg, Fe2+, Mn) (CO ₃) ₂	-	-	-	-	-	-	-	-	-	-	-	-	-
Siderite	FeCO ₃													
Hematite	Fe ₂ O ₃	8	8	12	11	2	14	28	23	-	2	1	16	12
Goethite	FeO(OH)	6	7	13	5	2	55	48	51	-	2	6	16	10
Gibbsite	Al(OH) ₃	-	-	-	-	-	6	-	-	-	-	-	-	-
Pyrolusite	MnO ₂	-	-	-	-	-	-	-	4	-	-	-	-	-
Anatase	TiO ₂	-	3	-	4	-	2	3	2	2	3	-	-	<0.1
Magnetite	Fe ₃ O ₄	3	-	1	-	-	-	-	-	-	-	-	-	-
Quartz	SiO ₂	49	64	39	42	9	7	4	2	54	57	91	66	76
Plagioclase	NaAlSi ₃ O ₈	-	<0.1	-	<1	-	<0.1	-	-	<0.1	<0.1	-	-	-
K-feldspar and/or rutile	KAlSi ₃ O ₈	-	1	-	1	<1	<1	1	1	-	-	-	-	-
Rutile	TiO ₂													
Spinel	Mg _{0.73} Al _{2.17} FeO ₄													
Microcline	KAlSi ₃ O ₈	6	-	3	-	-	-	-	-	-	-	-	-	-
Annite - biotite - phlogopite	KFe ³⁺ ₂ AlSi ₃ O ₁₀ (OH) ₂	-	<1	-	<1	<1	-	-	-	1	1	-	-	-
Illite - smectite	(K H ₃ O)•(Al, Mg, Fe) ₂ (Si Al) ₄ •O ₁₀ [(OH) ₂ (H ₂ O)]	-	<0.1	-	-	<0.1	-	-	-	6	8	-	-	-
Clinocllore	Mg,Fe)6(Si,Al)4O10(OH)8													
Montmorillonite	(Na,Ca) _{0.3} (Al,Mg) ₂ Si ₂ O ₁₀ (OH) ₂ ·nH ₂ O	-	-	-	-	-	-	-	-	-	-	-	-	-
Illite	K _{0.78} Mg _{0.34} Al _{2.34} Si _{3.35} O ₁₀ (OH) ₂ (H ₂ O) _{0.15}													
Vermiculite	Mg ₃ (Si,Al)4O ₁₀ (OH) ₂ ·4H ₂ O													
Palygorskite	(Mg,Al) ₂ Si ₄ O ₁₀ (OH)·4(H ₂ O)	-	-	-	-	-	-	-	-	-	-	-	-	-
Serpentine	Mg ₃ Si ₂ O ₅ (OH) ₄	-	1	-	<0.1	-	1	1	1	<1	<1	-	-	-
Amphibole	(Ca,Na) ₂ (Mg,Fe,Al) ₅ (Al,Si) ₈ O ₂₂ (OH) ₂	-	-	-	-	-	-	-	-	-	-	-	-	-
Muscovite	KAl ₂ (Si ₃ Al)O ₁₀ (OH) ₂	3	1	5	1	<1	-	-	-	3	5	<1	-	-
Kaolinite	Al ₂ Si ₂ O ₅ (OH) ₄	21	14	26	37	3	13	15	16	2	5	2	2	2
Kaolin	Al2Si2O5(OH) ₄	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix A.1 - Mineralogical assessment, semi-quantitative results

Crystalline mineral phase		MD7578_36-40	MD7554_0-04	MD7664_12-16	MD7169_28-32	MD7169_28-32	MD7918_50-54	MDRC0964_06-12	MDRC1338_24-30	MDRC1338_40-46	MDRC1357_26-32	MDRC1357_34-40	MDRC1374_22-28
	Sample ID												
	Strat	NAM	NAM	NAM	NAM	NAM	NAM	CzD3	CzD3	CzD3	CzD3	CzD3	CzD3
	Strand	HNAM	NAM	NAM	NAM	NAM	NAM	ALU	ALU	ALU	ALU	ALU	ALU
	Assessment	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	MineEarth	ChemCenter	ChemCenter	ChemCenter	ChemCenter	ChemCenter	ChemCenter
	Formula												
Pyrite	FeS ₂	-	-	-	-	-	-	-	-	-	-	-	-
Alunite	KAl ₃ (SO ₄) ₂ (OH) ₆	-	-	-	6	3	-						
Jarosite	KFe ₃ (SO ₄) ₂ (OH) ₆	-	-	-	-	-	-						
Gypsum	CaSO ₄ · 2H ₂ O	-	3	-	-	-	-						
Calcite	CaCO ₃	-	-	-	-	-	-	-	-	-	-	-	-
Dolomite	CaMg(CO ₃) ₂	-	-	-	-	-	-	-	-	-	-	-	-
Ankerite	Ca (Mg, Fe2+, Mn) (CO ₃) ₂	-	-	-	-	-	-	-	-	-	-	-	-
Siderite	FeCO ₃							-	-	-	-	-	-
Hematite	Fe ₂ O ₃	57	29	22	2	2	23	4	5	7	9	12	3
Goethite	FeO(OH)	26	13	-	-	3	13	3	-	-	-	3	-
Gibbsite	Al(OH) ₃	-	-	-	-	-	-						
Pyrolusite	MnO ₂	-	-	-	-	-	-						
Anatase	TiO ₂	1	-	-	2	-	-	-	3	4	1	3	2
Magnetite	Fe ₃ O ₄	-	2	-	-	-	3						
Quartz	SiO ₂	4	14	71	77	59	60	60	54	50	61	58	66
Plagioclase	NaAlSi ₃ O ₈	-	-	-	<0.1	-	-						
K-feldspar and/or rutile	KAlSi ₃ O ₈	-	-	-	<1	-	-						
Rutile	TiO ₂							-	-	-	-	-	2
Spinel	Mg _{0.73} 4Al ₂ ·177O ₄							-	-	-	-	-	-
Microcline	KAlSi ₃ O ₈	-	-	-	-	-	-	-	-	-	-	-	-
Annite - biotite - phlogopite	KFe ³ ₂ +AlSi ₃ O ₁₀ (OH) ₂	-	-	-	1	-	-						
Illite - smectite	(K H ₃ O)•(Al, Mg, Fe) ₂ •(Si Al) ₄ •O ₁₀ •[(OH) ₂ (H ₂ O)]	<0.1	-	-	-	-	-						
Clinochlore	Mg,Fe)6(Si,Al)4O10(OH)8							-	-	-	-	-	-
Montmorillonite	(Na,Ca) ₀₋₃ (Al,Mg) ₂ Si ₂ O ₁₀ (OH) ₂ ·nH ₂ O	-	-	-	-	4	-						
Illite	K _{0.78} Mg _{0.34} Al _{2.34} Si _{3.35} O ₁₀ (OH) ₂ (H ₂ O) _{0.15}							-	-	-	-	-	-
Vermiculite	Mg ₃ (Si,Al)4O ₁₀ (OH) ₂ ·4H ₂ O							-	-	-	-	-	-
Palygorskite	(Mg,Al) ₂ Si ₄ O ₁₀ (OH)·4(H ₂ O)	-	-	-	-	-	-						
Serpentine	Mg ₃ Si ₂ O ₅ (OH) ₄	1	-	1	1	-	-						
Amphibole	(Ca,Na) ₂ (Mg,Fe,Al) ₅ (Al,Si) ₈ O ₂₂ (OH) ₂	-	-	-	-	-	-						
Muscovite	KAl ₂ (Si ₃ Al)O ₁₀ (OH) ₂	-	2	-	2	8	-	24	15	11	9	6	10
Kaolinite	Al ₂ Si ₂ O ₅ (OH) ₄	11	37	6	9	21	1	9	24	28	19	17	18
Kaolin	Al2Si2O5(OH) ₄	-	-	-	-	-	-						

Appendix A.1 - Mineralogical assessment, semi-quantitative results

[illegible]

Appendix A.1 - Mineralogical assessment, semi-quantitative results

Crystalline mineral phase	Sample ID	MDRC1576_80-94	MDRC1339_88-112	MDRC1348_94-100	MDRC1441_100-106	MDRC1536_82-88	MDRC1599_90-96	MDRC1415_98-104	MDRC0740_04-10
	Strat	NAM	NAM	NAM	NAM	NAM	NAM	NAM	NEW
	Strand	HNAM	NAM	NAM	NAM	NAM	NAM	NAM	H/TNEW
	Assessment	ChemCenter	ChemCenter	ChemCenter	ChemCenter	ChemCenter	ChemCenter	ChemCenter	ChemCenter
	Formula								
Pyrite	FeS ₂	-	2	1	-	-	-	-	-
Alunite	KAl ₃ (SO ₄) ₂ (OH) ₆								
Jarosite	KFe ₃ (SO ₄) ₂ (OH) ₆								
Gypsum	CaSO. 2H ₂ O								
Calcite	CaCO ₃	-	-	-	-	-	-	-	1
Dolomite	CaMg(CO ₃) ₂	-	-	-	-	-	-	-	-
Ankerite	Ca (Mg, Fe2+, Mn) (CO ₃) ₂	-	-	-	-	-	-	-	-
Siderite	FeCO ₃	9	5	26	15	5	24	5	-
Hematite	Fe ₂ O ₃	62	9	-	3	3	6	2	29
Goethite	FeO(OH)	23	3	2	-	2	9	2	12
Gibbsite	Al(OH) ₃								
Pyrolusite	MnO ₂								
Anatase	TiO ₂	-	-	-	-	-	-	-	-
Magnetite	Fe ₃ O ₄								
Quartz	SiO ₂	-	62	55	73	83	5	11	55
Plagioclase	NaAlSi ₃ O ₈								
K-feldspar and/or rutile	KAlSi ₃ O ₈								
Rutile	TiO ₂	-	-	-	-	-	-	-	-
Spinel	Mg _{0.73} 4Al ₂ .177O ₄	-	-	-	-	-	-	3	-
Microcline	KAlSi ₃ O ₈	-	-	-	-	-	-	1	-
Annite - biotite - phlogopite	KFe ³ ₂ +AlSi ₃ O ₁₀ (OH) ₂								
Illite - smectite	(K H ₃ O)•(Al, Mg, Fe) ₂ •(Si Al) ₄ •O ₁₀ •[(OH) ₂ (H ₂ O)]								
Clinochlore	Mg,Fe)6(Si,Al)4O10(OH)8	-	19	16	-	-	56	78	-
Montmorillonite	(Na,Ca) ₀₋₃ (Al,Mg) ₂ Si ₂ O ₁₀ (OH) ₂ ·nH ₂ O								
Illite	K _{0.78} Mg _{0.34} Al _{2.34} Si _{3.35} O ₁₀ (OH) ₂ (H ₂ O) _{0.15}	-	-	-	-	-	-	-	-
Vermiculite	Mg ₃ (Si,Al)4O ₁₀ (OH) ₂ ·4H ₂ O	-	-	-	-	-	-	-	-
Palygorskite	(Mg,Al) ₂ Si ₄ O ₁₀ (OH)·4(H ₂ O)								
Serpentine	Mg ₃ Si ₂ O ₅ (OH) ₄								
Amphibole	(Ca,Na) ₂ (Mg,Fe,Al) ₅ (Al,Si) ₈ O ₂₂ (OH) ₂								
Muscovite	KAl ₂ (Si ₃ Al)O ₁₀ (OH) ₂	-	-	-	-	-	-	-	-
Kaolinite	Al ₂ Si ₂ O ₅ (OH) ₄	6	-	-	9	6	-	-	2
Kaolin	Al2Si2O5(OH) ₄								

Appendix A.1 - Mineralogical assessment, quantitative results

Mineral phase	Sample ID	ARD847943_4m	ARD847943_4m	ARD849067_28m (Unmin BIF)	ARD849077_48m (Jeerinah)	ARD848440_6m (Detritals)	ARD841337_24m (MIN BIF)	ARD847827_26m (Min BIF)	ARD847990_20m (Unmin BIF)
	Strat	CzD3	CzD3	JER	JER	NAM	NAM	NAM	NAM
	Strand	ALU	ALU	JER	JRS	HOSAM	TNAM	ONAM	NAM
	Assessment	MWH	MWH	MWH	MWH	MWH	MWH	MWH	MWH
	Formula								
Pyrite	FeS ₂	-	-	-	17	-	-	-	-
Alunite	KAl ₃ (SO ₄) ₂ (OH) ₆	-	-	-	11	-	-	-	-
Jarosite	KFe ₃ (SO ₄) ₂ (OH) ₆	-	-	-	-	-	-	-	-
Gypsum	CaSO. 2H ₂ O	-	-	-	-	-	-	-	-
Calcite	CaCO ₃	8	8	-	-	-	-	-	-
Dolomite	CaMg(CO ₃) ₂	-	-	-	1	-	-	-	<1
Ankerite	Ca (Mg, Fe2+, Mn) (CO ₃) ₂	9	7	-	-	-	-	-	-
Siderite	FeCO ₃								
Hematite	Fe ₂ O ₃	28	27	12	-	14	24	50	12
Goethite	FeO(OH)	3	4	4	-	63	56	44	6
Gibbsite	Al(OH) ₃	-	-	-	-	-	-	-	-
Pyrolusite	MnO ₂	-	-	-	-	-	-	-	-
Anatase	TiO ₂	<1	<1	1	-	-	-	-	<1
Magnetite	Fe ₃ O ₄	<1	<1	-	-	-	-	-	-
Quartz	SiO ₂	21	22	38	43	2	3	<1	74
Plagioclase	NaAlSi ₃ O ₈	1	1	-	-	-	-	-	-
K-feldspar and/or rutile	KAlSi ₃ O ₈	2	2	20	-	-	-	-	-
Rutile	TiO ₂								
Spinel	Mg _{0.73} 4Al _{2.17} O ₄								
Microcline	KAlSi ₃ O ₈	-	-	-	-	-	-	-	-
Annite - biotite - phlogopite	KFe ³ ₂ +AlSi ₃ O ₁₀ (OH) ₂	-	-	-	-	-	-	-	-
Illite - smectite	(K H ₃ O)•(Al, Mg, Fe) ₂ •(Si Al) ₄ •O ₁₀ •[(OH) ₂ (H ₂ O)]	-	-	-	-	-	-	-	-
Clinochlore	Mg,Fe)6(Si,Al)4O10(OH)8								
Montmorillonite	(Na,Ca) _{0.3} (Al,Mg) ₂ Si ₂ O ₁₀ (OH) ₂ ·nH ₂ O	-	-	-	-	-	-	-	-
Illite	K _{0.78} Mg _{0.34} Al _{2.34} Si _{3.35} O ₁₀ (OH) ₂ (H ₂ O) _{0.15}								
Vermiculite	Mg ₃ (Si,Al)4O ₁₀ (OH) ₂ ·4H ₂ O								
Palygorskite	(Mg,Al) ₂ Si ₄ O ₁₀ (OH) ₄ (H ₂ O)	3	3	-	-	-	-	-	-
Serpentine	Mg ₃ Si ₂ O ₅ (OH) ₄	-	-	-	-	-	-	-	-
Amphibole	(Ca,Na) ₂ (Mg,Fe,Al) ₅ (Al,Si) ₈ O ₂₂ (OH) ₂	-	-	-	-	6	3	-	-
Muscovite	KAl ₂ (Si ₃ Al)O ₁₀ (OH) ₂	1	1	17	14	-	-	-	-
Kaolinite	Al ₂ Si ₂ O ₅ (OH) ₄	-	-	-	-	-	-	-	-
Kaolin	Al2Si2O5(OH)4	7	11	2	-	4	3	-	4
Amorphous Content		18	14	7	14	11	12	7	4

Appendix A.2 Paste parameters, ABA and NAG

Appendix A.2 - Paste parameters, ABA and NAG data

Sample ID	Lithological Units	Paste pH	Paste EC	Total S	Total C	NAG pH	NAG to pH 4.5	NAG to pH 7.5	ANC	MPA	NAPP	NPR
											(MPA-ANC)	(ANC/MPA)
		s.u.	mS/cm	%	s.u.	kg H ₂ SO ₄ /t						
Mine Earth												
MD5879	CzD2	8.1	230	0.02	3.25				258.07	0.6	-257	422
MD5984	CzD2	8.3	210	0.005	0.35				22.87	0.2	-22.7	149
MD7390	CzD2	7.5	110	0.02	0.09				3.27	0.6	-2.7	5.3
MD7433	CzD2	8.1	350	0.04	0.12				4.08	1.2	-2.9	3.3
MD8454	CzD2	7.2	220	0.02	0.14				6.53	0.6	-5.9	10.7
MD7826	CzD2	7.3	220	0.005	0.03				0.82	0.2	-0.7	5.3
MD7191	CzD3	7.3	140	0.14	0.06	7			1.63	4.3	2.7	0.4
MD7291	CzD3	6.4	120	0.05	0.38				8.17	1.5	-6.6	5.3
MD7433	CzD3	9.4	1920	0.07	6.68				541.45	2.1	-539	253
MD8222	CzD3	7.7	560	0.1	0.19	8.9			10.62	3.1	-7.6	3.5
MD8226	CzD3	8.1	320	0.5	0.07	7.4			2.45	15.3	12.9	0.2
MD8304	CzD3	6.4	140	0.37	0.11	7.3			4.08	11.3	7.2	0.4
MD8374	CzD3	8	190	0.03	0.28				15.52	0.9	-14.6	16.9
MD8434	CzD3	7.9	140	0.34	0.04	7.2			0.82	10.4	9.6	0.1
MD7601	CzD3	7.2	100	0.31	0.05	6.9			1.63	9.5	7.9	0.2
MD7687	CzD3	7.1	120	0.26	0.07	6.9			1.63	8.0	6.3	0.2
MD7814	CzD3	7.6	3300	0.24	0.2	8.7			13.88	7.3	-6.5	1.9
MD7814	CzD3	7.5	90	0.02	0.06				1.63	0.6	-1.0	2.7
MD7855	CzD3	7.8	170	0.39	0.08	7.7			2.45	11.9	9.5	0.2
MD7855	CzD3	7.3	150	0.04	0.1				3.27	1.2	-2.0	2.7
MD7877	CzD3	6.6	180	0.29	0.07	7			0.82	8.9	8.1	0.1
MD7918	CzD3	7.4	120	0.15	0.05	7.2			1.63	4.6	3.0	0.4
MD7918	CzD3	7.3	130	0.005	0.04				0.82	0.2	-0.7	5.3
MD8902	CzD3	7.3	350	0.05	0.08				3.27	1.5	-1.7	2.1
MD7169	JER	2.2	11210	7.65	4.62	1.8	129	156	14.70	234	219	0.1
MD7554	JER	8.1	1890	0.97	0.72	8.8			57.17	29.7	-27.5	1.9
MD7616	JER	2.3	8660	4.21	4.78	2	74	93	2.45	129	126	0.02
MD5879	MAC	7.4	550	0.17	2.29	7.6			160.07	5.2	-155	30.8
MD7090	MAC	6.7	100	0.005	0.14				3.27	0.2	-3.1	21.4
MD7191	MAC	7.1	690	0.34	3.75	7.5			271.95	10.4	-262	26.1
MD7237	MAC	8.7	460	0.25	5.36	8.5			412.42	7.7	-405	53.9
MD7457	MAC	7.8	200	0.02	0.07				2.45	0.6	-1.8	4.0
MD7269	MAC	7.7	140	0.005	0.04				1.63	0.2	-1.5	10.7
MD7338	MAC	7	110	0.04	0.18				5.72	1.2	-4.5	4.7
MD8365	MAC	8	480	0.02	0.04				2.45	0.6	-1.8	4.0
MD8389	MAC	7.6	100	0.02	0.07				3.27	0.6	-2.7	5.3
MD7530	MAC	6.7	80	0.02	0.08				4.08	0.6	-3.5	6.7
MD5866	NAM	6	960	2.07	3.77	4	1	29	152.72	63.3	-89.4	2.4
MD5871	NAM	7	580	0.49	1.54	6.4			64.52	15.0	-49.5	4.3
MD7087	NAM	2.8	1700	0.92	1.16	2.5	19	23	7.35	28.2	20.8	0.3
MD7090	NAM	7.7	860	0.38	4.23	8.4			292.37	11.6	-281	25.1
MD7169	NAM	6.9	130	0.06	0.11				2.45	1.8	-0.6	1.3
MD7169	NAM	7.1	320	0.54	1.21	7.1			0.41	16.5	16.1	0.0
MD5984	NAM	7.5	1670	0.09	0.23				9.80	2.8	-7.0	3.6
MD7390	NAM	7.7	1690	0.43	2.46	8.2			130.67	13.2	-118	9.9
MD8222	NAM	6.8	2380	1.68	7.58	4.7		14	585.55	51.4	-534	11.4
MD8222	NAM	7.9	4010	1.19	6.43	8.2			467.13	36.4	-431	12.8
MD8226	NAM	3.3	5510	3.46	4.6	2.3	38	71	23.68	106	82.2	0.2
MD8454	NAM	7.7	290	0.02	0.06				1.63	0.6	-1.0	2.7
MD7545	NAM	7.2	810	0.21	0.03	6.6			0.82	6.4	5.6	0.1
MD7554	NAM	7.5	3690	0.83	0.05	7.2			1.63	25.4	23.8	0.1
MD7554	NAM	7.5	6060	0.39	0.08	7.3			4.90	11.9	7.0	0.4
MD7578	NAM			0.15	0.06	5.9			1.63	4.6	3.0	0.4
MD7616	NAM	7.3	80	0.01	0.13				2.45	0.3	-2.1	8.0
MD7616	NAM	5.3	200	0.03	0.03				0.82	0.9	0.1	0.9
MD7616	NAM	3.5	1720	1	2.48	3.4	3	10	4.08	30.6	26.5	0.1
MD7664	NAM	6.6	370	0.005	0.02				0.41	0.2	-0.3	2.7
MD7689	NAM	6.9	400	0.02	0.03				0.82	0.6	-0.2	1.3
MD7711	NAM	7.1	940	0.01	0.03				0.82	0.3	-0.5	2.7
MD7773	NAM	8.6	280	0.02	0.14				8.98	0.6	-8.4	14.7
MD8454	NAM	6.8	2150	0.75	0.92	3.4	3	7	5.72	23.0	17.2	0.2
MD7826	NAM			0.005	0.06				1.63	0.2	-1.5	10.7
MD7855	NAM	6.8	60	0.03	0.15				3.27	0.9	-2.3	3.6
MD7914	NAM	7.6	110	0.03	0.12				2.45	0.9	-1.5	2.7
MD7918	NAM	7.2	110	0.005	0.06				2.45	0.2	-2.3	16.0
MD7935	NAM	6.8	70	0.02	0.13				3.27	0.6	-2.7	5.3
MD8902	NAM	7.3	340	0.005	0.08				4.90	0.2	-4.7	32.0
MD7871	NEW	7.6	100	0.02	0.04				1.63	0.6	-1.0	2.7
MWH												
ARD841805_2m	CzD2	6.6	0.06	0.05	0.16	6.8			3.00	1.5	-1.5	2.0
ARD845260_3m	CzD2	7.4	0.71	0.04	0.08	7.4			4.00	1.2	-2.8	3.3
ARD846339_8m	CzD2	7	0.11	0.03	0.09	7.2			5.00	0.9	-4.1	5.4
ARD847817_6m	CzD2	7.8	2.02	0.07	0.2	7.9			6.00	2.1	-3.9	2.8
ARD847961_40m	CzD2	7.1	0.32	0.05	0.05	7			3.00	1.5	-1.5	2.0
ARD845232_6m	CzD3	8.8	0.43	0.06	1.58	8.6			129.00	1.8	-127	70.3

Appendix A.2 - Paste parameters, ABA and NAG data

Sample ID	Lithological Units	Paste pH	Paste EC	Total S	Total C	NAG pH	NAG to pH 4.5	NAG to pH 7.5	ANC	MPA	NAPP	NPR
											(MPA-ANC)	(ANC/MPA)
		s.u.	mS/cm	%		s.u.	kg H ₂ SO ₄ /t					
ARD847943_4m	CzD3	8.3	0.56	0.08	1.69	8.9			143.00	2.4	-141	58.4
ARD844879_2-4m	CzD3	7.9	7.53	0.13	0.62	8.6			49.00	4.0	-45.0	12.3
ARD840883_4m	CzD3	8.2	2.99	0.1	0.21	9			12.00	3.1	-8.9	3.9
ARD846209_2-4m	CzD3	6.3	0.83	0.06	0.07	6.9			3.00	1.8	-1.2	1.6
ARD849090_20m	CzD3	7.1	0.13	0.07	0.13	7.1			3.00	2.1	-0.9	1.4
ARD841351_52m	JER	2.2	4.04	10.5	4.37	2.1	256	275	-4.00	321	325	-0.01
ARD841835_62m	JER	8.2	0.34	0.13	0.4	8.2			8.00	4.0	-4.0	2.0
ARD847974_66m	JER	3.5	1.62	2.67	2.16	2.2	57	66	-6.00	81.7	87.7	-0.1
ARD849020_50m	JER	7.5	0.51	0.15	5.64	5.6		1	3.00	4.6	1.6	0.7
ARD845328_18m	JER	8	1	0.05	0.07	6.5		2	3.00	1.5	-1.5	2.0
ARD841329_8m	NAM	8.2	0.11	0.12	0.12	7.5			4.00	3.7	-0.3	1.1
ARD847997_4m	NAM	8.4	0.4	0.03	0.14	8.7			12.00	0.9	-11.1	13.1
ARD847997_78m	NAM	8.4	0.41	0.03	0.14	8.5			11.00	0.9	-10.1	12.0
ARD848440_6m	NAM	7.4	0.14	0.1	0.24	6.4			3.00	3.1	0.1	1.0
ARD847182_40m	NAM	7.1	2.28	0.06	0.06	7.6			11.00	1.8	-9.2	6.0
ARD841337_24m	NAM	6.2	0.5	0.11	0.16	6.5			2.00	3.4	1.4	0.6
ARD841814_20m	NAM	7	0.27	0.03	0.05	6.4			2.00	0.9	-1.1	2.2
ARD847192_20m	NAM	7.1	0.2	0.04	0.05	6.6			1.00	1.2	0.2	0.8
ARD847827_26m	NAM	7	0.16	0.17	0.08	6.4			2.00	5.2	3.2	0.4
ARD847827_62m	NAM	7.1	0.17	0.18	0.08	6.6			1.00	5.5	4.5	0.2
ARD841342_34m	NAM	7.1	0.26	0.06	0.05	6.9			-2.00	1.8	3.8	-1.1
ARD841819_30m	NAM	6.8	0.12	0.02	0.08	5.7		1	1.00	0.6	-0.4	1.6
ARD845376_25m	NAM	7.2	0.19	0.04	0.1	6.9			3.00	1.2	-1.8	2.5
ARD846316_38m	NAM	7.5	0.76	0.02	0.04	7.3			1.00	0.6	-0.4	1.6
ARD846316_70m	NAM	7.3	0.47	0.02	0.03	7.1			2.00	0.6	-1.4	3.3
ARD847739_36m	NAM	7.6	0.55	0.02	0.05	7.6			6.00	0.6	-5.4	9.8
ARD847834_40m	NAM	7.4	0.61	0.02	0.05	7			1.00	0.6	-0.4	1.6
ARD848453_32m	NAM	7	0.09	0.07	0.05	6.9			2.00	2.1	0.1	0.9
ARD849010_30m	NAM	8.1	0.38	0.02	0.09	7.4			3.00	0.6	-2.4	4.9
ARD849094_28m	NAM	7.1	0.07	0.03	0.04	6.4			1.00	0.9	-0.1	1.1
ARD849094_42m	NAM	7.1	0.07	0.03	0.04	6.7			1.00	0.9	-0.1	1.1
ARD847984_8m	Out of pit	8.2	0.55	0.07	0.34	8.5			8.00	2.1	-5.9	3.7
ARD849054_4m	Out of pit	8.2	0.2	0.05	0.38	9.5			17.00	1.5	-15.5	11.1
ARD849031_12m	Out of pit	8.3	0.46	0.02	0.08	8			5.00	0.6	-4.4	8.2
ARD849057_10m	Out of pit	8.3	1.61	0.04	0.19	7.4			11.00	1.2	-9.8	9.0
ARD849077_48m	Out of pit	2.6	2.63	11.81	4.39				-3.00	361	364	-0.01
ARD845317_14m	Out of pit	8.2	1.17	0.08	0.24	10.3			19.00	2.4	-16.6	7.8
ARD847990_20m	Out of pit	7.3	0.13	0.06	0.06	5.6		1	2.00	1.8	-0.2	1.1
ARD849039_70m	Out of pit	7.6	0.23	0.03	0.05	7			2.00	0.9	-1.1	2.2
ARD849067_28m	Out of pit	7.5	0.25	0.25	0.05	7.3			3.00	7.7	4.7	0.4
ChemCentre												
MDRC1338_58-64	CzD2	7.5	360	0.03	0.1	7.1	0.5	0.5	5.7	0.9	-4.8	6.2
MDRC1371_60-64	CzD2	8.6	360	0.01	1.99	9	0.5	0.5	100	0.3	-99.7	326.8
MDRC1374_66-72	CzD2	7.3	240	0.04	0.11	6.7	0.5	0.5	2.4	1.2	-1.2	2.0
MDRC1382_48-54	CzD2	7.3	200	0.02	0.06	7.8	0.5	0.5	2.9	0.6	-2.3	4.7
MDRC1391_44-50	CzD2	7.2	90	0.03	0.14	6.2	0.5	0.5	1.9	0.9	-1.0	2.1
MDRC1391_58-62	CzD2	6.9	240	0.03	0.18	7.2	0.5	0.5	1.4	0.9	-0.5	1.5
MDRC1397_58-66	CZD2	6.9	230	0.03	0.05	5.6	0.5	0.5	1.3	0.9	-0.4	1.4
MDRC1424_22-26	CzD2	7.2	150	0.06	0.05	7.5	0.5	0.5	3.3	1.8	-1.5	1.8
MDRC1459_52-58	CzD2	7	150	0.04	0.27	6.7	0.5	0.5	1.9	1.2	-0.7	1.6
MDRC1486_46-52	CzD2	6.9	90	0.02	0.09	7.1	0.5	0.5	1.3	0.6	-0.7	2.1
MDRC1490_44-52	CzD2	6.5	200	0.03	0.18	6.4	0.5	0.5	1.7	0.9	-0.8	1.9
MDRC1498_46-52	CzD2	7.2	80	0.01	0.27	6.1	0.5	0.5	2.3	0.3	-2.0	7.5
MDRC1513_52-58	CzD2	7.3	80	0.02	0.08	6.1	0.5	0.5	3.2	0.6	-2.6	5.2
MDRC1526_70-74	CzD2	7.5	130	0.02	0.05	6.5	0.5	0.5	2.2	0.6	-1.6	3.6
MDRC1534_20-30	CzD2	7.2	130	0.03	0.05	7.8	0.5	0.5	3.9	0.9	-3.0	4.2
MDRC1535_40-46	CzD2	6.9	160	0.04	0.05	7.5	0.5	0.5	3.4	1.2	-2.2	2.8
MDRC1536_30-36	CzD2	7.1	120	0.02	0.09	7.3	0.5	0.5	3.3	0.6	-2.7	5.4
MDRC1536_36-44	CzD2	7.2	150	0.02	0.07	7.4	0.5	0.5	3.6	0.6	-3.0	5.9
MDRC1549_56-62	CzD2	7.2	450	0.04	0.35	6.8	0.5	0.5	4.1	1.2	-2.9	3.3
MDRC1554_54-60	CzD2	7.4	130	0.02	0.11	6	0.5	1.6	2.6	0.6	-2.0	4.2
MDRC1572_60-66	CzD2	7.4	300	0.02	0.15	6	0.5	2.3	3	0.6	-2.4	4.9
MDRC1573_34-40	CzD2	7	370	0.03	0.07	7	0.5	0.5	2	0.9	-1.1	2.2
MDRC0964_06-12	CzD3	8.1	330	0.18	0.05	7.3	0.5	0.5	3.6	5.5	1.9	0.7
MDRC0971_06-12	CzD3	7.6	120	0.14	0.05	6.4	0.5	0.5	2.9	4.3	1.4	0.7
MDRC0972_06-14	CzD3	7.2	150	0.13	0.05	6.3	0.5	0.5	2.9	4.0	1.1	0.7
MDRC0973_04-12	CzD3	8.3	390	0.13	0.05	7.1	0.5	0.5	4.9	4.0	-0.9	1.2
MDRC0973_20-24	CzD3	7.4	100	0.06	0.14	6.3	0.5	0.5	2.6	1.8	-0.8	1.4
MDRC0975_06-12	CzD3	7.8	660	0.06	0.05	6.6	0.5	0.5	3.4	1.8	-1.6	1.9
MDRC0976_08-14	CzD3	7.6	310	0.1	0.05	6.7	0.5	0.5	3.8	3.1	-0.7	1.2
MDRC0984_06-12	CzD3	8.3	730	0.1	0.05	7.4	0.5	0.5	5.3	3.1	-2.2	1.7
MDRC1338_12-18	CzD3	7.7	210	0.06	0.08	6.7	0.5	0.5	2.8	1.8	-1.0	1.5
MDRC1338_24-30	CzD3	7	540	0.06	0.34	5.4	0.5	0.5	2.5	1.8	-0.7	1.4
MDRC1338_40-46	CzD3	7.2	610	0.07	0.38	5.7	0.5	0.5	3	2.1	-0.9	1.4
MDRC1339_32-38	CzD3	7.3	150	0.03	0.07	6.1	0.5	0.5	3	0.9	-2.1	3.3
MDRC1339_44-50	CzD3	7.2	280	0.03	0.14	6.2	0.5	0.5	2.5	0.9	-1.6	2.7

Appendix A.2 - Paste parameters, ABA and NAG data

Sample ID	Lithological Units	Paste pH	Paste EC	Total S	Total C	NAG pH	NAG to pH 4.5	NAG to pH 7.5	ANC	MPA	NAPP (MPA-ANC)	NPR (ANC/MPA)
		s.u.	mS/cm	%		s.u.						
							kg H ₂ SO ₄ /t					
MDRC1350_34-42	CzD3	7.1	180	0.05	0.08	7	0.5	0.5	1.1	1.5	0	0.7
MDRC1357_04-10	CzD3	8.4	900	0.1	0.23	8.8	0.5	0.5	11	3.1	-7.9	3.6
MDRC1357_26-32	CzD3	7.3	340	0.04	0.22	5.4	0.5	1.1	1.3	1.2	-0.1	1
MDRC1357_34-40	CzD3	6.9	410	0.04	0.42	4.8	0.5	0.5	1.8	1.2	-0.6	1.5
MDRC1371_42-46	CzD3	7.6	300	0.06	0.24	6.6	0.5	0.5	2.4	1.8	-0.6	1.3
MDRC1374_10-18	CzD3	7.4	220	0.09	0.08	6.7	0.5	0.5	2.8	2.8	0.0	1.0
MDRC1374_22-28	CzD3	7.1	300	0.05	0.29	5.6	0.5	0.5	2.3	1.5	-0.8	1.5
MDRC1384_00-06	CzD3	6.3	330	0.05	0.05	7.1	0.5	0.5	2.8	1.5	-1	2
MDRC1384_06-10	CzD3	7.6	180	0.09	0.05	7.4	0.5	0.5	7.7	2.8	-4.9	2.8
MDRC1384_16-22	CzD3	7.3	90	0.02	0.05	6.9	0.5	0.5	2.5	0.6	-1.9	4.1
MDRC1403_38-44	CzD3	6.9	140	0.06	0.07	7.1	0.5	0.5	2.7	1.8	-0.9	1.5
MDRC1409_06-12	CzD3	8.4	220	0.25	0.05	7.5	0.5	0.5	6.1	7.7	1.6	0.8
MDRC1409_34-40	CzD3	7.1	160	0.05	0.08	6.2	0.5	0.5	2.4	1.5	-0.9	1.6
MDRC1409_48-52	CzD3	7.2	100	0.03	0.14	6.6	0.5	0.5	1.7	0.9	-0.8	1.9
MDRC1412_10-16	CzD3	7.4	180	0.08	0.05	6	0.5	0.5	2.7	2.4	-0.3	1.1
MDRC1413_26-38	CzD3	7.2	320	0.09	0.23	5.8	0.5	0.5	2.7	2.8	0.1	1.0
MDRC1414_06-12	CzD3	8.1	170	0.15	0.05	6.4	0.5	0.5	4.4	4.6	0.2	1.0
MDRC1414_32-38	CzD3	7.3	210	0.03	0.05	6.3	0.5	0.5	2.4	0.9	-1.5	2.6
MDRC1415_10-16	CzD3	7.5	90	0.09	0.05	6.1	0.5	0.5	2.7	2.8	0.1	1.0
MDRC1415_44-50	CzD3	7.2	190	0.03	0.05	6.5	0.5	0.5	2.5	0.9	-1.6	2.7
MDRC1438_04-10	CzD3	7.9	1300	0.12	0.11	8.3	0.5	0.5	9.8	3.7	-6.1	2.7
MDRC1438_20-26	CzD3	7.4	200	0.03	0.05	5.9	0.5	0.7	2.8	0.9	-1.9	3.1
MDRC1440_28-34	CzD3	7.3	120	0.02	0.05	6.1	0.5	0.5	2.6	0.6	-2.0	4.2
MDRC1441_28-34	CzD3	7.3	240	0.03	0.13	5.8	0.5	0.5	2	0.9	-1.1	2.2
MDRC1459_18-24	CzD3	7.1	130	0.04	0.05	6	0.5	0.5	3.2	1.2	-2.0	2.6
MDRC1460_06-12	CzD3	8	150	0.12	0.05	7.1	0.5	0.5	5.1	3.7	-1.4	1.4
MDRC1460_30-36	CzD3	7	110	0.02	0.14	5.4	0.5	0.5	2.6	0.6	-2.0	4.2
MDRC1475_06-12	CzD3	7.8	140	0.11	0.06	6.4	0.5	0.5	4.8	3.4	-1.4	1.4
MDRC1478_38-44	CzD3	7.3	330	0.03	0.16	6.2	0.5	0.5	2.5	0.9	-1.6	2.7
MDRC1486_18-24	CzD3	7	200	0.02	0.06	7.2	0.5	0.5	3.1	0.6	-2.5	5.1
MDRC1513_14-20	CzD3	7.3	130	0.01	0.05	6.2	0.5	0.5	3.4	0.3	-3.1	11.1
MDRC1513_20-24	CzD3	7.1	110	0.01	0.05	6.6	0.5	0.5	2.9	0.3	-2.6	9.5
MDRC1521_08-14	CzD3	7.5	130	0.03	0.05	6.8	0.5	0.5	3.4	0.9	-2.5	3.7
MDRC1521_14-18	CzD3	7.3	150	0.03	0.07	6.6	0.5	0.5	2.5	0.9	-1.6	2.7
MDRC1521_36-42	CzD3	7.2	170	0.03	0.07	6.7	0.5	0.5	2.5	0.9	-1.6	2.7
MDRC1523_24-32	CzD3	7.2	180	0.03	0.05	5.9	0.5	0.6	2.7	0.9	-1.8	2.9
MDRC1523_32-36	CzD3	7.2	200	0.02	0.05	6.4	0.5	0.5	1.8	0.6	-1.2	2.9
MDRC1528_32-38	CzD3	7.2	260	0.02	0.05	6.1	0.5	0.5	3.3	0.6	-2.7	5.4
MDRC1534_06-12	CzD3	8.1	140	0.05	0.05	6.8	0.5	0.5	5	1.5	-3.5	3.3
MDRC1534_16-20	CzD3	7.5	130	0.01	0.05	6.5	0.5	0.5	3.5	0.3	-3.2	11.4
MDRC1536_00-04	CzD3	8	400	0.07	0.05	7.5	0.5	0.5	6	2.1	-3.9	2.8
MDRC1536_04-08	CzD3	8.2	330	0.12	0.05	7.2	0.5	0.5	4.6	3.7	-0.9	1.3
MDRC1536_12-18	CzD3	7.4	100	0.02	0.05	5.9	0.5	0.8	3	0.6	-2.4	4.9
MDRC1549_28-34	CzD3	7.1	130	0.06	0.06	6.3	0.5	0.5	2.2	1.8	-0.4	1.2
MDRC1551_08-14	CzD3	7.7	110	0.11	0.08	6.4	0.5	0.5	3	3.4	0.4	0.9
MDRC1551_16-22	CzD3	7.5	90	0.04	0.05	6.2	0.5	0.5	2	1.2	-0.8	1.6
MDRC1551_24-30	CzD3	7.2	90	0.04	0.05	5.5	0.5	2.3	1.5	1.2	-0.3	1.2
MDRC1552_18-24	CzD3	7.3	200	0.02	0.05	7	0.5	0.5	2.5	0.6	-1.9	4.1
MDRC1569_08-14	CzD3	7.4	190	0.12	0.05	6	0.5	0.9	3.3	3.7	0.4	0.9
MDRC1569_26-32	CzD3	7.1	110	0.03	0.05	5.6	0.5	2.9	1.9	0.9	-1.0	2.1
MDRC1569_32-40	CzD3	7	180	0.02	0.09	5.6	0.5	3.1	2	0.6	-1.4	3.3
MDRC1569_40-44	CzD3	7.2	130	0.02	0.06	7.1	0.5	0.5	3.5	0.6	-2.9	5.7
MDRC1572_02-10	CzD3	7.8	1400	0.11	0.05	7.8	0.5	0.5	5.5	3.4	-2.1	1.6
MDRC1572_24-30	CzD3	7.3	140	0.03	0.05	6.2	0.5	1.5	1.8	0.9	-0.9	2.0
MDRC1573_06-12	CzD3	7.6	350	0.14	0.05	6.4	0.5	0.5	5.5	4.3	-1.2	1.3
MDRC1576_00-06	CzD3	7	390	0.09	0.06	7.8	0.5	0.5	6.4	2.8	-3.6	2.3
MDRC1576_62-68	CzD3	7.6	530	0.04	0.36	6	0.5	2.1	5.1	1.2	-3.9	4.2
MDRC1599_02-08	CzD3	8.4	300	0.1	0.12	8.1	0.5	0.5	11	3.1	-7.9	3.6
MDRC1599_28-34	CzD3	7.2	210	0.02	0.05	6.6	0.5	0.5	3	0.6	-2.4	4.9
MDRC1338_102-108	JER	7.9	630	0.38	3.06	4.2	0.5	3.1	20	11.6	-8.4	1.7
MDRC1371_108-116	JER	5.7	930	1.19	3.02	2.5	11	26	7.8	36.4	28.6	0.2
MDRC1412_106-112	JER	6.4	800	1.36	4.44	2.6	6.4	28	6.3	41.6	35.3	0.2
MDRC1460_90-94	JER	7.4	150	0.08	0.34	7.5	0.5	0.5	2.8	2.4	-0.4	1.1
MDRC1599_96-100	JER	7.6	290	0.08	4.09	7.1	0.5	0.5	22	2.4	-19.6	9.0
MDRC0693_06-12	MAC	7.3	1400	0.06	0.07	7	0.5	0.5	2.6	1.8	-0.8	1.4
MDRC0719_06-12	MAC	6.3	190	0.05	0.09	5.8	0.5	0.5	1	1.5	0.5	0.7
MDRC0762_10-16	MAC	6.8	770	0.03	0.05	6.4	0.5	0.5	1	0.9	-0.1	1.1
MDRC0972_34-40	MAC	6.9	60	0.02	0.07	5.9	0.5	0.5	0.9	0.6	-0.3	1.5
MDRC0973_34-46	MAC	7.1	140	0.03	0.14	6.1	0.5	0.5	1.3	0.9	-0.4	1.4
MDRC0974_22-38	MAC	7.1	130	0.02	0.2	6	0.5	0.5	1.6	0.6	-1.0	2.6
MDRC0976_26-32	MAC	7.1	80	0.03	0.09	5.8	0.5	0.5	1.6	0.9	-0.7	1.7
MDRC0984_30-36	MAC	7.2	410	0.03	0.17	6	0.5	0.5	2.1	0.9	-1.2	2.3
MDRC1348_56-62	MAC	7.8	130	0.03	0.13	7.3	0.5	0.5	2.2	0.9	-1.3	2.4
MDRC1384_50-56	MAC	6.9	120	0.02	0.08	7.6	0.5	0.5	0.8	0.6	-0.2	1.3
MDRC1414_62-68	MAC	7.1	150	0.02	0.07	7.3	0.5	0.5	1.6	0.6	-1.0	2.6
MDRC1440_60-66	MAC	7	130	0.04	0.09	7.6	0.5	0.5	1.8	1.2	-0.6	1.5

Appendix A.2 - Paste parameters, ABA and NAG data

Sample ID	Lithological Units	Paste pH	Paste EC	Total S	Total C	NAG pH	NAG to pH 4.5	NAG to pH 7.5	ANC	MPA	NAPP (MPA-ANC)	NPR (ANC/MPA)
		s.u.	mS/cm	%		s.u.						
							kg H ₂ SO ₄ /t					
MDRC1440_66-72	MAC	7.2	100	0.02	0.09	7.7	0.5	0.5	2.4	0.6	-1.8	3.9
MDRC1440_72-78	MAC	7.2	170	0.1	0.05	7.8	0.5	0.5	1.6	3.1	1.5	0.5
MDRC1440_78-88	MAC	7.2	230	0.09	0.05	7.9	0.5	0.5	2.7	2.8	0.1	1.0
MDRC1486_80-86	MAC	7.1	150	0.01	0.07	7.4	0.5	0.5	2.1	0.3	-1.8	6.9
MDRC1486_86-94	MAC	5.4	770	1.27	1.61	2.8	6.7	16	5.8	38.9	33.1	0.1
MDRC1513_60-64	MAC	7.3	230	0.01	0.08	7.8	0.5	0.5	4.1	0.3	-4	13
MDRC1526_92-98	MAC	7.5	400	0.02	0.07	7.9	0.5	0.5	11	0.6	-10.4	18.0
MDRC1535_46-72	MAC	7.1	160	0.03	0.05	7.3	0.5	0.5	2.9	0.9	-2.0	3.2
MDRC1569_50-56	MAC	7.1	170	0.02	0.1	6.6	0.5	0.5	2.4	0.6	-1.8	3.9
MDRC1573_58-62	MAC	7.8	290	0.02	0.2	6.9	0.5	0.5	1.5	0.6	-0.9	2.5
MDRC1339_88-112	NAM	5.4	1100	1.77	2.56	2.5	20	33	11	54.2	43.2	0.2
MDRC1348_80-86	NAM	7.4	180	0.03	0.06	7.4	0.5	0.5	4.7	0.9	-3.8	5.1
MDRC1348_86-92	NAM	7	490	0.28	1.32	3.6	0.5	4	5	8.6	3.6	0.6
MDRC1348_94-100	NAM	7.1	500	0.82	4.99	4.7	0.5	4.5	15	25.1	10.1	0.6
MDRC1357_88-94	NAM	8.4	840	0.12	4.05	8.9	0.5	0.5	260	3.7	-256.3	70.8
MDRC1374_94-100	NAM	8.7	430	0.01	4.21	9.2	0.5	0.5	190	0.3	-189.7	620.9
MDRC1384_62-68	NAM	6.9	200	0.05	0.1	8.2	0.5	0.5	2.8	1.5	-1.3	1.8
MDRC1391_64-70	NAM	7	170	0.05	0.05	8	0.5	0.5	2.3	1.5	-0.8	1.5
MDRC1391_76-82	NAM	6.8	390	0.15	0.37	8	0.5	0.5	5.1	4.6	-0.5	1.1
MDRC1397_82-88	NAM	4.4	1300	0.9	2.45	2.4	24	33	2.8	27.5	24.7	0.1
MDRC1412_72-84	NAM	7	140	0.03	0.09	7.5	0.5	0.5	1.6	0.9	-0.7	1.7
MDRC1415_92-98	NAM	7.3	440	0.2	1.24	7.2	0.5	0.5	9.3	6.1	-3.2	1.5
MDRC1415_98-104	NAM	5.1	1100	2.31	2.05	2.2	40	60	5.7	70.7	65.0	0.1
MDRC1424_48-54	NAM	7	80	0.03	0.05	7	0.5	0.5	1.7	0.9	-0.8	1.9
MDRC1441_100-106	NAM	6	430	0.47	1.99	3.9	0.5	2.5	8.2	14.4	6.2	0.6
MDRC1460_60-64	NAM	7	140	0.02	0.08	7.9	0.5	0.5	3.6	0.6	-3.0	5.9
MDRC1460_64-74	NAM	6.7	120	0.01	0.1	7.5	0.5	0.5	1.8	0.3	-1.5	5.9
MDRC1460_74-78	NAM	6.5	200	0.01	0.11	7.3	0.5	0.5	2	0.3	-1.7	6.5
MDRC1460_78-84	NAM	6.8	300	0.05	0.07	7.3	0.5	0.5	3.3	1.5	-1.8	2.2
MDRC1460_84-88	NAM	7.1	160	0.05	0.05	7.6	0.5	0.5	1.7	1.5	-0.2	1.1
MDRC1490_84-88	NAM	7	120	0.05	0.05	7.4	0.5	0.5	2	1.5	-0.5	1.3
MDRC1490_88-92	NAM	7.2	100	0.06	0.16	7.7	0.5	0.5	2.1	1.8	-0.3	1.1
MDRC1507_70-76	NAM	7.2	340	0.01	0.23	6.5	0.5	0.5	1.6	0.3	-1.3	5.2
MDRC1521_90-96	NAM	8	230	0.03	0.06	8.4	0.5	0.5	6.7	0.9	-5.8	7.3
MDRC1521_96-102	NAM	8.2	320	0.02	0.17	8.7	0.5	0.5	9.6	0.6	-9.0	15.7
MDRC1536_82-88	NAM	6.6	300	0.43	0.85	5.6	0.5	2.5	6.7	13.2	6.5	0.5
MDRC1542_76-82	NAM	7.2	200	0.03	0.09	7.9	0.5	0.5	3	0.9	-2.1	3.3
MDRC1549_68-74	NAM	7	410	0.03	0.1	7.7	0.5	0.5	5	0.9	-4.1	5.4
MDRC1549_74-90	NAM	7	350	0.02	0.08	7.8	0.5	0.5	4.3	0.6	-3.7	7.0
MDRC1549_90-96	NAM	7.3	270	0.02	0.08	7.6	0.5	0.5	2.6	0.6	-2.0	4.2
MDRC1551_52-62	NAM	6.8	100	0.02	0.19	6	0.5	0.6	1.3	0.6	-0.7	2.1
MDRC1551_82-90	NAM	7.2	160	0.03	0.18	7.5	0.5	0.5	3	0.9	-2.1	3.3
MDRC1552_64-70	NAM	7	220	0.03	0.16	7.3	0.5	0.5	1.2	0.9	-0.3	1.3
MDRC1552_82-88	NAM	7.1	270	0.04	0.05	7.6	0.5	0.5	2.4	1.2	-1.2	2.0
MDRC1554_94-100	NAM	7.4	200	0.05	0.05	8.1	0.5	0.5	3.3	1.5	-1.8	2.2
MDRC1554_106-112	NAM	5.5	550	0.58	0.86	2.6	11	15	1.1	17.7	16.6	0.1
MDRC1576_76-80	NAM	7.2	420	0.02	0.08	7.3	0.5	0.5	2.4	0.6	-1.8	3.9
MDRC1576_80-94	NAM	7.4	310	0.02	0.72	7.9	0.5	0.5	18	0.6	-17.4	29.4
MDRC1599_52-58	NAM	7.1	160	0.02	0.11	7.3	0.5	0.5	4.1	0.6	-3.5	6.7
MDRC1599_72-78	NAM	6.9	80	0.01	0.08	6.9	0.5	0.5	1.5	0.3	-1.2	4.9
MDRC1599_90-96	NAM	7.7	390	0.01	1.65	7.5	0.5	0.5	19	0.3	-18.7	62.1
MDRC0717_00-04	NEW	6	70	0.06	0.22	6	0.5	0.5	3	1.8	-1.2	1.6
MDRC0719_02-06	NEW	6.2	250	0.06	0.14	6.2	0.5	0.5	1.6	1.8	0.2	0.9
MDRC0740_04-10	NEW	8.6	350	0.02	0.12	9.3	0.5	0.5	12	0.6	-11.4	19.6
MDRC1528_60-68	WA	8.7	230	0.01	3.07	7.7	0.5	0.5	210	0.3	-209.7	686.3
MDRC1528_68-74	WA	8.1	140	0.02	0.09	7.1	0.5	0.5	4.8	0.6	-4.2	7.8

Appendix A.3 Bulk chemical assays

Appendix A.3 - Bulk chemical assays

Appendix A.3 - Bulk chemical assays				Mine Earth														
				Bulk Assay Results														
				MDLF01	MDLF02	MDLF03	MDLF04	MDLF05	MDLF06	MDLF07	MDLF08	MDLF09	MDLF10	MDLF11	MDLF12	MDLF13	MDLF14	MDLF15
Ag	mg/kg	0.07	0.05	0.17	0.27	<0.05	0.09	0.05	<0.05	0.15	0.25	0.36	0.22	0.07	<0.05	<0.05	<0.05	<0.05
Al	mg/kg	82,000	50	55,953	85,741	21,484	104,961	24,338	15,338	55,556	63,594	58,865	50,698	27,205	76,061	47,022	16,664	25,693
As	mg/kg	1.5	0.5	48.2	68.4	8.3	38.5	15.2	14.7	48.0	47.0	58.5	46.7	7.8	7.8	29.6	9.6	18.0
Ba	mg/kg	500	50	<50	54	<50	103	<50	<50	50	<50	57	<50	<50	<50	<50	<50	76
Be	mg/kg	2.6	0.1	238	735	52.1	57	161	27	268	362	388	173	270	28.1	109	24.5	8
Bi	mg/kg	0.048	0.01	0.54	1.07	0.24	0.97	0.23	0.13	0.54	0.61	0.8	0.6	0.13	0.38	0.51	0.32	0.22
Ca	mg/kg	41,000	50	1,239	652	159	7,927	729	435	854	2,020	3,383	678	210,495	4,276	3,689	729	4,016
Cd	mg/kg	0.11	0.02	0.12	0.07	0.03	0.16	0.09	0.48	0.05	0.08	0.08	0.11	0.03	0.13	0.26	0.33	0.05
Co	mg/kg	20	0.1	17.8	9.5	2.8	25.7	9.3	9.1	15	12.5	12.7	8.8	5.8	9.9	28.2	30.8	15.2
Cr	mg/kg	100	5	167	223	48	144	92	32	217	191	234	212	52	110	49	44	66
Cu	mg/kg	50	1	82	98	12	67	24	10	67	71	83	69	22	56	19	9	26
F	mg/kg	950	50	457	307	93	1,205	264	150	404	413	364	310	1,523	541	219	209	299
Fe	mg/kg	41,000	0.01	142,400	215,700	179,600	152,900	386,200	570,000	186,700	126,300	186,700	171,800	31,700	332,100	394,700	117,000	189,800
Hg	mg/kg	0.05	1	0.024	0.034	0.007	0.202	0.031	0.094	0.024	0.022	0.086	0.014	0.013	0.065	0.149	0.199	0.199
K	mg/kg	21,000	20	13,016	4,526	108	11,985	4,992	789	10,023	9,583	6,796	5,721	5,562	364	1,076	687	310
Mg	mg/kg	23,000	20	3,188	1,710	207	5,583	1,547	726	2,028	3,390	2,806	1,694	19,109	4,947	1,108	1,269	6,702
Mn	mg/kg	950	1	488	837	970	1,396	7,043	1,724	1,099	730	639	414	334	2,057	84,559	19,758	4,035
Mo	mg/kg	1.5	0.1	2.6	4	1.8	2.7	1.3	1	2.5	2.6	3.1	3.3	0.6	0.4	1.4	1.1	1.7
Na	mg/kg	23,000	20	508	455	80	1160	250	115	513	696	663	255	2726	206	544	328	262
Ni	mg/kg	80	1	79	45	14	71	32	60	66	48	44	45	19	84	39	40	55
P	mg/kg	1,000	50	305	225	83	121	413	798	342	344	293	206	96	245	264	254	127
Pb	mg/kg	14	0.5	26.1	35.9	6.5	30.6	14.5	10.3	26.2	30.7	34.2	23.6	7.1	8	9.1	5.7	5.9
S	mg/kg	260	50	3,448	311	177	5,862	398	241	3,420	4,379	1,021	326	795	<50	244	112	5,536
Sb	mg/kg	0.2	0.05	2.75	5.89	1.79	5.75	2.45	1.12	2.74	2.76	4.11	3.4	0.47	0.8	1.76	1.22	1.36
Se	mg/kg	0.05	0.5	1.6	1.8	0.6	1.8	0.7	0.6	1.7	1.9	2.7	1.7	0.6	0.6	1	1.7	0.9
Si	mg/kg	277,000	0.1	278,000	194,000	322,000	197,000	126,000	35,000	253,000	276,000	247,000	281,000	134,000	102,000	47,000	347,000	286,000
Sn	mg/kg	2.2	0.1	2.8	6.3	0.8	5.1	1	0.5	2.7	3.5	4.3	3.1	1	2.5	2	0.4	0.9
Sr	mg/kg	370	0.05	48.9	24.6	2.0	114.4	22.2	8.7	60.0	90.5	52.0	22.1	188.4	15.2	81.5	59.5	10.1
Th	mg/kg	12	0.01	7.1	18.7	2.8	12.9	3.7	1.8	7.7	11.3	12.9	10.3	3.3	12.5	10.8	2.6	3.6
Ti	mg/kg	5,600	5	2,844	6,757	1,030	5,160	1,300	550	3,002	3,781	4,402	3,804	1,257	4,780	2,708	650	1,378
Tl	mg/kg	0.6	0.02	0.88	0.61	0.03	2.96	0.28	0.12	0.86	0.52	0.52	0.48	0.24	0.03	0.25	0.05	0.04
U	mg/kg	2.4	0.01	1.61	3.37	0.6	4.36	6.8	4.35	1.71	2.54	2.48	1.95	1.37	3.08	3.36	2.4	1.53
V	mg/kg	160	1	142	313	41	146	126	115	160	140	187	235	42	75	83	39	57
Zn	mg/kg	75	1	110	46	35	27	46	189	70	61	61	64	19	74	34	19	27

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Appendix A.3 - Bulk chemical assays				ChemCentre																	
Elements	Units	Elemental composition (Bowen 1979)	LOR	Bulk Assay Result																	
				MDRC0693_06-12	MDRC0717_00-04	MDRC0719_02-06	MDRC0719_06-12	MDRC0740_04-10	MDRC0762_10-16	MDRC0964_06-12	MDRC0971_06-12	MDRC0972_06-14	MDRC0972_34-40	MDRC0973_04-12	MDRC0973_20-24	MDRC0973_34-46	MDRC0974_22-38	MDRC0975_06-12	MDRC0976_08-14	MDRC0976_26-32	
Ag	mg/kg	0.07	0.05	0.1	<0.05	0.1	<0.05	0.1	0.1	<0.05	0.1	<0.05	0.1	0.1	<0.05	0.1	<0.05	0.1	<0.05		
Al	mg/kg	82,000	50	7,060	<50	22,100	<50	2,110	3,600	<50	9,550	<50	2,510	8,830	19,300	<50	12,100	<50	10,900	<50	
As	mg/kg	1.5	0.5	6.0	<0.5	18.0	<0.5	4.8	7.2	<0.5	26.0	<0.5	14.0	23.0	7.6	<0.5	12.0	<0.5	27.0	<0.5	
Ba	mg/kg	500	50	97	<50	38	<50	51	24	<50	90	<50	6	100	22	<50	17	<50	68	<50	
Be	mg/kg	2.6	0.1	1.5	<0.1	0.72	<0.1	0.5	0.62	<0.1	0.71	<0.1	0.55	0.69	0.65	<0.1	0.5	<0.1	0.66	<0.1	
Bi	mg/kg	0.048	0.01	0.17	<0.01	0.32	<0.01	0.1	0.22	<0.01	0.36	<0.01	0.1	0.34	0.17	<0.01	0.18	<0.01	0.42	<0.01	
Ca	mg/kg	41,000	50	810	<50	160	<50	3,700	240	<50	730	<50	100	1,000	400	<50	230	<50	640	<50	
Cd	mg/kg	0.11	0.02	0.1	<0.02	0.1	<0.02	0.1	0.1	<0.02	0.12	<0.02	0.1	0.1	0.1	<0.02	0.1	<0.02	0.1	<0.02	
Co	mg/kg	20	0.1	29.0	<0.1	5.2	<0.1	5.8	7.2	<0.1	12.0	<0.1	5.7	13.0	9.3	<0.1	5.2	<0.1	12.0	<0.1	
Cr	mg/kg	100	5	34	<5	83	<5	15	32	<5	110	<5	17	100	55	<5	54	<5	110	<5	
Cu	mg/kg	50	1	7.4	<1	17	<1	4	3.8	<1	51	<1	3.5	50	17	<1	14	<1	60	<1	
F	mg/kg	950	50																		
Fe	mg/kg	41,000	0.01	180,000	<0.01	320,000	<0.01	220,000	210,000	<0.01	97,000	<0.01	210,000	99,000	250,000	<0.01	320,000	<0.01	97,000	<0.01	
Hg	mg/kg	0.05	1	0.04	<1	0.07	<1	0.04	0.04	<1	0.04	<1	0.04	0.04	0.04	<1	0.04	<1	0.04	<1	
K	mg/kg	21,000	20	280	<20	65	<20	180	110	<20	1600	<20	58	1600	210	<20	200	<20	1500	<20	
Mg	mg/kg	23,000	20	1,300	<20	150	<20	230	220	<20	1,500	<20	160	1,500	350	<20	260	<20	1,400	<20	
Mn	mg/kg	950	1	2,800	<1	1,200	<1	2,000	400	<1	250	<1	310	250	340	<1	300	<1	280	<1	
Mo	mg/kg	1.5	0.1	0.53	<0.1	0.89	<0.1	0.51	0.28	<0.1	1.2	<0.1	1.8	1.1	1.1	<0.1	0.9	<0.1	1.6	<0.1	
Na	mg/kg	23,000	20	540	<20	120	<20	170	290	<20	100	<20	100	280	130	<20	100	<20	280	<20	
Ni	mg/kg	80	1	35	<1	10	<1	10	10	<1	40	<1	11	38	15	<1	13	<1	39	<1	
P	mg/kg	1,000	50	60.0	<50	150.0	<50	130.0	66.0	<50	160.0	<50	330.0	140.0	99.0	<50	170.0	<50	170.0	<50	
Pb	mg/kg	14	0.5	2	<0.5	15	<0.5	2	6	<0.5	11	<0.5	2	11	10	<0.5	8	<0.5	13	<0.5	
S	mg/kg	260	50	460	<50	370	<50	72	230	<50	240	<50	50	220	160	<50	130	<50	260	<50	
Sb	mg/kg	0.2	0.05	0.1	<0.05	0.45	<0.05	0.46	0.91	<0.05	0.52	<0.05	0.41	0.57	0.25	<0.05	0.52	<0.05	0.67	<0.05	
Se	mg/kg	0.05	0.5	0.13	<0.5	0.47	<0.5	0.1	0.29	<0.5	0.78	<0.5	0.11	0.73	0.32	<0.5	0.42	<0.5	0.99	<0.5	
Si	mg/kg	277,000	0.1																		
Sn	mg/kg	2.2	0.1	1	<0.1	1.6	<0.1	1	1	<0.1	1	<0.1	1	1	1.2	<0.1	1	<0.1	1.2	<0.1	
Sr	mg/kg	370	0.05	15.0	<0.05	3.5	<0.05	12.0	5.1	<0.05	20.0	<0.05	2.0	19.0	6.3	<0.05	3.1	<0.05	19.0	<0.05	
Th	mg/kg	12	0.01	1.2	<0.01	5.8	<0.01	1.0	1.5	<0.01	4.4	<0.01	1.0	4.4	4.2	<0.01	3.1	<0.01	5.9	<0.01	
Ti	mg/kg	5,600	5	110	<5	1,100	<5	140	360	<5	140	<5	64	130	850	<5	590	<5	180	<5	
Tl	mg/kg	0.6	0.02	0.15	<0.02	0.1	<0.02	0.1	0.1	<0.02	0.33	<0.02	0.1	0.28	0.1	<0.02	0.1	<0.02	0.32	<0.02	
U	mg/kg	2.4	0.01	0.57	<0.01	2.4	<0.01	1.2	5.8	<0.01	0.66	<0.01	0.87	0.66	1.3	<0.01	1.2	<0.01	0.75	<0.01	
V	mg/kg	160	1	23	<1	93	<1	12	55	<1	84	<1	6.9	79	52	<1	57	<1	94	<1	
Zn	mg/kg	75	1	78	<1	50	<1	50	50	<1	64	<1	50	63	50	<1	50	<1	66	<1	

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

				ChemCentre																
Elements	Units	Elemental composition (Bowen 1979)	LOR	Bulk Assay Result																
				MDRC0984_06-12	MDRC0984_30-36	MDRC1338_12-18	MDRC1338_24-30	MDRC1338_40-46	MDRC1338_58-64	MDRC1338_102-108	MDRC1339_32-38	MDRC1339_44-50	MDRC1339_88-112	MDRC1348_56-62	MDRC1348_80-86	MDRC1348_86-92	MDRC1348_94-100	MDRC1350_34-42	MDRC1357_04-10	MDRC1357_26-32
Ag	mg/kg	0.07	0.05	0.1	0.1	0.12	0.1	<0.05	0.1	0.1	0.1	0.1	<0.05	0.1	0.1	0.1	<0.05	0.1	0.1	0.18
Al	mg/kg	82,000	50	16,400	22,500	9,210	12,600	<50	23,900	31,800	10,800	13,600	<50	6,080	13,200	20,500	<50	10,500	15,400	13,300
As	mg/kg	1.5	0.5	24.0	13.0	34.0	27.0	<0.5	14.0	8.6	38.0	28.0	<0.5	9.1	17.0	44.0	<0.5	28.0	16.0	48.0
Ba	mg/kg	500	50	130	16	81	93	<50	59	3	38	35	<50	25	67	21	<50	94	330	40
Be	mg/kg	2.6	0.1	0.8	0.66	0.68	0.53	<0.1	1.7	1.8	0.5	0.6	<0.1	1.4	4	1.2	<0.1	0.56	0.89	0.5
Bi	mg/kg	0.048	0.01	0.38	0.2	0.36	0.5	<0.01	0.19	0.52	0.59	0.63	<0.01	0.1	0.24	0.56	<0.01	0.52	0.27	0.63
Ca	mg/kg	41,000	50	1,200	320	500	610	<50	1,900	3,800	430	480	<50	250	960	690	<50	430	3,700	420
Cd	mg/kg	0.11	0.02	0.15	0.1	0.1	0.1	<0.02	0.1	0.1	0.1	0.1	<0.02	0.15	0.27	0.1	<0.02	0.13	0.11	0.1
Co	mg/kg	20	0.1	14.0	3.3	14.0	8.5	<0.1	16.0	25.0	5.4	7.0	<0.1	8.5	50.0	32.0	<0.1	17.0	17.0	5.3
Cr	mg/kg	100	5	110	45	120	130	<5	76	120	190	190	<5	24	92	91	<5	180	97	200
Cu	mg/kg	50	1	54	18	48	65	<1	5.9	16	61	54	<1	7.5	27	76	<1	40	42	57
F	mg/kg	950	50																	
Fe	mg/kg	41,000	0.01	90,000	390,000	130,000	94,000	<0.01	180,000	86,000	160,000	150,000	<0.01	250,000	200,000	210,000	<0.01	210,000	91,000	160,000
Hg	mg/kg	0.05	1	0.04	0.05	0.04	0.04	<1	0.24	0.11	0.04	0.04	<1	0.14	0.17	0.14	<1	0.04	0.04	0.04
K	mg/kg	21,000	20	2100	210	1100	1000	<20	460	290	670	580	<20	95	1700	450	<20	400	2400	500
Mg	mg/kg	23,000	20	2,000	310	850	940	<20	4,700	53,000	650	460	<20	430	4,600	9,000	<20	360	3,200	510
Mn	mg/kg	950	1	490	100	650	680	<1	1,700	4,000	530	800	<1	2,000	25,000	3,500	<1	2,300	1,100	260
Mo	mg/kg	1.5	0.1	1.2	0.82	1.5	1.5	<0.1	0.64	1.1	2	1.4	<0.1	0.6	0.74	1.4	<0.1	1.4	0.97	1.5
Na	mg/kg	23,000	20	460	180	150	360	<20	390	250	130	240	<20	100	240	190	<20	130	840	310
Ni	mg/kg	80	1	41	10	33	23	<1	51	79	24	24	<1	44	150	120	<1	26	44	19
P	mg/kg	1,000	50	160.0	210.0	170.0	160.0	<50	51.0	860.0	110.0	120.0	<50	630.0	540.0	110.0	<50	140.0	130.0	140.0
Pb	mg/kg	14	0.5	14	11	13	16	<0.5	11	4	19	23	<0.5	2	3	7	<0.5	17	12	21
S	mg/kg	260	50	310	210	230	220	<50	110	4300	150	160	<50	61	210	2700	<50	100	280	250
Sb	mg/kg	0.2	0.05	0.55	0.31	1	0.79	<0.05	0.1	0.21	1.2	0.63	<0.05	0.26	0.29	0.47	<0.05	0.49	0.41	0.82
Se	mg/kg	0.05	0.5	0.77	0.96	1.1	0.81	<0.5	0.25	0.96	0.83	0.63	<0.5	0.11	0.2	0.79	<0.5	0.41	0.43	1.1
Si	mg/kg	277,000	0.1																	
Sn	mg/kg	2.2	0.1	1	1	1	2.2	<0.1	1	1	2.2	2.9	<0.1	1	1	1	<0.1	2.1	1	2.4
Sr	mg/kg	370	0.05	26.0	4.3	13.0	11.0	<0.05	15.0	7.6	7.7	7.2	<0.05	2.9	50.0	12.0	<0.05	7.3	28.0	6.6
Th	mg/kg	12	0.01	5.0	3.0	4.8	8.7	<0.01	5.2	2.1	8.7	12.0	<0.01	1.0	1.8	1.9	<0.01	11.0	5.0	11.0
Ti	mg/kg	5,600	5	190	440	250	330	<5	200	73	480	650	<5	81	56	80	<5	540	150	540
Tl	mg/kg	0.6	0.02	0.37	0.1	0.31	0.41	<0.02	0.1	0.1	0.25	0.26	<0.02	0.11	1.5	0.59	<0.02	0.44	0.44	0.17
U	mg/kg	2.4	0.01	0.74	1.1	0.96	1.2	<0.01	1.6	0.71	1.5	1.7	<0.01	1.4	1	0.64	<0.01	2.1	1.1	1.4
V	mg/kg	160	1	89	53	100	160	<1	63	68	210	190	<1	16	52	66	<1	180	81	190
Zn	mg/kg	75	1	69	65	70	50	<1	98	220	50	50	<1	140	300	150	<1	58	57	50

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Appendix A.3 - Bulk chemical assays				ChemCentre																	
Elements	Units	Elemental composition (Bowen 1979)	LOR	Bulk Assay Result																	
				MDRC1357_34-40	MDRC1357_88-94	MDRC1371_42-46	MDRC1371_60-64	MDRC1371_108-116	MDRC1374_10-18	MDRC1374_22-28	MDRC1374_66-72	MDRC1374_94-100	MDRC1382_48-54	MDRC1384_00-06	MDRC1384_06-10	MDRC1384_16-22	MDRC1384_50-56	MDRC1384_62-68	MDRC1391_44-50	MDRC1391_58-62	
Ag	mg/kg	0.07	0.05	<0.05	0.1	0.15	0.1	0.1	0.1	<0.05	<0.05	0.1	0.1	0.1	0.1	0.1	0.1	<0.05	0.1	0.1	
Al	mg/kg	82,000	50	<50	11,300	16,600	21,900	14,800	11,100	<50	<50	9,640	12,200	29,000	29,600	8,380	6,710	<50	17,900	12,200	
As	mg/kg	1.5	0.5	<0.5	6.1	39.0	19.0	11.0	30.0	<0.5	<0.5	4.7	5.8	20.0	17.0	23.0	3.1	<0.5	12.0	8.4	
Ba	mg/kg	500	50	<50	2	80	37	7	120	<50	<50	15	75	150	400	120	37	<50	9	53	
Be	mg/kg	2.6	0.1	<0.1	0.81	0.51	1.6	0.75	0.72	<0.1	<0.1	0.5	0.85	1.2	1.1	0.6	3.4	<0.1	1.2	1.1	
Bi	mg/kg	0.048	0.01	<0.01	0.14	0.67	0.24	0.21	0.34	<0.01	<0.01	0.21	0.38	0.35	0.34	0.5	0.1	<0.01	0.15	0.23	
Ca	mg/kg	41,000	50	<50	54,000	730	55,000	1,900	690	<50	<50	69,000	1,000	890	2,100	730	120	<50	290	320	
Cd	mg/kg	0.11	0.02	<0.02	0.1	0.1	0.18	0.16	0.15	<0.02	<0.02	0.1	0.18	0.1	0.11	0.1	0.31	<0.02	0.33	0.13	
Co	mg/kg	20	0.1	<0.1	7.0	6.6	13.0	51.0	13.0	<0.1	<0.1	11.0	14.0	22.0	24.0	12.0	9.9	<0.1	5.5	21.0	
Cr	mg/kg	100	5	<5	31	240	68	45	100	<5	<5	29	170	110	85	110	25	<5	54	80	
Cu	mg/kg	50	1	<1	9.9	46	8.8	110	52	<1	<1	4	8.8	53	57	65	2.1	<1	16	15	
F	mg/kg	950	50																		
Fe	mg/kg	41,000	0.01	<0.01	120,000	250,000	210,000	140,000	100,000	<0.01	<0.01	90,000	140,000	99,000	72,000	95,000	210,000	<0.01	240,000	220,000	
Hg	mg/kg	0.05	1	<1	0.28	0.04	0.21	0.24	0.04	<1	<1	0.37	0.1	0.04	0.04	0.04	0.2	<1	0.28	0.14	
K	mg/kg	21,000	20	<20	310	450	560	86	1300	<20	<20	340	260	2900	3200	690	120	<20	86	290	
Mg	mg/kg	23,000	20	<20	33,000	530	19,000	21,000	1,700	<20	<20	44,000	1,100	2,800	4,400	870	280	<20	360	380	
Mn	mg/kg	950	1	<1	1,800	1,600	1,500	10,000	710	<1	<1	3,000	2,100	810	810	1,000	2,800	<1	390	3,800	
Mo	mg/kg	1.5	0.1	<0.1	0.87	2.1	0.81	1.3	1.2	<0.1	<0.1	0.81	0.41	1.1	0.8	1.2	0.38	<0.1	0.72	0.32	
Na	mg/kg	23,000	20	<20	340	180	390	100	240	<20	<20	240	150	220	370	160	100	<20	100	190	
Ni	mg/kg	80	1	<1	19	16	45	110	36	<1	<1	25	61	66	62	22	52	<1	54	40	
P	mg/kg	1,000	50	<50	200.0	140.0	61.0	470.0	170.0	<50	<50	440.0	280.0	160.0	150.0	130.0	630.0	<50	110.0	150.0	
Pb	mg/kg	14	0.5	<0.5	3	23	16	4	13	<0.5	<0.5	3	8	18	17	16	1	<0.5	11	11	
S	mg/kg	260	50	<50	1700	190	150	12000	300	<50	<50	77	73	200	310	62	79	<50	120	210	
Sb	mg/kg	0.2	0.05	<0.05	0.3	1.5	0.18	0.33	0.55	<0.05	<0.05	0.35	0.38	0.26	0.32	0.59	0.27	<0.05	0.41	0.4	
Se	mg/kg	0.05	0.5	<0.5	0.88	0.93	0.21	0.64	0.63	<0.5	<0.5	0.3	0.12	0.47	0.39	0.43	0.1	<0.5	0.31	0.22	
Si	mg/kg	277,000	0.1																		
Sn	mg/kg	2.2	0.1	<0.1	1	2.8	1.3	1	1	<0.1	<0.1	1	2.3	1.3	1.6	2.4	1	<0.1	1	1.3	
Sr	mg/kg	370	0.05	<0.05	14.0	7.6	27.0	3.3	16.0	<0.05	<0.05	23.0	8.2	19.0	33.0	9.6	2.5	<0.05	2.5	9.4	
Th	mg/kg	12	0.01	<0.01	1.1	14.0	5.9	1.1	5.1	<0.01	<0.01	1.0	7.1	5.2	5.8	8.0	1.4	<0.01	3.0	5.7	
Ti	mg/kg	5,600	5	<5	51	1,100	390	74	200	<5	<5	81	690	260	240	340	170	<5	460	720	
Tl	mg/kg	0.6	0.02	<0.02	0.1	0.2	0.1	0.1	0.38	<0.02	<0.02	0.1	0.13	0.54	0.5	0.43	0.1	<0.02	0.1	0.1	
U	mg/kg	2.4	0.01	<0.01	0.36	2.6	1.7	0.86	0.88	<0.01	<0.01	4	2.5	0.75	0.56	1.2	1.1	<0.01	2.3	1.5	
V	mg/kg	160	1	<1	22	220	95	30	95	<1	<1	24	220	96	82	140	20	<1	52	61	
Zn	mg/kg	75	1	<1	50	50	89	250	66	<1	<1	55	190	71	74	50	180	<1	260	110	

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

				ChemCentre																
Elements	Units	Elemental composition (Bowen 1979)	LOR	Bulk Assay Result																
				MDRC1391_64-70	MDRC1391_76-82	MDRC1397_58-66	MDRC1397_82-88	MDRC1403_38-44	MDRC1409_06-12	MDRC1409_34-40	MDRC1409_48-52	MDRC1412_10-16	MDRC1412_72-84	MDRC1412_106-112	MDRC1413_26-38	MDRC1414_06-12	MDRC1414_32-38	MDRC1414_62-68	MDRC1415_10-16	MDRC1415_44-50
Ag	mg/kg	0.07	0.05	0.1	0.1	0.1	<0.05	0.1	<0.05	0.12	0.1	0.1	0.1	0.1	<0.05	0.11	0.15	0.1	0.1	<0.05
Al	mg/kg	82,000	50	10,900	25,300	2,780	<50	22,000	<50	12,400	17,900	11,200	11,000	19,400	<50	14,700	13,400	9,800	9,100	<50
As	mg/kg	1.5	0.5	36.0	30.0	0.8	<0.5	13.0	<0.5	33.0	17.0	26.0	12.0	10.0	<0.5	21.0	41.0	9.2	22.0	<0.5
Ba	mg/kg	500	50	40	50	3	<50	210	<50	50	26	110	35	7	<50	210	85	58	120	<50
Be	mg/kg	2.6	0.1	3.4	2.4	0.5	<0.1	0.74	<0.1	0.5	0.84	0.66	3.8	1.5	<0.1	0.8	0.55	1.4	0.59	<0.1
Bi	mg/kg	0.048	0.01	0.45	0.44	0.47	<0.01	0.27	<0.01	0.62	0.14	0.3	0.2	0.95	<0.01	0.3	0.82	0.23	0.31	<0.01
Ca	mg/kg	41,000	50	660	1,200	220	<50	500	<50	510	350	620	260	2,100	<50	1,100	560	390	630	<50
Cd	mg/kg	0.11	0.02	0.32	0.53	0.1	<0.02	0.53	<0.02	0.1	0.14	0.1	0.19	0.12	<0.02	0.12	0.1	0.21	0.12	<0.02
Co	mg/kg	20	0.1	71.0	83.0	2.2	<0.1	29.0	<0.1	11.0	6.8	13.0	13.0	41.0	<0.1	16.0	17.0	9.4	18.0	<0.1
Cr	mg/kg	100	5	76	110	56	<5	79	<5	190	49	94	42	68	<5	88	240	89	85	<5
Cu	mg/kg	50	1	28	18	14	<1	11	<1	60	16	44	16	29	<1	47	59	15	49	<1
F	mg/kg	950	50																	
Fe	mg/kg	41,000	0.01	290,000	240,000	16,000	<0.01	220,000	<0.01	130,000	270,000	100,000	240,000	210,000	<0.01	82,000	100,000	190,000	79,000	<0.01
Hg	mg/kg	0.05	1	0.23	0.12	0.07	<1	0.13	<1	0.04	0.24	0.04	0.11	0.55	<1	0.04	0.1	0.15	0.04	<1
K	mg/kg	21,000	20	1400	1200	70	<20	390	<20	600	140	1300	290	170	<20	1800	800	260	1300	<20
Mg	mg/kg	23,000	20	510	13,000	180	<20	360	<20	640	330	1,200	510	21,000	<20	2,300	680	500	1,300	<20
Mn	mg/kg	950	1	21,000	19,000	91	<1	9,300	<1	770	1,200	450	4,500	17,000	<1	630	1,200	2,600	770	<1
Mo	mg/kg	1.5	0.1	0.29	1.3	0.1	<0.1	0.84	<0.1	1.4	0.67	1.3	0.61	0.87	<0.1	0.88	1.6	0.45	1	<0.1
Na	mg/kg	23,000	20	220	270	100	<20	190	<20	180	100	180	100	110	<20	410	210	120	160	<20
Ni	mg/kg	80	1	160	200	10	<1	50	<1	29	33	33	56	92	<1	44	34	44	37	<1
P	mg/kg	1,000	50	380.0	200.0	50.0	<50	88.0	<50	100.0	84.0	150.0	1100.0	530.0	<50	170.0	130.0	280.0	130.0	<50
Pb	mg/kg	14	0.5	6	7	6	<0.5	18	<0.5	20	16	12	4	5	<0.5	13	27	9	13	<0.5
S	mg/kg	260	50	420	1300	50	<50	150	<50	130	120	250	130	13000	<50	320	130	75	190	<50
Sb	mg/kg	0.2	0.05	0.52	0.26	0.48	<0.05	0.1	<0.05	0.62	0.26	0.53	0.2	0.3	<0.05	0.31	0.73	0.26	0.29	<0.05
Se	mg/kg	0.05	0.5	0.75	0.57	0.1	<0.5	0.24	<0.5	0.52	0.27	0.58	0.46	2.2	<0.5	0.61	0.55	0.17	0.43	<0.5
Si	mg/kg	277,000	0.1																	
Sn	mg/kg	2.2	0.1	1.1	1.7	2	<0.1	1.6	<0.1	2.5	1	1	1	1	<0.1	1	3.3	1	1	<0.1
Sr	mg/kg	370	0.05	62.0	43.0	4.2	<0.05	18.0	<0.05	7.9	5.0	15.0	12.0	5.7	<0.05	28.0	11.0	9.4	17.0	<0.05
Th	mg/kg	12	0.01	3.9	3.1	7.7	<0.01	7.8	<0.01	9.8	3.3	4.3	2.9	2.1	<0.01	4.5	12.0	4.6	4.0	<0.01
Ti	mg/kg	5,600	5	280	130	130	<5	770	<5	440	500	200	220	200	<5	180	560	260	150	<5
Tl	mg/kg	0.6	0.02	1.1	1.3	0.1	<0.02	0.23	<0.02	0.2	0.1	0.26	0.1	0.1	<0.02	0.32	0.45	0.1	0.57	<0.02
U	mg/kg	2.4	0.01	2	0.91	0.51	<0.01	3	<0.01	1.8	2.4	0.8	2.2	1.8	<0.01	0.75	2	2	0.67	<0.01
V	mg/kg	160	1	62	74	59	<1	76	<1	190	40	83	36	57	<1	77	240	56	76	<1
Zn	mg/kg	75	1	310	450	50	<1	170	<1	50	180	60	230	170	<1	64	50	210	61	<1

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Appendix A.3 - Bulk chemical assays				ChemCentre																	
Elements	Units	Elemental composition (Bowen 1979)	LOR	Bulk Assay Result																	
				MDRC1415_92-98	MDRC1415_98-104	MDRC1424_22-26	MDRC1424_48-54	MDRC1438_04-10	MDRC1438_20-26	MDRC1440_28-34	MDRC1440_60-66	MDRC1440_66-72	MDRC1440_72-78	MDRC1440_78-88	MDRC1441_28-34	MDRC1441_100-106	MDRC1459_18-24	MDRC1459_52-58	MDRC1460_06-12	MDRC1460_30-36	
Ag	mg/kg	0.07	0.05	0.1	0.1	0.1	0.1	<0.05	0.14	0.1	<0.05	0.1	0.1	0.1	<0.05	<0.05	0.16	<0.05	0.1	0.1	
Al	mg/kg	82,000	50	31,300	37,300	20,900	3,220	<50	15,900	18,000	<50	12,200	8,410	17,900	<50	<50	16,800	<50	11,300	17,100	
As	mg/kg	1.5	0.5	37.0	12.0	9.8	6.7	<0.5	55.0	41.0	<0.5	41.0	39.0	44.0	<0.5	<0.5	44.0	<0.5	23.0	41.0	
Ba	mg/kg	500	50	87	6	710	29	<50	100	60	<50	300	120	140	<50	<50	77	<50	150	32	
Be	mg/kg	2.6	0.1	4.4	1	1.3	1	<0.1	0.57	0.52	<0.1	6.3	4.3	3.6	<0.1	<0.1	0.73	<0.1	0.71	0.5	
Bi	mg/kg	0.048	0.01	0.34	0.29	0.24	0.16	<0.01	0.58	0.72	<0.01	0.27	0.38	0.59	<0.01	<0.01	0.58	<0.01	0.27	0.66	
Ca	mg/kg	41,000	50	3,000	2,400	970	140	<50	680	590	<50	420	460	920	<50	<50	610	<50	1,000	520	
Cd	mg/kg	0.11	0.02	0.18	0.1	0.51	0.22	<0.02	0.1	0.2	<0.02	1	0.81	0.83	<0.02	<0.02	0.1	<0.02	0.12	0.1	
Co	mg/kg	20	0.1	29.0	25.0	57.0	8.9	<0.1	7.1	15.0	<0.1	52.0	31.0	57.0	<0.1	<0.1	8.4	<0.1	16.0	5.8	
Cr	mg/kg	100	5	100	98	41	25	<5	180	230	<5	58	75	110	<5	<5	190	<5	92	200	
Cu	mg/kg	50	1	20	21	29	4	<1	63	65	<1	100	71	25	<1	<1	63	<1	45	65	
F	mg/kg	950	50																		
Fe	mg/kg	41,000	0.01	230,000	110,000	150,000	150,000	<0.01	150,000	160,000	<0.01	300,000	310,000	300,000	<0.01	<0.01	160,000	<0.01	83,000	150,000	
Hg	mg/kg	0.05	1	0.24	0.18	0.26	0.12	<1	0.04	0.13	<1	0.41	0.2	0.26	<1	<1	0.04	<1	0.04	0.04	
K	mg/kg	21,000	20	1300	110	3000	520	<20	770	730	<20	1500	560	840	<20	<20	860	<20	1500	810	
Mg	mg/kg	23,000	20	42,000	56,000	1,600	390	<20	720	790	<20	580	460	1,700	<20	<20	750	<20	1,800	520	
Mn	mg/kg	950	1	17,000	3,700	75,000	2,100	<1	330	970	<1	20,000	7,100	10,000	<1	<1	550	<1	550	620	
Mo	mg/kg	1.5	0.1	0.87	0.83	0.91	1.2	<0.1	2.2	1.8	<0.1	0.91	0.89	1.5	<0.1	<0.1	1.7	<0.1	0.94	1.8	
Na	mg/kg	23,000	20	200	110	760	100	<20	250	180	<20	230	200	270	<20	<20	240	<20	210	170	
Ni	mg/kg	80	1	61	99	120	18	<1	23	42	<1	210	150	200	<1	<1	22	<1	38	19	
P	mg/kg	1,000	50	1800.0	800.0	160.0	70.0	<50	160.0	140.0	<50	710.0	560.0	370.0	<50	<50	160.0	<50	150.0	120.0	
Pb	mg/kg	14	0.5	12	5	30	3	<0.5	20	22	<0.5	4	3	6	<0.5	<0.5	20	<0.5	11	22	
S	mg/kg	260	50	1700	20000	510	210	<50	150	120	<50	200	610	710	<50	<50	130	<50	250	110	
Sb	mg/kg	0.2	0.05	0.41	0.17	0.11	0.3	<0.05	1	0.67	<0.05	0.69	0.34	0.16	<0.05	<0.05	0.72	<0.05	0.51	0.54	
Se	mg/kg	0.05	0.5	1.4	1.1	0.29	0.13	<0.5	1.4	1.1	<0.5	0.89	0.41	0.77	<0.5	<0.5	1.5	<0.5	0.79	1	
Si	mg/kg	277,000	0.1																		
Sn	mg/kg	2.2	0.1	1.1	1	1.1	1	<0.1	2.7	3.2	<0.1	1	1	1.3	<0.1	<0.1	2.8	<0.1	1	2.9	
Sr	mg/kg	370	0.05	47.0	4.7	180.0	2.9	<0.05	9.1	10.0	<0.05	29.0	14.0	26.0	<0.05	<0.05	10.0	<0.05	22.0	10.0	
Th	mg/kg	12	0.01	3.3	1.9	5.7	1.3	<0.01	9.3	11.0	<0.01	2.6	2.7	3.3	<0.01	<0.01	9.8	<0.01	3.6	9.8	
Ti	mg/kg	5,600	5	310	82	460	52	<5	520	620	<5	210	140	99	<5	<5	590	<5	160	580	
Tl	mg/kg	0.6	0.02	1.4	0.1	0.65	0.1	<0.02	0.25	0.26	<0.02	1.6	1.2	0.64	<0.02	<0.02	0.45	<0.02	0.26	0.21	
U	mg/kg	2.4	0.01	4.8	1.1	2.2	0.6	<0.01	1.1	1.6	<0.01	3.6	2.1	1.8	<0.01	<0.01	1.2	<0.01	0.54	1.4	
V	mg/kg	160	1	80	75	54	18	<1	190	250	<1	41	44	80	<1	<1	190	<1	78	230	
Zn	mg/kg	75	1	200	95	94	94	<1	50	120	<1	900	500	690	<1	<1	50	<1	67	50	

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

				ChemCentre																
Elements	Units	Elemental composition (Bowen 1979)	LOR	Bulk Assay Result																
				MDRC1460_60-64	MDRC1460_64-74	MDRC1460_74-78	MDRC1460_78-84	MDRC1460_84-88	MDRC1460_90-94	MDRC1475_06-12	MDRC1478_38-44	MDRC1486_18-24	MDRC1486_46-52	MDRC1486_80-86	MDRC1486_86-94	MDRC1490_44-52	MDRC1490_84-88	MDRC1490_88-92	MDRC1498_46-52	MDRC1507_70-76
Ag	mg/kg	0.07	0.05	0.1	0.1	<0.05	0.1	0.1	0.1	0.1	0.1	<0.05	0.1	0.1	<0.05	0.1	0.1	<0.05	0.1	0.1
Al	mg/kg	82,000	50	15,200	7,180	<50	11,300	7,190	7,140	12,300	17,200	<50	18,900	7,110	<50	12,900	8,230	<50	11,700	5,170
As	mg/kg	1.5	0.5	14.0	10.0	<0.5	53.0	93.0	54.0	19.0	34.0	<0.5	24.0	11.0	<0.5	14.0	49.0	<0.5	19.0	4.8
Ba	mg/kg	500	50	840	200	<50	96	250	200	220	55	<50	33	60	<50	250	28	<50	10	13
Be	mg/kg	2.6	0.1	2.1	2.4	<0.1	4.9	4.4	2.1	0.78	0.71	<0.1	1.5	7.4	<0.1	1.4	4.4	<0.1	1.3	1.4
Bi	mg/kg	0.048	0.01	0.19	0.11	<0.01	0.47	0.18	0.13	0.25	0.51	<0.01	0.29	0.7	<0.01	0.13	0.21	<0.01	0.1	0.29
Ca	mg/kg	41,000	50	860	250	<50	690	530	470	1,000	500	<50	240	430	<50	210	460	<50	240	400
Cd	mg/kg	0.11	0.02	1.5	0.49	<0.02	0.74	0.52	0.34	0.1	0.1	<0.02	0.32	0.56	<0.02	0.76	0.22	<0.02	0.45	0.1
Co	mg/kg	20	0.1	58.0	29.0	<0.1	82.0	64.0	78.0	14.0	11.0	<0.1	6.4	59.0	<0.1	33.0	32.0	<0.1	6.8	8.2
Cr	mg/kg	100	5	39	25	<5	99	47	41	90	190	<5	97	39	<5	39	67	<5	74	220
Cu	mg/kg	50	1	12	9.8	<1	44	7.9	4.1	46	48	<1	26	22	<1	15	5.2	<1	13	46
F	mg/kg	950	50																	
Fe	mg/kg	41,000	0.01	310,000	280,000	<0.01	310,000	300,000	220,000	78,000	160,000	<0.01	320,000	260,000	<0.01	320,000	270,000	<0.01	320,000	200,000
Hg	mg/kg	0.05	1	0.5	0.15	<1	0.04	0.04	0.04	0.04	0.04	<1	0.27	0.08	<1	0.52	0.08	<1	0.42	0.09
K	mg/kg	21,000	20	2600	870	<20	1500	1500	1000	1800	590	<20	120	1600	<20	570	490	<20	72	240
Mg	mg/kg	23,000	20	1,200	350	<20	610	390	2,500	2,200	570	<20	250	640	<20	310	540	<20	340	540
Mn	mg/kg	950	1	49,000	14,000	<1	23,000	21,000	21,000	610	870	<1	1,900	24,000	<1	24,000	6,500	<1	270	1,100
Mo	mg/kg	1.5	0.1	0.7	0.75	<0.1	1.9	1.7	2.1	1.1	1.3	<0.1	1	0.74	<0.1	0.77	1.9	<0.1	0.86	0.63
Na	mg/kg	23,000	20	500	150	<20	230	220	210	280	340	<20	100	140	<20	220	100	<20	100	210
Ni	mg/kg	80	1	120	67	<1	200	92	150	42	26	<1	55	100	<1	67	93	<1	62	21
P	mg/kg	1,000	50	240.0	530.0	<50	690.0	670.0	200.0	150.0	150.0	<50	200.0	1000.0	<50	420.0	610.0	<50	110.0	230.0
Pb	mg/kg	14	0.5	6	2	<0.5	6	2	3	11	18	<0.5	10	2	<0.5	7	3	<0.5	8	15
S	mg/kg	260	50	330	130	<50	540	480	540	250	230	<50	190	200	<50	370	720	<50	100	150
Sb	mg/kg	0.2	0.05	0.1	0.26	<0.05	0.27	0.54	0.6	0.35	0.32	<0.05	0.32	0.66	<0.05	0.35	0.52	<0.05	0.43	0.63
Se	mg/kg	0.05	0.5	0.34	0.3	<0.5	0.79	0.31	0.29	0.71	0.82	<0.5	1.3	0.79	<0.5	0.4	0.17	<0.5	0.36	0.19
Si	mg/kg	277,000	0.1																	
Sn	mg/kg	2.2	0.1	1	1	<0.1	1.4	1	1	1	2.4	<0.1	1	1	<0.1	1	1	<0.1	1	1.5
Sr	mg/kg	370	0.05	82.0	15.0	<0.05	65.0	54.0	71.0	21.0	8.7	<0.05	4.2	37.0	<0.05	15.0	10.0	<0.05	2.2	4.8
Th	mg/kg	12	0.01	3.6	1.4	<0.01	3.4	1.3	1.1	4.0	10.0	<0.01	6.7	1.4	<0.01	2.1	1.1	<0.01	2.0	6.2
Ti	mg/kg	5,600	5	340	170	<5	260	82	110	170	650	<5	760	170	<5	240	77	<5	380	600
Tl	mg/kg	0.6	0.02	0.82	0.56	<0.02	1.1	1.8	2.3	0.28	0.24	<0.02	0.1	1.9	<0.02	0.46	0.39	<0.02	0.1	0.1
U	mg/kg	2.4	0.01	2.2	1.3	<0.01	3	2.4	1.7	0.5	1.5	<0.01	2.5	1.9	<0.01	1.9	1.2	<0.01	2.2	1
V	mg/kg	160	1	47	35	<1	85	31	28	78	190	<1	110	38	<1	36	38	<1	58	77
Zn	mg/kg	75	1	520	280	<1	780	580	800	69	50	<1	270	480	<1	290	410	<1	300	61

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Appendix A.3 - Bulk chemical assays				ChemCentre																
Elements	Units	Elemental composition (Bowen 1979)	LOR	Bulk Assay Result																
				MDRC1513_14-20	MDRC1513_20-24	MDRC1513_52-58	MDRC1513_60-64	MDRC1521_08-14	MDRC1521_14-18	MDRC1521_36-42	MDRC1521_90-96	MDRC1521_96-102	MDRC1523_24-32	MDRC1523_32-36	MDRC1526_70-74	MDRC1526_92-98	MDRC1528_32-38	MDRC1528_60-68	MDRC1528_68-74	MDRC1534_06-12
Ag	mg/kg	0.07	0.05	0.1	0.25	0.1	0.1	0.1	<0.05	0.14	0.1	0.1	0.15	<0.05	<0.05	0.1	0.1	0.1	0.1	0.1
Al	mg/kg	82,000	50	11,600	12,500	20,800	16,900	14,100	<50	13,400	3,410	4,150	9,910	<50	<50	5,910	13,400	11,100	6,630	15,400
As	mg/kg	1.5	0.5	22.0	47.0	11.0	5.3	25.0	<0.5	39.0	20.0	29.0	35.0	<0.5	<0.5	3.2	35.0	6.5	6.8	21.0
Ba	mg/kg	500	50	62	57	5	73	130	<50	32	130	99	86	<50	<50	28	51	44	19	130
Be	mg/kg	2.6	0.1	0.85	0.85	0.69	1.2	0.73	<0.1	0.5	1.8	2.1	0.55	<0.1	<0.1	1.1	0.5	2	3.8	0.9
Bi	mg/kg	0.048	0.01	0.37	0.66	0.31	0.39	0.34	<0.01	0.6	0.1	0.1	0.51	<0.01	<0.01	0.1	0.61	0.1	0.1	0.33
Ca	mg/kg	41,000	50	730	460	620	1,400	790	<50	380	1,500	1,900	470	<50	<50	4,600	720	45,000	740	1,400
Cd	mg/kg	0.11	0.02	0.1	0.14	0.28	0.11	0.14	<0.02	0.1	0.47	0.23	0.1	<0.02	<0.02	0.15	0.1	0.13	0.35	0.1
Co	mg/kg	20	0.1	8.7	9.6	3.8	15.0	14.0	<0.1	7.6	16.0	27.0	6.1	<0.1	<0.1	12.0	8.9	11.0	11.0	16.0
Cr	mg/kg	100	5	93	210	130	110	100	<5	220	33	27	150	<5	<5	31	190	32	33	95
Cu	mg/kg	50	1	58	60	9.7	11	58	<1	44	12	8.5	56	<1	<1	9.3	60	9.6	22	51
F	mg/kg	950	50																	
Fe	mg/kg	41,000	0.01	76,000	180,000	210,000	91,000	89,000	<0.01	220,000	240,000	170,000	130,000	<0.01	<0.01	170,000	150,000	180,000	250,000	84,000
Hg	mg/kg	0.05	1	0.04	0.04	0.26	0.15	0.04	<1	0.04	0.14	0.46	0.04	<1	<1	0.05	0.04	0.16	0.11	0.04
K	mg/kg	21,000	20	1100	460	170	460	1700	<20	400	960	870	500	<20	<20	480	640	280	120	1700
Mg	mg/kg	23,000	20	1,100	570	970	2,600	1,800	<20	360	1,100	1,900	460	<20	<20	1,600	820	27,000	870	2,200
Mn	mg/kg	950	1	340	460	250	2,900	620	<1	1,500	24,000	13,000	350	<1	<1	11,000	500	3,000	2,900	1,000
Mo	mg/kg	1.5	0.1	1.1	1.9	0.46	0.25	1.1	<0.1	2.1	0.64	1.3	1.6	<0.1	<0.1	0.32	1.5	0.69	0.83	0.98
Na	mg/kg	23,000	20	190	130	110	310	250	<20	180	240	160	210	<20	<20	270	210	230	110	170
Ni	mg/kg	80	1	30	25	54	32	40	<1	15	48	41	17	<1	<1	36	27	37	52	41
P	mg/kg	1,000	50	130.0	150.0	88.0	61.0	170.0	<50	140.0	220.0	190.0	120.0	<50	<50	1900.0	150.0	340.0	1100.0	160.0
Pb	mg/kg	14	0.5	13	21	11	14	14	<0.5	20	4	4	17	<0.5	<0.5	3	21	7	5	12
S	mg/kg	260	50	110	130	140	130	210	<50	160	160	130	120	<50	<50	150	94	88	87	160
Sb	mg/kg	0.2	0.05	0.6	1.1	0.24	0.37	0.39	<0.05	1	0.35	0.22	0.99	<0.05	<0.05	0.3	0.69	0.19	0.43	0.45
Se	mg/kg	0.05	0.5	0.8	1.1	0.56	0.44	0.96	<0.5	0.68	0.12	1.6	0.77	<0.5	<0.5	0.1	0.92	0.23	0.54	0.75
Si	mg/kg	277,000	0.1																	
Sn	mg/kg	2.2	0.1	1.8	2.7	1.4	2	1.2	<0.1	2.6	1	1	2.3	<0.1	<0.1	1	2.8	1	1	1.4
Sr	mg/kg	370	0.05	10.0	5.5	4.7	15.0	19.0	<0.05	5.8	62.0	49.0	5.9	<0.05	<0.05	32.0	8.6	48.0	4.7	24.0
Th	mg/kg	12	0.01	5.5	10.0	6.3	6.7	5.1	<0.01	12.0	1.0	1.0	8.8	<0.01	<0.01	1.2	10.0	2.2	1.5	5.8
Ti	mg/kg	5,600	5	240	670	590	230	210	<5	950	170	80	510	<5	<5	190	600	200	150	240
Tl	mg/kg	0.6	0.02	0.23	0.5	0.1	0.16	0.4	<0.02	0.2	0.52	1.7	0.27	<0.02	<0.02	0.1	0.23	0.1	0.1	0.29
U	mg/kg	2.4	0.01	0.71	1.3	1.7	0.79	0.75	<0.01	2	3.9	8	1.2	<0.01	<0.01	1.8	1.5	2.8	3.4	0.62
V	mg/kg	160	1	110	210	74	100	88	<1	200	120	170	160	<1	<1	18	190	120	100	100
Zn	mg/kg	75	1	50	50	250	95	66	<1	50	190	210	50	<1	<1	82	50	120	320	74

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Appendix A.3 - Bulk chemical assays				ChemCentre																
Elements	Units	Elemental composition (Bowen 1979)	LOR	Bulk Assay Result																
				MDRC1534_16-20	MDRC1534_20-30	MDRC1535_40-46	MDRC1535_46-72	MDRC1536_00-04	MDRC1536_04-08	MDRC1536_12-18	MDRC1536_30-36	MDRC1536_36-44	MDRC1536_82-88	MDRC1542_76-82	MDRC1549_28-34	MDRC1549_56-62	MDRC1549_68-74	MDRC1549_74-90	MDRC1549_90-96	MDRC1551_08-14
Ag	mg/kg	0.07	0.05	<0.05	0.1	0.1	0.1	0.1	<0.05	0.1	<0.05	0.1	0.1	<0.05	0.12	<0.05	0.1	0.1	0.1	0.11
Al	mg/kg	82,000	50	<50	17,400	16,100	15,100	19,500	<50	12,100	<50	16,200	4,760	<50	14,700	<50	4,930	3,810	4,830	10,900
As	mg/kg	1.5	0.5	<0.5	12.0	15.0	16.0	18.0	<0.5	26.0	<0.5	5.4	12.0	<0.5	31.0	<0.5	4.3	2.6	2.0	29.0
Ba	mg/kg	500	50	<50	350	1,600	580	82	<50	63	<50	1,200	22	<50	32	<50	480	260	120	120
Be	mg/kg	2.6	0.1	<0.1	1.4	2.9	3.3	1	<0.1	0.73	<0.1	3.1	0.79	<0.1	0.5	<0.1	3.1	1.7	1.2	0.78
Bi	mg/kg	0.048	0.01	<0.01	0.28	0.19	0.49	0.31	<0.01	0.45	<0.01	0.29	0.21	<0.01	0.55	<0.01	0.18	0.15	0.13	0.31
Ca	mg/kg	41,000	50	<50	970	710	840	2,000	<50	850	<50	840	260	<50	420	<50	810	900	710	650
Cd	mg/kg	0.11	0.02	<0.02	0.38	4.3	1.5	0.1	<0.02	0.1	<0.02	2.6	0.17	<0.02	0.1	<0.02	1.1	0.95	0.45	0.11
Co	mg/kg	20	0.1	<0.1	36.0	260.0	71.0	17.0	<0.1	6.2	<0.1	45.0	20.0	<0.1	6.9	<0.1	17.0	16.0	19.0	16.0
Cr	mg/kg	100	5	<5	58	37	80	89	<5	110	<5	33	38	<5	200	<5	29	26	40	110
Cu	mg/kg	50	1	<1	34	24	20	47	<1	72	<1	16	19	<1	29	<1	16	19	11	53
F	mg/kg	950	50																	
Fe	mg/kg	41,000	0.01	<0.01	190,000	290,000	240,000	84,000	<0.01	82,000	<0.01	210,000	120,000	<0.01	210,000	<0.01	400,000	380,000	310,000	110,000
Hg	mg/kg	0.05	1	<1	0.34	0.75	0.55	0.04	<1	0.04	<1	0.65	0.09	<1	0.04	<1	0.52	0.4	0.19	0.04
K	mg/kg	21,000	20	<20	3500	3800	2000	2400	<20	1200	<20	3000	220	<20	310	<20	2100	1500	1100	1400
Mg	mg/kg	23,000	20	<20	1,200	1,400	3,300	2,400	<20	1,100	<20	1,200	400	<20	380	<20	930	1,400	1,000	1,200
Mn	mg/kg	950	1	<1	81,000	92,000	41,000	490	<1	720	<1	97,000	6,800	<1	450	<1	70,000	54,000	39,000	770
Mo	mg/kg	1.5	0.1	<0.1	0.59	1.5	1	0.9	<0.1	1.4	<0.1	0.75	1.5	<0.1	1.7	<0.1	0.47	0.6	0.47	1.4
Na	mg/kg	23,000	20	<20	980	1200	410	200	<20	180	<20	920	100	<20	120	<20	490	460	330	160
Ni	mg/kg	80	1	<1	58	180	170	52	<1	23	<1	190	39	<1	13	<1	130	140	83	38
P	mg/kg	1,000	50	<50	160.0	94.0	330.0	150.0	<50	150.0	<50	210.0	50.0	<50	120.0	<50	310.0	250.0	130.0	180.0
Pb	mg/kg	14	0.5	<0.5	14	8	7	13	<0.5	17	<0.5	5	4	<0.5	19	<0.5	4	6	5	13
S	mg/kg	260	50	<50	520	610	260	240	<50	96	<50	540	3400	<50	100	<50	430	310	230	290
Sb	mg/kg	0.2	0.05	<0.05	0.16	0.17	0.2	0.55	<0.05	0.68	<0.05	0.11	0.64	<0.05	0.82	<0.05	0.1	0.14	0.15	0.78
Se	mg/kg	0.05	0.5	<0.5	0.48	0.55	0.55	0.47	<0.5	0.91	<0.5	0.23	0.61	<0.5	0.53	<0.5	0.13	0.12	0.15	0.9
Si	mg/kg	277,000	0.1																	
Sn	mg/kg	2.2	0.1	<0.1	1.4	1	1.2	1	<0.1	2.2	<0.1	1	1	<0.1	2.5	<0.1	1	1	1	1
Sr	mg/kg	370	0.05	<0.05	240.0	270.0	87.0	23.0	<0.05	15.0	<0.05	130.0	5.6	<0.05	5.0	<0.05	84.0	94.0	54.0	18.0
Th	mg/kg	12	0.01	<0.01	5.6	4.7	3.5	3.9	<0.01	6.5	<0.01	4.5	1.4	<0.01	12.0	<0.01	2.5	1.5	1.5	4.4
Ti	mg/kg	5,600	5	<5	500	540	280	190	<5	240	<5	530	60	<5	930	<5	390	300	230	190
Tl	mg/kg	0.6	0.02	<0.02	0.52	1.4	0.4	0.37	<0.02	0.24	<0.02	0.33	0.39	<0.02	0.12	<0.02	0.16	0.1	0.1	0.34
U	mg/kg	2.4	0.01	<0.01	2.2	3.5	2.4	0.61	<0.01	0.95	<0.01	2.8	0.52	<0.01	1.6	<0.01	1.8	4.8	8.9	0.87
V	mg/kg	160	1	<1	62	56	69	78	<1	130	<1	32	33	<1	180	<1	38	250	250	85
Zn	mg/kg	75	1	<1	100	740	490	63	<1	50	<1	470	110	<1	50	<1	630	660	380	72

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Appendix A.3 - Bulk chemical assays				ChemCentre																	
Elements	Units	Elemental composition (Bowen 1979)	LOR	Bulk Assay Result																	
				MDRC1551_16-22	MDRC1551_24-30	MDRC1551_52-62	MDRC1551_82-90	MDRC1552_18-24	MDRC1552_64-70	MDRC1552_82-88	MDRC1554_54-60	MDRC1554_94-100	MDRC1554_106-112	MDRC1569_08-14	MDRC1569_26-32	MDRC1569_32-40	MDRC1569_40-44	MDRC1569_50-56	MDRC1572_02-10	MDRC1572_24-30	
Ag	mg/kg	0.07	0.05	0.13	<0.05	<0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	<0.05	0.11	0.1	0.1	0.1	<0.05	
Al	mg/kg	82,000	50	11,100	<50	<50	7,990	16,300	6,770	5,630	22,600	7,060	5,970	12,800	<50	19,800	22,300	20,700	15,600	<50	
As	mg/kg	1.5	0.5	40.0	<0.5	<0.5	20.0	26.0	8.9	15.0	16.0	8.6	31.0	31.0	<0.5	44.0	46.0	41.0	19.0	<0.5	
Ba	mg/kg	500	50	62	<50	<50	110	69	62	42	6	61	1	120	<50	54	450	47	200	<50	
Be	mg/kg	2.6	0.1	0.59	<0.1	<0.1	2.5	1.2	3.5	0.94	1.2	1.5	0.79	0.78	<0.1	0.5	1	1.2	0.91	<0.1	
Bi	mg/kg	0.048	0.01	0.43	<0.01	<0.01	0.54	0.51	0.13	0.44	0.2	0.21	0.13	0.36	<0.01	0.79	0.42	0.44	0.26	<0.01	
Ca	mg/kg	41,000	50	460	<50	<50	610	870	220	380	980	810	300	910	<50	510	740	530	1,800	<50	
Cd	mg/kg	0.11	0.02	0.1	<0.02	<0.02	1.1	0.1	0.49	0.15	0.19	0.24	0.1	0.12	<0.02	0.1	0.18	0.47	0.1	<0.02	
Co	mg/kg	20	0.1	13.0	<0.1	<0.1	100.0	17.0	23.0	23.0	7.1	29.0	9.6	16.0	<0.1	8.2	40.0	8.3	18.0	<0.1	
Cr	mg/kg	100	5	140	<5	<5	67	120	37	70	64	42	44	110	<5	220	110	81	97	<5	
Cu	mg/kg	50	1	59	<1	<1	55	86	13	33	21	9.7	19	61	<1	70	26	17	43	<1	
F	mg/kg	950	50																		
Fe	mg/kg	41,000	0.01	150,000	<0.01	<0.01	270,000	97,000	340,000	120,000	280,000	280,000	150,000	100,000	<0.01	160,000	240,000	260,000	98,000	<0.01	
Hg	mg/kg	0.05	1	0.04	<1	<1	0.19	0.04	0.11	0.06	0.21	0.2	0.07	0.04	<1	0.04	0.04	0.25	0.04	<1	
K	mg/kg	21,000	20	1000	<20	<20	2200	1200	340	690	210	1500	110	1600	<20	810	770	200	1900	<20	
Mg	mg/kg	23,000	20	760	<20	<20	1,100	1,300	450	700	2,200	1,200	1,100	1,700	<20	560	620	700	2,300	<20	
Mn	mg/kg	950	1	720	<1	<1	31,000	820	8,000	4,700	230	28,000	580	530	<1	990	20,000	1,700	810	<1	
Mo	mg/kg	1.5	0.1	1.9	<0.1	<0.1	0.71	1.2	0.49	1.5	0.78	0.53	2.3	1.3	<0.1	1.7	1.5	0.71	0.92	<0.1	
Na	mg/kg	23,000	20	120	<20	<20	250	200	150	130	200	320	100	220	<20	180	280	130	520	<20	
Ni	mg/kg	80	1	38	<1	<1	160	46	100	53	50	71	16	38	<1	19	51	76	48	<1	
P	mg/kg	1,000	50	160.0	<50	<50	420.0	210.0	550.0	54.0	180.0	210.0	190.0	190.0	<50	140.0	180.0	150.0	140.0	<50	
Pb	mg/kg	14	0.5	18	<0.5	<0.5	4	18	4	5	12	2	4	14	<0.5	25	21	18	12	<0.5	
S	mg/kg	260	50	200	<50	<50	340	96	240	330	120	450	4500	330	<50	110	160	130	480	<50	
Sb	mg/kg	0.2	0.05	0.92	<0.05	<0.05	0.27	0.66	0.35	0.33	0.35	0.1	1	0.58	<0.05	0.54	0.2	0.8	0.23	<0.05	
Se	mg/kg	0.05	0.5	0.93	<0.5	<0.5	0.5	0.76	0.12	0.28	0.53	0.22	0.88	0.81	<0.5	0.86	0.35	0.32	0.5	<0.5	
Si	mg/kg	277,000	0.1																		
Sn	mg/kg	2.2	0.1	1.2	<0.1	<0.1	1	2.3	1	1	1	1	1	1	<0.1	3.2	1.8	1.1	1	<0.1	
Sr	mg/kg	370	0.05	12.0	<0.05	<0.05	110.0	14.0	6.2	11.0	8.9	67.0	2.3	22.0	<0.05	10.0	57.0	5.8	22.0	<0.05	
Th	mg/kg	12	0.01	5.5	<0.01	<0.01	2.0	7.6	1.7	2.4	4.1	1.4	1.4	4.8	<0.01	12.0	11.0	8.2	4.5	<0.01	
Ti	mg/kg	5,600	5	340	<5	<5	260	270	340	71	490	99	150	190	<5	610	770	720	190	<5	
Tl	mg/kg	0.6	0.02	0.29	<0.02	<0.02	2	0.31	0.27	0.6	0.1	0.39	0.1	0.39	<0.02	0.27	0.43	0.1	0.38	<0.02	
U	mg/kg	2.4	0.01	1.1	<0.01	<0.01	2.7	1.1	2.5	0.9	2.3	2.7	1.2	0.81	<0.01	2.1	3.4	2.6	0.61	<0.01	
V	mg/kg	160	1	120	<1	<1	47	140	34	52	70	34	25	91	<1	210	100	78	81	<1	
Zn	mg/kg	75	1	75	<1	<1	620	76	390	170	290	270	50	77	<1	50	58	400	66	<1	

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

				ChemCentre													
Elements	Units	Elemental composition (Bowen 1979)	LOR	Bulk Assay Result													
				MDRC1572_60-66	MDRC1573_06-12	MDRC1573_34-40	MDRC1573_58-62	MDRC1576_00-06	MDRC1576_62-68	MDRC1576_76-80	MDRC1576_80-94	MDRC1599_02-08	MDRC1599_28-34	MDRC1599_52-58	MDRC1599_72-78	MDRC1599_90-96	MDRC1599_96-100
Ag	mg/kg	0.07	0.05	0.1	0.1	0.1	0.1	0.1	<0.05	<0.05	0.1	0.1	0.1	0.1	0.1	<0.05	0.1
Al	mg/kg	82,000	50	16,600	13,600	12,700	3,920	16,100	<50	<50	11,900	17,600	15,400	18,400	2,640	<50	28,100
As	mg/kg	1.5	0.5	3.2	21.0	40.0	7.4	19.0	<0.5	<0.5	5.5	19.0	28.0	20.0	13.0	<0.5	6.9
Ba	mg/kg	500	50	20	170	140	76	140	<50	<50	60	130	69	1,500	18	<50	2
Be	mg/kg	2.6	0.1	1.3	0.82	0.62	1.1	0.99	<0.1	<0.1	2.3	0.96	0.61	2	1.5	<0.1	1.5
Bi	mg/kg	0.048	0.01	0.24	0.29	0.67	0.11	0.31	<0.01	<0.01	0.28	0.28	0.59	0.27	0.1	<0.01	0.21
Ca	mg/kg	41,000	50	1,200	1,300	460	240	1,800	<50	<50	3,800	3,200	650	750	180	<50	2,600
Cd	mg/kg	0.11	0.02	0.1	0.1	0.22	0.46	0.1	<0.02	<0.02	0.27	0.1	0.1	1.3	0.12	<0.02	0.11
Co	mg/kg	20	0.1	4.4	16.0	17.0	17.0	17.0	<0.1	<0.1	34.0	19.0	15.0	80.0	7.1	<0.1	20.0
Cr	mg/kg	100	5	76	97	220	28	110	<5	<5	59	97	140	64	93	<5	86
Cu	mg/kg	50	1	8.5	50	52	8.1	45	<1	<1	36	47	73	11	16	<1	8.6
F	mg/kg	950	50														
Fe	mg/kg	41,000	0.01	130,000	81,000	160,000	200,000	88,000	<0.01	<0.01	220,000	82,000	92,000	250,000	270,000	<0.01	170,000
Hg	mg/kg	0.05	1	0.08	0.04	0.08	0.1	0.04	<1	<1	0.11	0.04	0.04	0.85	0.04	<1	0.72
K	mg/kg	21,000	20	290	1900	580	300	2400	<20	<20	820	2500	850	1800	89	<20	86
Mg	mg/kg	23,000	20	2,600	2,600	420	250	3,000	<20	<20	5,400	2,900	1,100	790	480	<20	41,000
Mn	mg/kg	950	1	480	530	4,700	4,400	590	<1	<1	16,000	640	630	54,000	1,700	<1	14,000
Mo	mg/kg	1.5	0.1	0.36	0.92	1.8	0.88	1	<0.1	<0.1	0.38	0.99	0.93	0.93	0.87	<0.1	0.55
Na	mg/kg	23,000	20	400	420	210	230	190	<20	<20	250	250	210	750	100	<20	100
Ni	mg/kg	80	1	30	44	38	38	51	<1	<1	110	55	36	100	31	<1	74
P	mg/kg	1,000	50	270.0	160.0	110.0	180.0	130.0	<50	<50	2000.0	150.0	110.0	110.0	890.0	<50	520.0
Pb	mg/kg	14	0.5	10	12	22	3	14	<0.5	<0.5	6	14	19	14	2	<0.5	3
S	mg/kg	260	50	130	280	180	200	150	<50	<50	180	240	83	340	50	<50	830
Sb	mg/kg	0.2	0.05	0.14	0.49	0.47	0.36	0.26	<0.05	<0.05	0.15	0.47	0.15	0.19	0.29	<0.05	0.1
Se	mg/kg	0.05	0.5	0.24	0.64	0.68	0.18	0.4	<0.5	<0.5	0.2	0.57	0.61	0.24	0.1	<0.5	3.2
Si	mg/kg	277,000	0.1														
Sn	mg/kg	2.2	0.1	1	1	2.5	1	1	<0.1	<0.1	1	1	2.5	1	1	<0.1	1
Sr	mg/kg	370	0.05	9.8	26.0	12.0	7.4	20.0	<0.05	<0.05	37.0	28.0	11.0	220.0	3.6	<0.05	3.1
Th	mg/kg	12	0.01	6.9	4.8	11.0	1.0	5.2	<0.01	<0.01	3.1	4.2	9.0	6.0	1.0	<0.01	2.4
Ti	mg/kg	5,600	5	120	150	560	220	150	<5	<5	180	170	270	590	120	<5	100
Tl	mg/kg	0.6	0.02	0.1	0.33	0.34	0.1	0.44	<0.02	<0.02	0.57	0.44	0.23	0.72	0.1	<0.02	0.1
U	mg/kg	2.4	0.01	1.8	0.67	2.1	1.1	0.68	<0.01	<0.01	4.1	0.69	1.6	3.6	2.9	<0.01	1.8
V	mg/kg	160	1	48	79	220	21	86	<1	<1	40	76	150	52	17	<1	66
Zn	mg/kg	75	1	140	68	84	150	61	<1	<1	280	69	50	370	110	<1	240

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Elements				MineEarth																
				Bulk Assay Results																
				MD5866_10 2_104	MD5866_10 4_106	MD5871_88 90	MD5871_90 92	MD5879_54 56	MD5879_56 58	MD5879_92 94	MD5879_94 96	MD5984_58 60	MD5984_60 62	MD5984_90 92	MD5984_92 94	MD7087_54 56	MD7087_56 58	MD7090_22 24	MD7090_24 26	MD7090_58 60
Ag	mg/kg	0.07	0.05	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Al	mg/kg	82,000	50	48,800	50,300	16,900	11,300	13,500	14,700	12,900	5,500	43,600	101,000	19,500	8,800	10,200	16,900	2,700	6,000	22,700
As	mg/kg	1.5	0.5	89	52	18	11	9	16	7	3	9	10	9	5	15	44	5	6	14
Ba	mg/kg	500	50	3	3	9	7	429	199	3	3	37	19	4	3	28	47	9	29	13
Be	mg/kg	2.6	0.1	1.2	1	1	0.7	2.4	3.9	0.7	0.9	2	2.3	1.5	1.1	1	1.4	0.6	1	1.5
Bi	mg/kg	0.048	0.01	0.4	0.5	0.1	0.05	0.05	0.05	0.1	0.05	0.2	0.5	0.2	0.05	0.1	0.2	0.05	0.05	0.2
Ca	mg/kg	41,000	50	5,300	4,700	1,400	1,800	151,000	70,700	2,000	5,700	4,400	2,300	5,800	4,500	400	700	200	200	64,300
Cd	mg/kg	0.11	0.02	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Co	mg/kg	20	0.1	20	25	10	10	35	25	10	5	10	10	15	10	10	20	2.5	5	10
Cr	mg/kg	100	5	80	110	50	40	30	40	50	30	50	130	40	20	50	50	20	30	50
Cu	mg/kg	50	1	8	14	8	6	2	10	32	22	88	58	18	14	22	24	10	10	16
F	mg/kg	950	50																	
Fe	mg/kg	41,000	0.01	217,000	243,000	177,000	177,000	221,000	340,000	217,000	231,000	424,000	260,000	270,000	335,000	179,000	239,000	212,000	224,000	146,000
Hg	mg/kg	0.05	1																	
K	mg/kg	21,000	20	200	200	200	200	900	800	200	300	50	50	300	50	6,400	12,000	100	100	1,900
Mg	mg/kg	23,000	20	84,200	74,700	19,300	21,900	8,400	18,400	10,500	11,400	4,600	3,700	49,600	53,400	1,400	3,000	300	300	44,500
Mn	mg/kg	950	1	5,850	4,220	1,640	2,350	11,100	8,390	10,400	3,110	3,250	1,460	6,330	1,040	496	490	212	624	1,760
Mo	mg/kg	1.5	0.1	1.5	2	1.5	1.5	0.5	1	2	1.5	0.25	0.25	0.5	0.5	2.5	2.5	2	2	1
Na	mg/kg	23,000	20	300	300	200	50	500	400	300	400	50	200	400	100	200	200	50	50	50
Ni	mg/kg	80	1	64	86	40	24	58	66	36	18	72	100	32	14	22	46	1	8	32
P	mg/kg	1,000	50	650	600	100	100	50	150	250	200	250	300	250	400	200	450	150	250	150
Pb	mg/kg	14	0.5	17	20	5	3	4	7	3	2	6	8	3	2	7	8	3	6	4
S	mg/kg	260	50	21,600	36,500	6,000	3,100	300	200	3,200	1,300	100	100	3,900	2,500	10,100	13,700	0	100	2,100
Sb	mg/kg	0.2	0.05	1.8	2	1.2	0.6	0.4	0.4	0.8	0.6	0.6	0.6	1.4	0.6	2	2	2	1.4	1
Se	mg/kg	0.05	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Si	mg/kg	277,000	0.1																	
Sn	mg/kg	2.2	0.1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	2	4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sr	mg/kg	370	0.05	7.5	7.5	2.5	2	90.5	57	4	6.5	10	16.5	11.5	9	2.5	3.5	1.5	1.5	13.5
Th	mg/kg	12	0.01	4.6	8.3	2.5	1.9	1.7	1.8	1.8	0.9	7.4	17	3.7	1.5	1.2	2	0.4	0.8	2.8
Ti	mg/kg	5,600	5	1,900	3,000	1,100	700	1,000	800	700	400	2,800	8,100	1,100	600	400	600	200	400	1,400
Tl	mg/kg	0.6	0.02	0.05	0.05	0.2	0.2	0.2	0.4	0.05	0.05	0.05	0.05	0.05	0.05	0.3	0.5	0.05	0.2	0.2
U	mg/kg	2.4	0.01	1.3	2	0.9	0.6	1.8	3.5	0.8	0.3	3.5	3.6	1.5	0.7	0.4	0.7	1.8	1.1	0.7
V	mg/kg	160	1	95	105	25	15	25	45	20	2.5	60	75	35	25	25	35	10	20	45
Zn	mg/kg	75	1	132	124	52	42	88	110	30	28	72	102	40	20	114	224	8	20	34

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Elements				MineEarth																
				Bulk Assay Results																
				MD7090_60_62	MD7169_2_4	MD7169_4_6	MD7169_28_30	MD7169_30_32	MD7169_34_36	MD7169_36_38	MD7191_6_8	MD7191_8_10	MD7191_78_80	MD7191_80_82	MD7237_86_88	MD7237_88_90	MD7269_20_22	MD7269_22_24	MD7291_0_2	MD7291_2_4
Ag	mg/kg	0.07	0.05	0.25	0.25	0.25	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Al	mg/kg	82,000	50	33,200	56,200	53,200	75,000	77,200	69,700	67,100	56,700	52,000	20,000	4,700	9,400	11,000	41,400	14,900	59,000	71,500
As	mg/kg	1.5	0.5	19	32	32	21	46	26	55	33	42	13	2	9	9	11	7	29	27
Ba	mg/kg	500	50	42	192	453	115	213	136	151	334	246	24	10	6	16	36	21	249	353
Be	mg/kg	2.6	0.1	2.1	1.5	1.5	4.3	2.6	1.1	0.8	1.8	1.6	1.6	1.2	1.3	0.6	0.8	0.5	1.9	1.9
Bi	mg/kg	0.048	0.01	0.3	0.5	0.5	1.2	2	0.6	1	0.5	0.5	0.2	0.05	0.1	0.2	0.3	0.1	0.4	0.4
Ca	mg/kg	41,000	50	6,800	1,200	1,500	1,700	600	400	300	1,200	900	2,000	1,400	13,200	138,000	200	50	600	1,900
Cd	mg/kg	0.11	0.02	0.25	0.25	0.25	0.25	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Co	mg/kg	20	0.1	15	15	20	10	160	15	40	15	10	10	2.5	10	5	2.5	5	15	15
Cr	mg/kg	100	5	80	150	130	120	110	110	120	170	190	70	40	40	30	80	30	170	140
Cu	mg/kg	50	1	32	82	68	454	350	148	280	70	76	22	8	12	12	24	24	60	58
F	mg/kg	950	50																	
Fe	mg/kg	41,000	0.01	179,000	148,000	140,000	12,100	53,400	48,800	82,000	109,000	130,000	227,000	231,000	200,000	128,000	70,500	89,100	172,000	150,000
Hg	mg/kg	0.05	1																	
K	mg/kg	21,000	20	4,200	15,200	14,700	16,500	16,500	25,900	33,200	17,900	17,300	3,000	500	700	500	200	200	16,400	13,400
Mg	mg/kg	23,000	20	27,700	4,300	4,300	4,900	3,000	4,700	6,100	4,000	3,400	12,900	8,200	28,500	63,100	200	200	3,900	4,600
Mn	mg/kg	950	1	1,050	568	1,180	206	1,540	92	94	468	320	4,300	1,570	1,320	4,000	170	192	1,840	1,450
Mo	mg/kg	1.5	0.1	1.5	2	2	1	2	1.5	1.5	2	2	1.5	1	1	2	1.5	1	1.5	1.5
Na	mg/kg	23,000	20	50	400	600	400	300	400	500	500	400	100	100	500	200	200	100	300	500
Ni	mg/kg	80	1	54	80	72	78	114	46	74	82	78	52	16	14	18	20	10	78	76
P	mg/kg	1,000	50	200	300	300	250	200	250	200	350	350	150	150	150	150	50	100	300	250
Pb	mg/kg	14	0.5	8	22	25	50	53	44	70	22	23	7	2	8	9	8	8	22	22
S	mg/kg	260	50	8,400	600	700	8,400	2,400	30,700	101,000	1,900	1,800	5,500	1,300	2,800	2,000	100	100	500	500
Sb	mg/kg	0.2	0.05	2	1.4	2	2.8	3.4	2.2	2.6	1.6	2	1.8	0.8	0.8	0.8	3	1.4	1.8	1.2
Se	mg/kg	0.05	0.5	2.5	2.5	2.5	5	5	10	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Si	mg/kg	277,000	0.1																	
Sn	mg/kg	2.2	0.1	1	2	2	5	4	4	7	3	3	0.5	0.5	0.5	0.5	1	0.5	2	2
Sr	mg/kg	370	0.05	6.5	29	42	39	18.5	16	19.5	41	39	3	3	8	20.5	2	1.5	27	39
Th	mg/kg	12	0.01	4.1	7.2	7.2	12.8	7.8	10.6	8.9	8.3	8.4	2.8	0.8	1.3	1.7	5.5	1.4	8.3	9.8
Ti	mg/kg	5,600	5	2,100	3,400	3,300	5,600	4,200	4,100	4,100	3,500	3,400	1,200	300	600	700	2,200	600	3,400	3,600
Tl	mg/kg	0.6	0.02	0.2	0.8	0.9	0.5	5.2	1.5	3.7	0.7	0.7	0.05	0.05	0.05	0.1	0.05	0.05	0.8	0.8
U	mg/kg	2.4	0.01	1.1	2.3	2.2	6.4	4.2	4.9	3.4	2	2.1	2.1	0.6	0.4	0.7	1.1	0.3	2.1	1.9
V	mg/kg	160	1	70	170	155	95	135	125	110	160	175	35	10	25	20	110	30	175	160
Zn	mg/kg	75	1	60	90	108	450	240	62	24	94	98	60	24	20	24	58	44	72	66

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Elements				MineEarth																
				Bulk Assay Results																
				MD7338_60_62	MD7338_62_64	MD7390_22_24	MD7390_24_26	MD7390_74_76	MD7390_76_78	MD7433_0_2	MD7433_2_4	MD7433_14_16	MD7433_16_18	MD7457_42_44	MD7457_44_46	MD7530_12_14	MD7530_14_16	MD7545_26_28	MD7545_28_30	MD7554_0_2
Ag	mg/kg	0.07	0.05	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Al	mg/kg	82,000	50	19,000	30,200	49,300	52,500	17,600	28,800	56,000	13,900	48,700	45,600	15,600	2,300	11,900	10,000	120,000	12,200	50,500
As	mg/kg	1.5	0.5	17	28	37	30	14	23	15	4	14	22	24	2	9	7	83	85	96
Ba	mg/kg	500	50	326	60	107	147	8	19	179	422	143	87	33	12	163	61	182	48	110
Be	mg/kg	2.6	0.1	4.2	3.4	2.9	3.6	1.7	2	1.1	0.3	1.5	1.6	0.6	0.6	0.7	0.9	0.4	0.2	1.6
Bi	mg/kg	0.048	0.01	0.2	0.3	0.6	0.5	0.2	0.2	0.3	0.05	1.2	0.8	0.05	0.05	0.2	0.05	0.5	3.2	0.8
Ca	mg/kg	41,000	50	500	400	800	800	36,300	6,200	214,000	252,000	900	1,300	700	300	500	200	400	300	5,200
Cd	mg/kg	0.11	0.02	1	0.5	0.25	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Co	mg/kg	20	0.1	60	25	40	40	15	15	15	2.5	25	10	2.5	2.5	2.5	2.5	2.5	2.5	15
Cr	mg/kg	100	5	60	80	70	80	50	80	70	30	220	130	50	20	60	40	140	70	190
Cu	mg/kg	50	1	36	22	36	24	16	24	44	16	34	24	20	10	8	18	18	16	54
F	mg/kg	950	50																	
Fe	mg/kg	41,000	0.01	524,000	513,000	449,000	348,000	173,000	188,000	70,900	22,300	429,000	486,000	329,000	304,000	301,000	310,000	82,100	43,200	357,000
Hg	mg/kg	0.05	1																	
K	mg/kg	21,000	20	800	100	1,300	1,600	400	500	11,200	3,800	900	700	300	200	100	100	12,500	2,100	1,100
Mg	mg/kg	23,000	20	500	500	1,000	1,200	26,000	25,900	7,900	34,900	700	800	500	300	300	200	2,600	400	3,100
Mn	mg/kg	950	1	16,200	2,710	39,100	143,000	1,680	1,130	770	194	5,080	4,970	2,700	1,190	3,160	1,760	64	156	1,190
Mo	mg/kg	1.5	0.1	1.5	2	1.5	1.5	1.5	1.5	1	0.25	1	1	1.5	1	1	1	2.5	6.5	3
Na	mg/kg	23,000	20	100	50	600	900	600	600	4,300	3,300	600	500	500	400	400	300	1,000	400	1,100
Ni	mg/kg	80	1	106	88	56	50	44	56	40	14	40	64	32	14	22	14	8	4	42
P	mg/kg	1,000	50	250	150	300	350	150	200	200	150	350	350	350	100	200	200	100	150	150
Pb	mg/kg	14	0.5	6	9	10	9	6	8	14	4	39	25	5	0.5	7	5	38	33	33
S	mg/kg	260	50	400	500	500	900	5,500	4,400	1,200	800	400	600	300	400	500	200	2,200	1,400	1,000
Sb	mg/kg	0.2	0.05	1.4	2.2	1.2	1.8	2.2	2	1	0.1	3.4	3.8	1	0.1	1	1.2	2.4	9.4	5.6
Se	mg/kg	0.05	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Si	mg/kg	277,000	0.1																	
Sn	mg/kg	2.2	0.1	0.5	1	2	2	0.5	0.5	2	0.5	5	3	0.5	0.5	0.5	0.5	4	11	3
Sr	mg/kg	370	0.05	12.5	5	67.5	111	7.5	5.5	123	312	63	24	6	3	2.5	1.5	39.5	24	75
Th	mg/kg	12	0.01	2.8	4.4	11.1	11	2.5	4.3	7.6	1.9	14.8	12.8	2.1	0.3	2.4	1.6	6.9	13	8.7
Ti	mg/kg	5,600	5	1,100	1,700	3,600	3,400	1,100	1,900	2,700	800	6,600	4,700	900	100	600	500	3,500	7,300	3,400
Tl	mg/kg	0.6	0.02	1	0.2	0.2	0.4	0.05	0.05	0.5	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.4	0.2	0.4
U	mg/kg	2.4	0.01	2.4	2.2	3.2	3.6	0.7	1.1	1.5	1.5	4.8	3.5	1.2	0.2	0.5	0.5	1.9	3.2	2.8
V	mg/kg	160	1	45	70	140	95	45	70	95	25	225	140	50	20	40	35	215	70	165
Zn	mg/kg	75	1	496	342	58	32	34	50	38	12	86	144	42	12	20	24	4	4	18

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Elements				MineEarth																
				Bulk Assay Results																
				MD7554_2_4	MD7554_4_6	MD7554_6_8	MD7554_14_16	MD7554_16_18	MD7578_36_38	MD7578_38_40	MD7601_2_4	MD7601_4_6	MD7616_22_24	MD7616_24_26	MD7616_46_48	MD7616_48_50	MD7616_56_58	MD7616_58_60	MD7616_62_64	MD7616_64_66
Ag	mg/kg	0.07	0.05	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.5	0.25	0.25	0.25	0.25	0.25	0.25
Al	mg/kg	82,000	50	96,900	97,700	113,000	81,000	59,200	34,100	31,100	60,400	49,600	10,700	22,000	56,300	49,800	67,800	65,300	79,300	73,400
As	mg/kg	1.5	0.5	43	93	30	43	44	288	328	44	41	21	20	19	23	37	51	26	39
Ba	mg/kg	500	50	45	64	91	103	126	51	34	312	293	18	22	58	38	32	37	111	112
Be	mg/kg	2.6	0.1	4.3	4.3	2.6	5	1.5	3.7	3.2	1.5	1.3	2.1	2.8	2.9	4	2.1	2.3	2.1	2
Bi	mg/kg	0.048	0.01	0.9	1.1	0.9	0.5	0.8	0.1	0.4	0.5	0.4	0.1	0.2	0.6	0.5	0.8	0.9	0.8	0.8
Ca	mg/kg	41,000	50	9,100	7,000	4,600	16,800	7,600	200	200	1,600	1,700	500	500	400	400	500	600	700	600
Cd	mg/kg	0.11	0.02	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.5	1.5	0.25	0.25	0.25	0.25
Co	mg/kg	20	0.1	25	50	10	155	55	25	20	15	15	25	20	105	95	5	10	30	30
Cr	mg/kg	100	5	210	180	150	100	150	120	140	160	130	90	80	150	140	160	120	140	130
Cu	mg/kg	50	1	40	182	76	194	218	192	76	76	74	12	14	66	74	98	114	170	160
F	mg/kg	950	50																	
Fe	mg/kg	41,000	0.01	224,000	183,000	86,700	103,000	62,600	528,000	529,000	148,000	130,000	572,000	536,000	380,000	452,000	108,000	110,000	84,500	96,700
Hg	mg/kg	0.05	1																	
K	mg/kg	21,000	20	2,700	13,000	25,100	24,900	22,700	200	50	10,100	7,600	300	200	700	500	10,000	15,100	36,200	35,000
Mg	mg/kg	23,000	20	5,400	5,500	6,800	16,000	14,200	1,200	300	3,500	2,800	2,100	2,000	700	900	1,800	3,000	7,300	7,500
Mn	mg/kg	950	1	1,650	2,290	1,620	298	188	1,050	1,100	432	296	2,100	2,730	8,800	5,950	226	318	328	302
Mo	mg/kg	1.5	0.1	3	3.5	2.5	3	3	4	4	2	2	1.5	1	1	1	1.5	3	2.5	2.5
Na	mg/kg	23,000	20	2,100	1,800	1,700	1,100	1,700	200	100	600	500	200	200	100	200	300	500	400	400
Ni	mg/kg	80	1	68	116	62	228	144	112	82	68	56	56	66	76	88	38	44	86	108
P	mg/kg	1,000	50	100	150	200	150	150	500	450	250	250	1300	1400	650	1300	400	450	400	400
Pb	mg/kg	14	0.5	28	36	37	28	69	13	17	28	26	11	18	14	10	22	27	33	44
S	mg/kg	260	50	8,000	5,300	3,000	3,400	16,100	1,700	1,400	2,000	3,400	300	200	300	500	6,000	22,800	37,800	48,300
Sb	mg/kg	0.2	0.05	5.8	6.2	3.4	2	4.6	8.2	3.6	2.2	2	1.8	1.6	1.2	1	3.2	3.8	4.6	3.6
Se	mg/kg	0.05	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5	2.5	2.5	2.5	2.5
Si	mg/kg	277,000	0.1																	
Sn	mg/kg	2.2	0.1	6	5	6	4	9	1	0.5	3	3	0.5	0.5	3	2	3	3	5	4
Sr	mg/kg	370	0.05	178	51.5	34.5	42	67	1.5	1	50	63.5	8.5	13	22.5	14	19.5	25.5	16.5	14
Th	mg/kg	12	0.01	13.4	10.9	10.8	8.8	10	3.6	5.7	8.4	6.5	1.3	2.2	8.4	6.6	10	9.6	11.1	9.8
Ti	mg/kg	5,600	5	6,400	5,100	5,600	3,400	5,100	1,100	1,900	3,300	2,500	300	700	3,300	2,100	4,200	3,900	5,000	4,200
Tl	mg/kg	0.6	0.02	2.2	5.2	6	3.2	1.1	0.2	0.1	0.8	0.7	0.2	0.1	0.2	0.2	0.3	0.5	2	2.3
U	mg/kg	2.4	0.01	4.5	5	3.6	2.4	2.5	5.9	5.2	1.4	1.3	8.3	10.1	12.9	12.6	2.8	3.4	3.6	2.9
V	mg/kg	160	1	165	165	150	105	115	200	105	145	120	150	275	330	240	135	110	135	115
Zn	mg/kg	75	1	26	38	20	54	30	514	332	62	60	84	110	136	172	134	92	90	92

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Appendix A.3 - Bulk chemical assays				MineEarth																
				Bulk Assay Results																
				MD7664_12_14	MD7664_14_16	MD7687_0_2	MD7687_2_4	MD7689_20_22	MD7689_22_24	MD7711_22_24	MD7711_24_26	MD7773_8_10	MD7773_10_12	MD7814_2_4	MD7814_4_6	MD7814_16_18	MD7814_18_20	MD7826_52_54	MD7826_54_56	MD7826_72_74
Ag	mg/kg	0.07	0.05	0.25	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Al	mg/kg	82,000	50	13,000	14,900	53,000	49,500	4,700	3,000	7,100	12,500	27,000	19,600	50,200	75,900	40,900	39,600	96,100	96,800	12,800
As	mg/kg	1.5	0.5	3	9	37	33	3	1	7	7	19	21	25	20	49	49	5	7	20
Ba	mg/kg	500	50	2	5	205	358	18	14	4	6	46	97	197	402	219	162	36	20	25
Be	mg/kg	2.6	0.1	0.2	0.8	1.5	1.3	0.6	0.6	0.6	0.7	0.7	0.6	1.6	1.8	1.3	0.8	1.5	1.6	3
Bi	mg/kg	0.048	0.01	0.05	0.2	0.3	0.3	0.05	0.05	0.05	0.05	0.2	0.2	0.4	0.4	0.5	0.6	0.5	0.5	0.3
Ca	mg/kg	41,000	50	300	300	1,100	1,400	300	200	200	300	4,300	1,700	6,600	18,200	800	600	700	1,000	500
Cd	mg/kg	0.11	0.02	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Co	mg/kg	20	0.1	5	5	25	15	5	10	2.5	2.5	10	10	20	30	20	10	10	10	15
Cr	mg/kg	100	5	30	40	160	140	30	30	30	40	60	80	130	100	170	210	120	70	180
Cu	mg/kg	50	1	8	14	80	74	10	12	12	16	38	70	62	64	74	64	4	10	126
F	mg/kg	950	50																	
Fe	mg/kg	41,000	0.01	145,000	271,000	123,000	112,000	252,000	261,000	199,000	183,000	281,000	245,000	140,000	99,800	179,000	179,000	27,100	13,900	595,000
Hg	mg/kg	0.05	1																	
K	mg/kg	21,000	20	100	300	12,700	12,900	200	200	200	300	1,100	4,200	11,800	13,700	8,400	5,100	300	500	800
Mg	mg/kg	23,000	20	200	300	2,700	3,300	400	300	300	300	1,700	2,800	3,600	8,100	2,100	1,400	1,400	2,000	1,400
Mn	mg/kg	950	1	138	662	648	598	1,110	772	358	722	222	182	728	874	852	380	94	72	2,760
Mo	mg/kg	1.5	0.1	0.25	1.5	1.5	1.5	1	1	1	1	1	1	2	1.5	2	3	1	1	1
Na	mg/kg	23,000	20	200	200	400	500	300	300	400	500	300	400	700	2,000	300	200	200	200	50
Ni	mg/kg	80	1	10	14	86	76	14	8	6	10	30	18	78	82	64	44	102	120	70
P	mg/kg	1,000	50	100	200	300	300	100	100	100	100	600	450	250	200	300	200	50	50	950
Pb	mg/kg	14	0.5	3	5	25	21	2	1	3	4	5	9	18	23	22	23	6	12	6
S	mg/kg	260	50	100	100	3,600	3,900	200	200	200	200	200	300	1,700	1,200	800	400	100	100	100
Sb	mg/kg	0.2	0.05	0.6	1.2	2.4	2	0.4	0.4	0.8	1	1	1.8	1.4	1.2	2.2	1.6	0.8	0.8	1.4
Se	mg/kg	0.05	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Si	mg/kg	277,000	0.1																	
Sn	mg/kg	2.2	0.1	0.5	0.5	2	2	0.5	0.5	0.5	0.5	0.5	1	2	3	2	3	4	3	0.5
Sr	mg/kg	370	0.05	2	5.5	42.5	45	5	3.5	4	6	23.5	32.5	42.5	74.5	23	17.5	4	6	6.5
Th	mg/kg	12	0.01	2.4	2.4	6	5.8	0.7	0.4	1	2	3.7	3.6	6.4	11.6	7.6	9.4	9.1	12.3	2.2
Ti	mg/kg	5,600	5	400	900	2,800	2,700	300	200	300	700	1,000	1,100	2,800	4,500	2,700	3,600	7,700	7,700	700
Tl	mg/kg	0.6	0.02	0.05	0.05	0.8	0.7	0.05	0.05	0.05	0.05	0.1	0.1	0.6	0.7	0.5	0.4	0.05	0.05	0.05
U	mg/kg	2.4	0.01	0.2	0.8	1.6	1.4	0.2	0.1	0.3	0.3	0.8	0.9	2.1	2.1	2	1.8	2.2	2.2	8
V	mg/kg	160	1	25	40	135	130	15	15	15	25	25	60	125	130	165	225	120	100	65
Zn	mg/kg	75	1	8	8	96	78	14	8	12	4	26	40	86	66	94	62	38	46	164

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Appendix A.3 - Bulk chemical assays				MineEarth																
				Bulk Assay Results																
				MD7826_74_76	MD7855_4_6	MD7855_6_8	MD7855_24_26	MD7855_26_28	MD7855_38_40	MD7855_40_42	MD7871_28_30	MD7871_30_32	MD7877_0_2	MD7877_2_4	MD7914_4_6	MD7914_6_8	MD7918_2_4	MD7918_4_6	MD7918_28_30	MD7918_30_32
Ag	mg/kg	0.07	0.05	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Al	mg/kg	82,000	50	8,100	52,900	55,000	112,000	108,000	16,000	9,300	3,200	3,100	57,800	57,600	7,100	10,300	45,600	44,600	79,300	104,000
As	mg/kg	1.5	0.5	19	44	50	45	56	2	9	2	2	33	44	4	4	41	36	54	57
Ba	mg/kg	500	50	20	265	260	178	168	9	5	36	32	266	242	21	178	221	266	219	165
Be	mg/kg	2.6	0.1	3.1	1.5	1.4	1.2	1	0.8	0.7	0.3	0.3	1.4	1.5	1	1.1	1.6	1.2	1.4	1.6
Bi	mg/kg	0.048	0.01	0.1	0.5	0.5	1	1.2	0.1	0.05	0.05	0.05	0.4	0.5	0.05	0.1	0.5	0.5	0.9	0.9
Ca	mg/kg	41,000	50	500	1,800	1,700	1,300	1,100	300	300	300	400	1,200	1,200	300	700	900	1,200	900	800
Cd	mg/kg	0.11	0.02	0.25	0.25	0.25	0.25	0.25	0.5	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Co	mg/kg	20	0.1	10	25	25	20	25	10	10	10	15	25	20	20	20	20	15	15	15
Cr	mg/kg	100	5	110	140	160	190	280	40	30	30	30	150	140	130	120	130	130	270	210
Cu	mg/kg	50	1	114	92	90	92	90	12	10	10	22	92	102	12	2	68	62	116	114
F	mg/kg	950	50																	
Fe	mg/kg	41,000	0.01	576,000	138,000	130,000	95,800	161,000	529,000	588,000	328,000	285,000	107,000	137,000	578,000	569,000	126,000	121,000	177,000	150,000
Hg	mg/kg	0.05	1																	
K	mg/kg	21,000	20	200	13,300	13,100	6,400	5,200	300	200	100	200	15,300	13,400	300	500	12,700	11,400	5,900	5,700
Mg	mg/kg	23,000	20	1,200	3,600	3,700	3,000	2,600	400	300	200	300	2,700	3,100	900	900	3,000	3,300	1,600	1,600
Mn	mg/kg	950	1	3,110	574	490	822	1,230	900	1,080	468	226	600	594	2,000	21,500	490	452	1,400	848
Mo	mg/kg	1.5	0.1	0.5	2	2	3	3.5	0.25	0.5	0.5	1	2	2	0.25	0.25	1.5	1.5	3	3
Na	mg/kg	23,000	20	50	600	700	500	400	50	50	50	50	800	500	300	600	700	800	900	700
Ni	mg/kg	80	1	68	78	72	76	72	56	76	8	24	82	78	26	20	80	68	64	66
P	mg/kg	1,000	50	1000	300	300	200	200	400	450	150	150	350	400	650	500	300	250	250	250
Pb	mg/kg	14	0.5	3	25	28	43	40	8	6	2	3	27	36	8	14	25	23	37	37
S	mg/kg	260	50		3,800	4,300	200	200	300	200	500	400	4,300	3,500	400	600	3,200	2,000	200	200
Sb	mg/kg	0.2	0.05	0.8	2	2.4	2	3.2	0.4	0.4	0.2	0.4	1.6	1.8	3.4	1.6	2	2	3.6	3
Se	mg/kg	0.05	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Si	mg/kg	277,000	0.1																	
Sn	mg/kg	2.2	0.1	0.5	2	3	6	6	0.5	0.5	0.5	0.5	3	3	0.5	0.5	1	1	5	5
Sr	mg/kg	370	0.05	5.5	53	54	21.5	18.5	2.5	1.5	2	2	58	50.5	6	25	42	40	24.5	23.5
Th	mg/kg	12	0.01	1.3	6.8	7.7	19.5	20.6	2.3	1.2	0.4	0.3	8.2	7.9	1.7	1.9	5.4	5.9	15.9	18.2
Ti	mg/kg	5,600	5	400	2,800	3,100	8,300	8,200	600	300	200	100	3,600	3,400	500	500	2,400	2,400	6,700	7,500
Tl	mg/kg	0.6	0.02	0.05	0.8	0.7	0.4	0.4	0.05	0.05	0.05	0.05	0.8	0.8	0.05	0.2	0.9	0.8	1	0.7
U	mg/kg	2.4	0.01	5.7	1.8	1.9	4.5	4.2	1.3	1	0.2	0.2	2.1	2	12.5	6.8	1.4	1.5	3.6	3.7
V	mg/kg	160	1	40	140	145	225	275	30	30	15	10	125	145	175	100	135	130	305	270
Zn	mg/kg	75	1	170	100	108	64	100	262	288	28	32	102	106	22	22	94	90	60	62

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Appendix A.3 - Bulk chemical assays				MineEarth																
				Bulk Assay Results																
				MD7918_50_52	MD7918_52_54	MD7935_20_22	MD7935_22_24	MD8222_16_18	MD8222_18_20	MD8222_92_94	MD8222_94_96	MD8222_96_98	MD8222_98_100	MD8226_6_8	MD8226_8_10	MD8226_84_86	MD8226_86_88	MD8304_2_4	MD8304_4_6	MD8365_16_18
Ag	mg/kg	0.07	0.05	0.25	0.25	0.25	0.25	0.5	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Al	mg/kg	82,000	50	9,600	2,600	24,200	18,900	50,900	52,800	17,600	18,600	30,200	22,100	63,900	66,800	106,000	87,900	53,200	46,700	6,200
As	mg/kg	1.5	0.5	10	2	13	18	54	79	10	17	15	11	41	46	39	43	42	57	5
Ba	mg/kg	500	50	77	28	23	15	273	461	7	15	4	10	385	346	3	9	244	168	53
Be	mg/kg	2.6	0.1	2.9	0.9	0.8	1.1	1	1.1	0.8	1	0.7	0.7	1.2	1.3	2.2	1.6	1.4	1.3	0.5
Bi	mg/kg	0.048	0.01	0.05	0.05	0.2	0.1	0.6	0.8	0.2	0.2	0.2	0.2	0.6	0.6	0.8	1	0.5	0.6	0.05
Ca	mg/kg	41,000	50	300	200	300	300	15,000	3,200	2,400	2,700	62,700	61,600	2,000	2,000	400	500	900	1,000	1,500
Cd	mg/kg	0.11	0.02	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Co	mg/kg	20	0.1	25	15	15	15	15	15	20	20	20	10	10	15	30	45	15	15	10
Cr	mg/kg	100	5	140	50	80	80	180	240	50	60	70	70	140	190	250	220	200	260	40
Cu	mg/kg	50	1	14	4	16	18	80	90	8	14	8	6	80	82	12	10	66	62	1
F	mg/kg	950	50																	
Fe	mg/kg	41,000	0.01	508,000	313,000	445,000	522,000	137,000	216,000	402,000	423,000	234,000	154,000	94,100	142,000	117,000	171,000	154,000	296,000	95,600
Hg	mg/kg	0.05	1																	
K	mg/kg	21,000	20	400	100	100	900	7,700	6,000	50	50	200	400	11,200	10,300	50	50	10,100	8,300	200
Mg	mg/kg	23,000	20	1,100	500	800	1,200	3,900	2,700	18,800	17,700	60,400	49,500	4,500	3,400	50,800	74,900	2,100	2,100	300
Mn	mg/kg	950	1	5,950	1,500	390	1,890	590	698	17,900	9,820	5,160	2,620	374	932	202	220	964	1,090	104
Mo	mg/kg	1.5	0.1	1	1	1	1.5	2.5	3	1	1	1	1.5	2	2.5	4	2.5	2.5	3	0.5
Na	mg/kg	23,000	20	300	200	300	200	700	600	400	600	700	1,000	1,000	800	300	300	500	500	300
Ni	mg/kg	80	1	58	22	24	30	42	42	42	42	64	44	52	56	240	342	68	72	8
P	mg/kg	1,000	50	350	800	500	1350	250	400	150	350	300	200	400	450	200	200	400	500	150
Pb	mg/kg	14	0.5	5	2	12	7	33	38	5	6	5	13	31	32	21	27	25	27	4
S	mg/kg	260	50	200	100	300	400	2,400	1,100	40,500	55,700	15,000	11,600	5,900	4,800	27,700	60,300	3,800	3,200	400
Sb	mg/kg	0.2	0.05	1	0.4	1.2	1.2	2.2	2.6	0.4	0.8	0.6	0.6	2	2.4	4	2.6	2	2.8	0.8
Se	mg/kg	0.05	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Si	mg/kg	277,000	0.1																	
Sn	mg/kg	2.2	0.1	0.5	0.5	0.5	0.5	4	4	0.5	0.5	0.5	0.5	3	3	3	2	2	2	0.5
Sr	mg/kg	370	0.05	6.5	2.5	4.5	3.5	61.5	51	3.5	12.5	9	9	103	85.5	4.5	9.5	55.5	50.5	10
Th	mg/kg	12	0.01	1.5	0.3	3.7	3	10.8	13.8	2.7	3	3.6	2.7	9.8	11	17.2	12.1	6.1	7.7	1
Ti	mg/kg	5,600	5	600	300	2,500	1,100	3,700	4,500	900	1,300	1,800	1,300	4,300	4,300	6,500	5,800	2,900	3,300	400
Tl	mg/kg	0.6	0.02	0.1	0.1	0.05	0.05	0.5	0.5	0.05	0.2	0.05	0.05	0.5	0.5	0.1	0.2	0.8	0.5	0.05
U	mg/kg	2.4	0.01	3.1	0.7	1.2	1.2	2.2	2.5	1.4	1.7	1.1	0.7	2.3	2.7	4.8	3.5	1.6	1.9	0.2
V	mg/kg	160	1	50	10	45	60	150	205	35	35	55	40	125	155	245	180	165	220	25
Zn	mg/kg	75	1	276	74	42	54	66	72	74	62	60	22	56	74	406	714	76	96	20

Highlighted values indicates values enriched at or above GAI 3

Appendix A.3 - Bulk chemical assays

Appendix A.3 - Bulk chemical assays				MineEarth												
				Bulk Assay Results												
				MD8365_18_20	MD8374_0_2	MD8374_2_4	MD8389_8_10	MD8389_10_12	MD8434_4_6	MD8434_6_8	MD8454_44_46	MD8454_46_48	MD8454_86_88	MD8454_88_90	MD8454_94_96	MD8454_96_98
Ag	mg/kg	0.07	0.05	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.5
Al	mg/kg	82,000	50	21,400	57,600	54,000	20,900	6,900	52,300	65,200	53,400	22,200	35,700	24,300	26,600	36,300
As	mg/kg	1.5	0.5	10	39	28	6	4	45	42	19	14	7	22	22	20
Ba	mg/kg	500	50	70	161	83	269	114	238	851	1120	702	35	11	7	4
Be	mg/kg	2.6	0.1	0.8	1.5	0.7	0.7	0.8	1.2	1.3	2.5	1.8	1	1.4	1.2	1.2
Bi	mg/kg	0.048	0.01	0.2	0.8	0.5	0.05	0.05	0.6	0.6	0.4	0.2	0.5	0.4	0.4	0.4
Ca	mg/kg	41,000	50	600	700	4,000	400	500	1,400	1,800	900	700	2,100	1,600	5,200	1,000
Cd	mg/kg	0.11	0.02	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2	1.5	0.25	0.25	0.25	0.25
Co	mg/kg	20	0.1	10	15	10	10	10	15	20	65	45	35	55	25	15
Cr	mg/kg	100	5	60	280	200	70	50	160	140	90	60	90	60	70	90
Cu	mg/kg	50	1	16	52	46	6	4	92	82	20	24	20	26	30	32
F	mg/kg	950	50													
Fe	mg/kg	41,000	0.01	115,000	344,000	405,000	271,000	239,000	128,000	107,000	296,000	398,000	208,000	313,000	184,000	192,000
Hg	mg/kg	0.05	1													
K	mg/kg	21,000	20	200	1,100	600	400	50	15,200	14,300	3,700	3,400	2,000	1,300	600	300
Mg	mg/kg	23,000	20	300	1,100	1,400	600	1,100	3,700	3,900	800	600	28,700	15,400	12,700	3,100
Mn	mg/kg	950	1	92	418	644	184	164	372	306	144,000	129,000	32,200	26,400	6,560	848
Mo	mg/kg	1.5	0.1	1	3	1.5	1	0.5	2.5	2	2	1.5	0.5	1	1.5	1.5
Na	mg/kg	23,000	20	300	300	300	400	200	500	1,300	1,200	900	700	700	500	400
Ni	mg/kg	80	1	16	48	30	20	16	76	60	76	84	114	152	110	42
P	mg/kg	1,000	50	250	300	300	200	100	250	300	150	200	300	350	200	150
Pb	mg/kg	14	0.5	7	20	14	5	4	29	32	18	5	6	6	6	7
S	mg/kg	260	50	300	400	300	300	300	4,600	2,900	800	600	400	800	4,300	7,300
Sb	mg/kg	0.2	0.05	1	3.4	2.6	1	0.6	2.8	2.2	1.2	0.6	0.8	0.8	1.4	1.4
Se	mg/kg	0.05	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Si	mg/kg	277,000	0.1													
Sn	mg/kg	2.2	0.1	0.5	5	3	0.5	0.5	2	3	1	0.5	1	0.5	0.5	1
Sr	mg/kg	370	0.05	5.5	31.5	42	5.5	4.5	54	74	153	96	71.5	77	18.5	5
Th	mg/kg	12	0.01	3.1	11.1	7.4	2.1	1	7.3	11.3	9	3.9	7.8	5.8	5	7.3
Ti	mg/kg	5,600	5	1,200	5,100	3,200	900	400	2,800	4,100	2,400	800	2,300	1,100	1,700	2,300
Tl	mg/kg	0.6	0.02	0.05	0.2	0.05	0.05	0.05	1.1	1	0.7	0.6	0.2	0.2	0.2	0.2
U	mg/kg	2.4	0.01	0.7	4.7	3.8	0.5	0.4	1.5	2.1	5.4	5.7	2.1	2.3	1.8	2.3
V	mg/kg	160	1	50	185	120	40	25	145	140	80	45	70	50	55	80
Zn	mg/kg	75	1	26	24	24	22	22	104	88	246	272	26	36	52	20

Highlighted values indicates values enriched at or above GAI 3

Appendix A.4 Leachate results

Appendix A.4 - Leach statistics by lithology (DI leach extracts, ChemCentre (5:1 L:S contact ratio))

Parameters	Unit	Site-specific trigger values	ANZECC		CzD3				CzD2				WA				NEW			
			95% of Species Limit of Protection	Livestock Drinking Water	Count	Min	Average	Max	Count	Min	Average	Max	Count	Min	Average	Max	Count	Min	Average	Max
pH	pH Unit	6.5 - 8.5	6.5 - 8.5	6.5 - 8.5	72	8.2	7.1	5.8	22	8.1	6.9	6.3	2	8.2	7.9	7.6	3	7.7	7.0	6.6
EC	mS/cm	15	-	-	72	0.04	0	0.66	22	0.039	0	0.206	2	0.116	0	0.174	3	0.033	0	0.162
Alkalinity	mg CaCO ₃ /L	440	-	-	72	2	15	87	22	4	8.9	65	2	24	35	45	3	3	14	35
TDS	mg/L	12,000	1,500	4,000	72	22	72	360	22	22	54	110	2	64	80	96	3	18	57	89
Ag	mg/L	0.0025	0.00005	-	72	0.0001	0.0001	0.0001	22	0.0001	0.0001	0.0001	2	0.0001	0.0001	0.0001	3	0.0001	0.0001	0.0001
Al	mg/L	0.055	-	-	72	0.005	0.2	1.2	22	0.005	0.04	0.18	2	0.005	0.007	0.008	3	0.005	0.005	0.005
As	mg/L	0.013	0.013	0.5	72	0.001	0.001	0.004	22	0.001	0.001	0.001	2	0.001	0.001	0.001	3	0.001	0.001	0.001
B	mg/L	3.1	0.37	5	72	0.02	0.05	0.24	22	0.02	0.03	0.04	2	0.02	0.02	0.02	3	0.02	0.04	0.07
Ba	mg/L	0.13	-	-	72	0.002	0.01	0.031	22	0.002	0.002	0.006	2	0.002	0.002	0.002	3	0.01	0.03	0.08
Be	mg/L	0.00013	0.00013	-	72	0.001	0.001	0.001	22	0.001	0.001	0.001	2	0.001	0.001	0.001	3	0.001	0.001	0.001
Bi	mg/L	0.0007	0.0007	-	72	0.0001	0.0001	0.0001	22	0.0001	0.0001	0.0001	2	0.0001	0.0001	0.0001	3	0.0001	0.0001	0.0001
Ca	mg/L	300	-	1,000	72	0.2	3.0	49	22	0.2	1.5	6.7	2	3.9	4.6	5.2	3	1.1	4.6	10
Cd	mg/L	0.0002	0.0002	0.01	72	0.0001	0.0002	0.0012	22	0.0001	0.0002	0.0009	2	0.0001	0.0002	0.0003	3	0.0001	0.0001	0.0001
Cl	mg/L	4,000	-	-	72	2	11	48	22	2	9.1	27	2	7	10	13	3	6	15	21
Co	mg/L	0.0028	0.0028	1	72	0.005	0.02	0.11	22	0.005	0.02	0.11	2	0.005	0.005	0.005	3	0.005	0.005	0.005
Cr	mg/L	0.0092	0.001	1	72	0.001	0.001	0.002	22	0.001	0.002	0.006	2	0.001	0.002	0.003	3	0.001	0.002	0.003
Cu	mg/L	0.0014	0.0014	0.4	72	0.0001	0.02	0.28	22	0.0001	0.002	0.0091	2	0.0003	0.001	0.0009	3	0.0001	0.0001	0.0001
F	mg/L	3.3	-	2	72	0.1	0.6	1.3	22	0.09	0.63	1.3	2	0.68	0.84	1	3	0.05	0.15	0.34
Fe	mg/L	0.3	0.3	-	72	0.005	0.17	0.8	22	0.005	0.05	0.26	2	0.005	0.005	0.005	3	0.005	0.005	0.005
Hg	mg/L	0.0006	0.0006	0.002	72	0.0001	0.0001	0.0001	22	0.0001	0.0002	0.0015	2	0.0001	0.0001	0.0001	3	0.0001	0.0001	0.0001
K	mg/L	320	-	-	72	1.2	4.2	10.4	22	1.6	3.3	6.2	2	3.1	4.4	5.6	3	1	2.9	4.6
La	mg/L	-	-	-	72	0.005	0.005	0.005	22	0.005	0.005	0.005	2	0.005	0.005	0.005	3	0.005	0.005	0.005
Li	mg/L	-	-	-	72	0.005	0.005	0.01	22	0.005	0.009	0.015	2	0.005	0.006	0.007	3	0.005	0.005	0.005
Mg	mg/L	480	-	-	72	0.1	1.4	14.2	22	0.2	1.0	3.8	2	2.7	3.2	3.6	3	0.7	1.6	2.2
Mn	mg/L	1.9	1.9	-	72	0.001	0.02	0.31	22	0.001	0.02	0.27	2	0.001	0.001	0.001	3	0.001	0.01	0.021
Mo	mg/L	0.034	0.034	0.15	72	0.02	0.02	0.02	22	0.02	0.02	0.02	2	0.02	0.02	0.02	3	0.02	0.02	0.02
Total N	mg/L	-	-	-	72	0.3	1.0	6.2	22	0.25	0.71	2.1	2	0.27	0.33	0.39	3	0.31	0.42	0.54
Na	mg/L	2,500	-	-	72	3.3	18	75	22	5.4	14	31	2	13	16	19	3	2.9	10	15
Ni	mg/L	0.011	0.011	1	72	0.01	0.02	0.1	22	0.01	0.02	0.07	2	0.01	0.01	0.01	3	0.01	0.01	0.01
P	mg/L	0.14	-	-	72	0.1	0.1	0.1	22	0.1	0.1	0.1	2	0.1	0.1	0.1	3	0.1	0.1	0.1
Pb	mg/L	0.0034	0.0034	0.1	72	0.0001	0.0002	0.003	22	0.0001	0.0001	0.0005	2	0.0001	0.0001	0.0001	3	0.0001	0.0001	0.0001
SO ₄	mg/L	2,600	-	1,000	72	2.7	23	180	22	2.5	16	53	2	12	13	14	3	0.7	9.5	15
Sb	mg/L	0.009	0.009	-	72	0.0001	0.0001	0.0004	22	0.0001	0.0001	0.0003	2	0.0001	0.0001	0.0001	3	0.0001	0.0001	0.0001
Se	mg/L	0.011	0.011	0.02	72	0.001	0.001	0.002	22	0.001	0.0010	0.002	2	0.001	0.001	0.001	3	0.001	0.001	0.001
Si	mg/L	90	-	-	72	2.9	7.5	18	22	1.5	4.9	10	2	2.5	4.1	5.6	3	2.3	4.6	6.7
Sn	mg/L	0.003	0.003	-	72	0.0001	0.0001	0.0004	22	0.0001	0.0001	0.0001	2	0.0001	0.0001	0.0001	3	0.0001	0.0001	0.0001
Sr	mg/L	3.8	-	-	72	0.002	0.02	0.2	22	0.002	0.007	0.024	2	0.01	0.02	0.02	3	0.01	0.04	0.07
Th	mg/L	-	-	-	72	0.0001	0.0001	0.0001	22	0.0001	0.0001	0.0001	2	0.0001	0.0001	0.0001	3	0.0001	0.0001	0.0001
Ti	mg/L	0.0025	-	-	72	0.0005	0.003	0.0089	22	0.0005	0.001	0.0027	2	0.0005	0.001	0.0005	3	0.0005	0.001	0.0005
Tl	mg/L	0.0025	-	-	72	0.0001	0.0001	0.0001	22	0.0001	0.0001	0.0001	2	0.0001	0.0001	0.0001	3	0.0001	0.0001	0.0001
U	mg/L	0.0068	0.0005	0.2	72	0.0001	0.0001	0.0003	22	0.0001	0.0001	0.0002	2	0.0001	0.0001	0.0001	3	0.0001	0.0001	0.0001
V	mg/L	0.029	0.006	-	72	0.005	0.005	0.005	22	0.005	0.005	0.005	2	0.005	0.005	0.005	3	0.005	0.005	0.005
Y	mg/L	-	-	-	72	0.0002	0.005	0.078	22	0.0002	0.001	0.004	2	0.0002	0.0002	0.0002	3	0.0002	0.0002	0.0002
Zn	mg/L	0.033	0.008	20	72	0.005	0.03	0.67	22	0.005	0.03	0.25	2	0.005	0.01	0.016	3	0.005	0.01	0.005

Appendix A.4 - Leach statistics by lithology (DI leach extracts, ChemCentre (5:1 L:S contact ratio))

Parameters	Unit	Site-specific trigger values	ANZECC		MAC				NAM				JER			
			95% of Species Limit of Protection	Livestock Drinking Water	Count	Min	Average	Max	Count	Min	Average	Max	Count	Min	Average	Max
pH	pH Unit	6.5 - 8.5	6.5 - 8.5	6.5 - 8.5	22	7.5	6.7	4.3	41	8.4	6.7	4.4	5	7.4	6.9	6.3
EC	mS/cm	15	-	-	22	0.029	0	0.639	41	0.036	0	0.784	5	0.07	0	0.461
Alkalinity	mg CaCO ₃ /L	440	-	-	22	1	5.6	15	41	1	11	61	5	2	8.6	16
TDS	mg/L	12,000	1,500	4,000	22	16	78	350	41	20	96	430	5	39	157	250
Ag	mg/L	0.0025	0.00005	-	22	0.0001	0.0001	0.0001	41	0.0001	0.0001	0.0001	5	0.0001	0.0001	0.0001
Al	mg/L	0.055	-	-	22	0.005	0.02	0.1	41	0.005	0.03	1	5	0.005	0.009	0.021
As	mg/L	0.013	0.013	0.5	22	0.001	0.001	0.001	41	0.001	0.001	0.001	5	0.001	0.001	0.001
B	mg/L	3.1	0.37	5	22	0.02	0.04	0.12	41	0.02	0.03	0.08	5	0.02	0.03	0.04
Ba	mg/L	0.13	-	-	22	0.002	0.009	0.11	41	0.002	0.002	0.008	5	0.002	0.006	0.019
Be	mg/L	0.00013	0.00013	-	22	0.001	0.001	0.001	41	0.001	0.001	0.003	5	0.001	0.001	0.001
Bi	mg/L	0.0007	0.0007	-	22	0.0001	0.0001	0.0001	41	0.0001	0.0001	0.0001	5	0.0001	0.0001	0.0001
Ca	mg/L	300	-	1,000	22	0.5	4.0	27	41	0.4	7	56	5	1.6	12	22
Cd	mg/L	0.0002	0.0002	0.01	22	0.0001	0.0003	0.0046	41	0.0001	0.0001	0.0007	5	0.0001	0.0002	0.0006
Cl	mg/L	4,000	-	-	22	1	12.6	57	41	1	10.8	44	5	3	6.8	13
Co	mg/L	0.0028	0.0028	1	22	0.005	0.02	0.16	41	0.005	0.03	0.35	5	0.005	0.07	0.3
Cr	mg/L	0.0092	0.001	1	22	0.001	0.001	0.006	41	0.001	0.002	0.006	5	0.001	0.001	0.001
Cu	mg/L	0.0014	0.0014	0.4	22	0.0001	0.002	0.012	41	0.0001	0.004	0.049	5	0.0001	0.023	0.11
F	mg/L	3.3	-	2	22	0.05	0.37	1.1	41	0.06	0.4	1	5	0.05	0.4	0.8
Fe	mg/L	0.3	0.3	-	22	0.005	0.03	0.16	41	0.005	0.02	0.4	5	0.005	0.02	0.081
Hg	mg/L	0.0006	0.0006	0.002	22	0.0001	0.0001	0.0002	41	0.0001	0.0001	0.0003	5	0.0001	0.0001	0.0001
K	mg/L	320	-	-	22	1.5	3.6	11.6	41	1.7	4.6	11.9	5	4	5.7	8.6
La	mg/L	-	-	-	22	0.005	0.005	0.005	41	0.005	0.005	0.005	5	0.005	0.005	0.005
Li	mg/L	-	-	-	22	0.005	0.007	0.024	41	0.005	0.009	0.023	5	0.005	0.007	0.01
Mg	mg/L	480	-	-	22	0.4	2.9	20	41	0.3	5.1	39	5	1.1	9.6	19.3
Mn	mg/L	1.9	1.9	-	22	0.001	0.23	4.7	41	0.001	1.2	21	5	0.013	7.7	27
Mo	mg/L	0.034	0.034	0.15	22	0.02	0.02	0.02	41	0.02	0.02	0.02	5	0.02	0.02	0.02
Total N	mg/L	-	-	-	22	0.15	0.6	1.8	41	0.13	0.37	2.1	5	0.19	0.26	0.33
Na	mg/L	2,500	-	-	22	2.9	15	59	41	2.7	14	45	5	7.4	15	31
Ni	mg/L	0.011	0.011	1	22	0.01	0.02	0.15	41	0.01	0.04	0.5	5	0.01	0.1	0.5
P	mg/L	0.14	-	-	22	0.1	0.1	0.1	41	0.1	0.1	0.1	5	0.1	0.1	0.1
Pb	mg/L	0.0034	0.0034	0.1	22	0.0001	0.0006	0.01	41	0.0001	0.0002	0.0029	5	0.0001	0.0001	0.0001
SO ₄	mg/L	2,600	-	1,000	22	4.7	33	183	41	4.6	45	337	5	8.5	97	187
Sb	mg/L	0.009	0.009	-	22	0.0001	0.0001	0.0002	41	0.0001	0.0001	0.0004	5	0.0001	0.0001	0.0002
Se	mg/L	0.011	0.011	0.02	22	0.001	0.0011	0.003	41	0.001	0.0033	0.042	5	0.001	0.01	0.03
Si	mg/L	90	-	-	22	1.9	3.8	6.7	41	1	2.7	4.6	5	1.3	1.68	2.3
Sn	mg/L	0.003	0.003	-	22	0.0001	0.0001	0.0001	41	0.0001	0.0001	0.0006	5	0.0001	0.0001	0.0001
Sr	mg/L	3.8	-	-	22	0.002	0.02	0.22	41	0.002	0.02	0.2	5	0.004	0.04	0.08
Th	mg/L	-	-	-	22	0.0001	0.0001	0.0001	41	0.0001	0.0001	0.0001	5	0.0001	0.0001	0.0001
Ti	mg/L	0.0025	-	-	22	0.0005	0.001	0.002	41	0.0005	0.001	0.0006	5	0.0005	0.0005	0.0005
Tl	mg/L	0.0025	-	-	22	0.0001	0.0001	0.0001	41	0.0001	0.0001	0.0004	5	0.0001	0.0001	0.0001
U	mg/L	0.0068	0.0005	0.2	22	0.0001	0.0001	0.0001	41	0.0001	0.0001	0.0003	5	0.0001	0.0001	0.0001
V	mg/L	0.029	0.006	-	22	0.005	0.005	0.005	41	0.005	0.005	0.005	5	0.005	0.005	0.005
Y	mg/L	-	-	-	22	0.0002	0.001	0.01	41	0.0002	0.0004	0.004	5	0.0002	0.0004	0.001
Zn	mg/L	0.033	0.008	20	22	0.005	0.04	0.39	41	0.005	0.07	1.5	5	0.005	0.1	0.5

Appendix A.4 - Leach statistics by lithology (DI leach extracts, MWH (20:1 L:S contact ratio))

Parameters	Unit	Site-specific trigger values	ANZECC		CzD3				CzD2				NAM				JER			
			95% of Species Limit of Protection	Livestock Drinking Water	Count	Min	Average	Max	Count	Min	Average	Max	Count	Min	Average	Max	Count	Min	Average	Max
pH	pH Unit	6.5 - 8.5	6.5 - 8.5	6.5 - 8.5	2	9	8.8	8.6	2	7.5	6.9	6.7	18	9	7.0	6.6	3	7.7	3.8	3.3
EC	mS/cm	15	-	-	2	0.117	0	0.585	2	0.032	0	0.061	18	0.01	0	0.204	3	0.044	0.15	0.337
Alkalinity	mg CaCO ₃ /L	440	-	-	2	38	45	51	1	5	5	5	14	5	12	38	2	5	8	11
TDS	mg/L	12,000	1,500	4,000	2	70	211	351	2	20	29	37	16	20	32	122	3	26	91	202
Ag	mg/L	0.0025	0.00005	-	2	0.00001	0.00001	0.00001	2	0.00001	0.00001	0.00001	18	0.00001	0.00001	0.00003	3	0.00001	0.00001	0.00001
Al	mg/L	0.055	-	-	2	0.05	1.0	1.9	2	0.36	14.91	29.46	18	0.01	0.6	2.35	3	0.28	3.537	7.73
As	mg/L	0.013	0.013	0.5	2	0.003	0.003	0.003	2	0.0001	0.002	0.003	18	0.0001	0.001	0.004	3	0.0002	0.003	0.004
Ba	mg/L	0.13	-	-	2	0.03	0.08	0.12	2	0.001	0.018	0.035	18	0.00005	0.002	0.01818	3	0.00078	0.01	0.02
Be	mg/L	0.00013	0.00013	-	2	0.0001	0.0001	0.0001	2	0.0001	0.00015	0.0002	18	0.0001	0.0001	0.0001	3	0.0001	0.00046667	0.0011
Ca	mg/L	300	-	1,000	2	7.1	12.6	18	2	0.91	1.0	1.15	18	0.25	2.7	7.66	3	0.99	4.2	10
Cl	mg/L	4,000	-	-	2	10	58	105	2	9	9.5	10	18	2	9	35	3	8	10	12
Co	mg/L	0.0028	0.0028	1	2	0.0001	0.0003	0.0005	2	0.0001	0.0005	0.0008	18	0.0001	0.0001	0.0003	3	0.0001	0.03	0.0768
Cr	mg/L	0.0092	0.001	1	2	0.01	0.010	0.01	2	0.01	0.015	0.02	18	0.01	0.010	0.01	3	0.01	0.017	0.03
Cu	mg/L	0.0014	0.0014	0.4	2	0.01	0.01	0.01	2	0.01	0.015	0.02	18	0.01	0.010	0.01	3	0.01	1.56	4.63
F	mg/L	3.3	-	2	2	0.2	0.35	0.5	2	0.5	0.50	0.5	18	0.1	0.2	0.5	3	0.1	0.33	0.7
Fe	mg/L	0.3	0.3	-	2	0.01	0.83	1.7	2	0.19	10.7	21.3	18	0.01	1.66	9.25	3	2.24	5.99	12.3
Hg	mg/L	0.0006	0.0006	0.002	2	0.0001	0.0001	0.0001	2	0.0001	0.0001	0.0001	18	0.0001	0.00016667	0.0013	3	0.0001	0.0001	0.0001
K	mg/L	320	-	-	2	4.1	5.6	7	2	1.8	2.3	2.7	18	0.4	1.4	4.5	3	0.8	3.4	6.5
Mg	mg/L	480	-	-	2	2.43	4.6	6.76	2	0.68	1.3	1.84	18	0.03	1.2	7.46	3	1.07	3.2	6.19
Mn	mg/L	1.9	1.9	-	2	0.01	0.02	0.03	2	0.01	0.06	0.11	17	0.01	0.02	0.1	3	0.01	0.16	0.45
Na	mg/L	2,500	-	-	2	10.5	49	87	2	3	6	10	17	0	4	21	3	0.6	5	11
Ni	mg/L	0.011	0.011	1	2	0.01	0.01	0.01	2	0.01	0.01	0.01	18	0.01	0.01	0.01	3	0.01	0.06	0.15
P	mg/L	0.14	-	-	2	0.1	0.1	0.1	2	0.1	0.1	0.1	17	0.1	0.1	0.3	3	0.1	0.1	0.1
Pb	mg/L	0.0034	0.0034	0.1	2	0.0005	0.0005	0.001	2	0.0005	0.001	0.001	17	0.0005	0.0005	0.0007	3	0.0005	0.0006	0.0008
SO ₄	mg/L	2,600	-	1,000	3	0.08	31	84.1	2	4.9	7	8	18	0	6	42	3	6.5	42.0	108
Sb	mg/L	0.009	0.009	-	2	0.00003	0.00004	0.00005	2	0.0001	0.0001	0.0002	18	0.00001	0.0002	0.00077	3	0.00009	0.0003	0.00044
Se	mg/L	0.011	0.011	0.02	2	0.0005	0.001	0.001	2	0.0005	0.0005	0.0005	18	0.0005	0.0005	0.0005	3	0.00	0.01	0.03
Tl	mg/L	0.0025	-	-	2	0.00001	0.00001	0.00001	2	0.00001	0.000025	0.00004	18	0.00001	1.1111E-05	0.00002	3	0.0000	0.0001	0.0001
U	mg/L	0.0068	0.0005	0.2	2	0.000057	0.0001	0.000071	2	0.000032	0.0001	0.0001	18	0.000005	0.00003	0.000079	3	0.0001	0.003	0.008
V	mg/L	0.029	0.006	-	2	0.01	0.010	0.01	2	0.01	0.02	0.03	18	0.01	0.010	0.01	3	0.01	0.013	0.02
Zn	mg/L	0.033	0.008	20	2	0.01	0.01	0.01	2	0.01	0.01	0.01	18	0.01	0.01	0.01	3	0.01	0.12	0.33

Appendix A.4 - Leach statistics by lithology (DI leach extracts, MWH (20:1 L:S contact ratio))

Parameters	Unit	Site-specific trigger values	ANZECC		Out of pit			
			95% of Species Limit of Protection	Livestock Drinking Water	Count	Min	Average	Max
pH	pH Unit	6.5 - 8.5	6.5 - 8.5	6.5 - 8.5	5	8.8	7.3	6.8
EC	mS/cm	15	-	-	5	0.016	0	0.183
Alkalinity	mg CaCO ₃ /L	440	-	-	5	5	20.4	34
TDS	mg/L	12,000	1,500	4,000	5	20	47	110
Ag	mg/L	0.0025	0.00005	-	5	0.00001	0.0000	0.00001
Al	mg/L	0.055	-	-	5	0.18	8.47	37.9
As	mg/L	0.013	0.013	0.5	5	0.0003	0.002	0.003
Ba	mg/L	0.13	-	-	5	0.00032	0.005	0.01415
Be	mg/L	0.00013	0.00013	-	5	0.0001	0.0001	0.0001
Ca	mg/L	300	-	1,000	5	1.09	4.8	11
Cl	mg/L	4,000	-	-	5	7	10.0	13
Co	mg/L	0.0028	0.0028	1	5	0.0001	0.0002	0.0004
Cr	mg/L	0.0092	0.001	1	5	0.01	0.014	0.03
Cu	mg/L	0.0014	0.0014	0.4	5	0.01	0.010	0.01
F	mg/L	3.3	-	2	5	0.1	0.60	2
Fe	mg/L	0.3	0.3	-	6	0.04	0.88	1.75
Hg	mg/L	0.0006	0.0006	0.002	6	0.0001	0.0001	0.0001
K	mg/L	320	-	-	6	0.8	42.3	239
Mg	mg/L	480	-	-	6	0.42	2.2	5
Mn	mg/L	1.9	1.9	-	6	0.01	60.68	364
Na	mg/L	2,500	-	-	5	1	5	14
Ni	mg/L	0.011	0.011	1	5	0.01	0.01	0.01
P	mg/L	0.14	-	-	5	0.1	0.1	0.1
Pb	mg/L	0.0034	0.0034	0.1	5	0.0005	0.0005	0.0005
SO ₄	mg/L	2,600	-	1,000	5	2	9	28.1
Sb	mg/L	0.009	0.009	-	5	0.00007	0.0002	0.0003
Se	mg/L	0.011	0.011	0.02	5	0.0005	0.0005	0.0005
Tl	mg/L	0.0025	-	-	5	0.00001	0.000012	0.00002
U	mg/L	0.0068	0.0005	0.2	5	0.000012	0.0001	0.0001
V	mg/L	0.029	0.006	-	5	0.01	0.010	0.01
Zn	mg/L	0.033	0.008	20	5	0.01	0.01	0.01

Appendix A.4 - Leach statistics by lithology (DI leach extracts, MWH (20:1 L:S contact ratio))

Parameters	Unit	Site-specific trigger values	ANZECC		CzD3				CzD2				MAC				NAM			
			95% of Species Limit of Protection	Livestock Drinking Water	Count	Min	Average	Max	Count	Min	Average	Max	Count	Min	Average	Max	Count	Min	Average	Max
pH	pH Unit	6.5 - 8.5	6.5 - 8.5	6.5 - 8.5	18	9.9	7.1	6.4	3	9.1	7.7	7.5	2	7.1	7.0	7	15	7.9	4.5	3.3
EC	mS/cm	15	-	-	11	0.12	1	3.3	1	0.11	0.1	0.11	1	0.11	0.1	0.11	10	0.06	1	5.51
Alkalinity	mg CaCO ₃ /L	440	-	-	18	6	41	125	3	8	21.3	31	2	6	21	36	15	2	36	108
TDS	mg/L	12,000	1,500	4,000	11	80	434	2,211	1	74	74	74	1	74	74	74	10	40	903	3,692
Ag	mg/L	0.0025	0.00005	-	11	0.00005	0.00005	0.00005	1	0.00005	0.00005	0.00005	1	0.00005	0.00005	0.00005	10	0.00005	0.000128	0.00083
Al	mg/L	0.055	-	-	15	0.01	0.2	1.05	3	0.01	0.03	0.07	1	0.01	0.010	0.01	11	0.01	16	177
As	mg/L	0.013	0.013	0.5	18	0.0007	0.01	0.05	2	0.0002	0.000	0.00043	1	0.00019	0.0002	0.00019	12	0.00005	0.001	0.008
B	mg/L	3.1	0.37	5	18	0.02	0.28	2.92	3	0.01	0.04	0.08	1	0.05	0.05	0.05	14	0.01	0.07	0.32
Ba	mg/L	0.13	-	-	18	0.007	0.04	0.2	3	0.00019	0.003	0.009	2	0.013	0.013	0.014	15	0.00066	0.02	0.09
Bi	mg/L	0.0007	0.0007	-	11	0.00001	0.00001	0.00001	1	0.00001	0.00001	0.00001	1	0.00001	0.00001	0.00001	10	0.00001	0.000021	0.00012
Ca	mg/L	300	-	1,000	18	0.54	34.9	539	3	0.61	1.6	2.64	2	0.92	4.0	7.13	15	0.28	79.9	357
Cd	mg/L	0.0002	0.0002	0.01	11	0.00002	0.00002	0.00004	1	0.00002	0.00002	0.00002	1	0.00002	0.00002	0.00002	11	0.00002	0.0009	0.01
Cl	mg/L	4,000	-	-	14	2	37	230	1	5	5	5	1	4	4	4	12	2	53	430
Co	mg/L	0.0028	0.0028	1	18	0.0001	0.001	0.0097	3	0.0001	0.0001	0.0001	1	0.0006	0.0006	0.0006	14	0.0001	0.30	4.2
Cr	mg/L	0.0092	0.001	1	11	0.01	0.01	0.01	1	0.01	0.01	0.01	1	0.01	0.01	0.01	10	0.01	0.027	0.182
Cu	mg/L	0.0014	0.0014	0.4	11	0.01	0.01	0.01	1	0.01	0.01	0.01	1	0.01	0.01	0.01	10	0.01	0.0144	0.054
F	mg/L	3.3	-	2	18	0.1	0.9	6.6	3	0.2	0.53	1	2	0.1	0.15	0.2	13	0.1	0.41	1
Fe	mg/L	0.3	0.3	-	15	0.01	0.11	0.5	3	0.02	0.13	0.3	1	0.01	0.01	0.01	12	0.01	11.99	142
Hg	mg/L	0.0006	0.0006	0.002	11	0.0001	0.0001	0.0001	1	0.0001	0.0001	0.0001	1	0.0001	0.0001	0.0001	10	0.0001	0.0001	0.0001
K	mg/L	320	-	-	18	1.1	8.6	25.8	3	1.5	3.1	4.5	2	0.3	3.1	5.9	15	0.1	8.9	45
Mg	mg/L	480	-	-	18	0.2	8.5	114	3	0.44	1.1	1.71	2	0.6	1.8	3.07	15	0.25	65.8	609.8
Mn	mg/L	1.9	1.9	-	14	0.01	0.04	0.2	2	0.015	0.02	0.03	2	0.004	0.03	0.05	13	0.003	37.2	472
Mo	mg/L	0.034	0.034	0.15	17	0.0001	0.005	0.034	2	0.0001	0.0002	0.0003	2	0.00016	0.0002	0.00024	13	0.00005	0.001	0.00481
Na	mg/L	2,500	-	-	18	1.5	50	380	3	2.5	7	16	2	1	4	6	15	0.4	48	459
Ni	mg/L	0.011	0.011	1	11	0.01	0.01	0.02	1	0.01	0.01	0.01	1	0.01	0.01	0.01	11	0.01	2.89	31.6
P	mg/L	0.14	-	-	11	0.01	0.02	0.06	1	0.01	0.01	0.01	1	0.011	0.011	0.011	10	0.01	0.0159	0.05
Pb	mg/L	0.0034	0.0034	0.1	12	0.0002	0.0003	0.001	1	0.0002	0.0002	0.0002	1	0.0002	0.0002	0.0002	10	0.0002	0.0062	0.1
SO ₄	mg/L	2,600	-	1,000	18	1.7	154	2,044	3	0.6	5	13	2	1	5	8	15	1.5	621	5,015
Sb	mg/L	0.009	0.009	-	18	0.00003	0.001	0.002	3	0.00007	0.0001	0.0002	2	0.00005	0.0001	0.00013	15	0.00001	0.0001	0.00043
Se	mg/L	0.011	0.011	0.02	12	0.0005	0.004	0.035	1	0.0005	0.0005	0.0005	1	0.0006	0.0006	0.0006	11	0.0005	0.009	0.0344
Si	mg/L	90	-	-	18	4.75	14.4	22.3	3	2.54	5.4	9	2	2.09	4.8	7.6	15	1.18	6.6	25.9
Sn	mg/L	0.003	0.003	-	15	0.0001	0.0001	0.0003	1	0.0001	0.0001	0.0001	1	0.0001	0.0001	0.0001	12	0.0001	0.0001	0.0004
Sr	mg/L	3.8	-	-	18	0.00205	0.16	2.4	3	0.0017	0.005	0.01018	2	0.01	0.02	0.03	15	0.00	0.25	2.5
Th	mg/L	-	-	-	16	0.000006	0.000043125	0.00023	3	0.00002	0.000048	0.00009	2	0.00001	0.000012	0.000014	11	0.000005	0.00025955	0.003
Tl	mg/L	0.0025	-	-	17	0.00001	2.29412E-05	0.00006	1	0.00001	0.00001	0.00001	2	0.00001	0.000015	0.00002	13	0.00001	8.2308E-05	0.00022
U	mg/L	0.0068	0.0005	0.2	18	0.000007	0.0003	0.003	3	0.000014	0.00003	0.00006	2	0.000008	0.00001	0.000009	14	0.000005	0.0006	0.008
V	mg/L	0.029	0.006	-	12	0.01	0.03	0.14	1	0.01	0.01	0.01	1	0.01	0.01	0.01	10	0.01	0.01	0.01
Zn	mg/L	0.033	0.008	20	11	0.01	0.01	0.01	1	0.01	0.01	0.01	1	0.01	0.01	0.01	10	0.01	8.59	86

Appendix A.4 - Leach statistics by lithology (DI leach extracts, MWH (20:1 L:S contact ratio))

Parameters	Unit	Site-specific trigger values	ANZECC		JER			
			95% of Species Limit of Protection	Livestock Drinking Water	Count	Min	Average	Max
pH	pH Unit	6.5 - 8.5	6.5 - 8.5	6.5 - 8.5	2	2.3	2.2	2.2
EC	mS/cm	15	-	-	2	8.66	10	11.21
Alkalinity	mg CaCO ₃ /L	440	-	-	2	2	2.0	2
TDS	mg/L	12,000	1,500	4,000	2	5,802	6,657	7,511
Ag	mg/L	0.0025	0.00005	-	2	0.00038	0.0004	0.00041
Al	mg/L	0.055	-	-	2	629	772	914
As	mg/L	0.013	0.013	0.5	2	1.3	1.7	2.0
B	mg/L	3.1	0.37	5	2	0.03	0.04	0.04
Ba	mg/L	0.13	-	-	2	0.00336	0.005	0.0074
Bi	mg/L	0.0007	0.0007	-	2	0.0001	0.00012	0.00014
Ca	mg/L	300	-	1,000	2	55	108	160
Cd	mg/L	0.0002	0.0002	0.01	2	0.01	0.03	0.04
Cl	mg/L	4,000	-	-	2	2	2.0	2
Co	mg/L	0.0028	0.0028	1	2	5.1	7.7	10.3
Cr	mg/L	0.0092	0.001	1	2	1.3	1.8	2.4
Cu	mg/L	0.0014	0.0014	0.4	2	31.2	44.7	58.3
F	mg/L	3.3	-	2	2	0.1	0.1	0.1
Fe	mg/L	0.3	0.3	-	2	2,785	3,388	3,990
Hg	mg/L	0.0006	0.0006	0.002	2	0.0001	0.0001	0.0001
K	mg/L	320	-	-	2	0.2	0.2	0.2
Mg	mg/L	480	-	-	2	100	137	174
Mn	mg/L	1.9	1.9	-	2	96	102	108
Mo	mg/L	0.034	0.034	0.15	2	0.0020	0.004	0.00507
Na	mg/L	2,500	-	-	2	0.5	1	2
Ni	mg/L	0.011	0.011	1	2	8	13	17
P	mg/L	0.14	-	-	2	1.245	2.308	3.371
Pb	mg/L	0.0034	0.0034	0.1	2	0.0174	0.0218	0.0261
SO ₄	mg/L	2,600	-	1,000	2	11,170	13,107	15,043
Sb	mg/L	0.009	0.009	-	2	0.00064	0.0007	0.00083
Se	mg/L	0.011	0.011	0.02	2	0.01	0.07	0.13
Si	mg/L	90	-	-	2	7.85	8.9	9.88
Sn	mg/L	0.003	0.003	-	2	0.0001	0.0001	0.0001
Sr	mg/L	3.8	-	-	2	0.04	0.07	0.11
Th	mg/L	-	-	-	2	0.09	0.13	0.17
Tl	mg/L	0.0025	-	-	2	0.0003	0.0006	0.0009
U	mg/L	0.0068	0.0005	0.2	2	0.09	0.11	0.13
V	mg/L	0.029	0.006	-	2	0.28	1.14	2
Zn	mg/L	0.033	0.008	20	2	2	13	24

Appendix A.4 - Saline leach results

[illegible]

Appendix A.4 - LEAF 1313 results

Sample	Target pH	Measured pH	EC	TDS (calculated)	Total Alkalinity	Acidy	Ag	Al	As	B	Ba	Be	Bi	CO ₃	Ca	Cd	Cl
			mS/cm		mg CaCO ₃ /L	mg CaCO ₃ /L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO ₃ /L	mg/L	mg/L	mg/L
MDLF01	2	2.1	4	-	-	510	0.00001	2.1	0.0005	0.04	1.1	0.0046	-	-	46	0.00033	4
MDLF01	4	4.1	0.37	-	-	20	-	0.17	0.0005	0.07	0.28	0.0003	-	-	31	0.00009	4
MDLF01	6	6.2	0.12	-	6	4.8	-	0.01	0.0048	0.05	0.045	-	-	-	7.1	-	3
MDLF01	7	7.6	0.01	-	-	1.7	-	0.16	0.0006	-	0.0029	-	-	-	0.4	-	-
MDLF01	8	7.8	0.08	-	26	2.1	-	0.93	0.0028	0.04	0.022	-	-	-	3.1	-	5
MDLF02	2	2.1	3.9	-	-	470	0.00002	2.6	0.0003	0.08	3.4	0.0053	-	-	39	0.00017	8
MDLF02	4	4	0.31	-	-	20	-	0.14	0.0003	0.06	0.67	0.0004	-	-	16	-	8
MDLF02	6	6.1	0.14	-	5	5.3	-	0.01	0.0046	0.06	0.2	-	-	-	3.9	-	9
MDLF02	8	7.9	0.1	-	16	1.3	-	0.33	0.0026	0.03	0.16	-	-	-	1.4	-	14
MDLF03	2	2.2	2.9	-	-	430	0.00002	3.7	0.0001	-	0.96	0.0006	-	-	7.7	0.0001	-
MDLF03	4	4.1	0.13	-	-	13	-	0.1	-	-	0.27	0.0001	-	-	6.2	-	-
MDLF03	6	5.8	0.06	-	-	4.1	-	-	0.0001	-	0.091	-	-	-	4.2	-	-
MDLF03	8	7.9	0.04	-	14	0.9	-	0.02	-	-	0.025	-	-	-	1.8	-	-
MDLF04	2	2.2	5.4	-	-	570	0.00006	20	0.0018	1.2	0.11	0.037	-	-	430	0.0016	99
MDLF04	4	4	2.7	-	-	38	0.00001	2.3	0.0009	0.9	0.037	0.0057	-	-	540	0.00059	100
MDLF04	6	6	2.8	-	8	8.6	-	0.12	0.0015	0.66	0.016	-	-	-	590	0.00004	110
MDLF04	8	7.9	2.5	-	13	2.6	-	0.09	0.0011	0.47	0.0085	-	-	-	570	-	110
MDLF05	2	2.1	3.5	-	-	450	-	1.2	0.0001	0.01	0.87	0.0018	-	-	26	0.00008	-
MDLF05	4	3.9	0.18	-	-	18	-	0.06	0.0003	0.01	0.15	0.0002	-	-	8.4	-	-
MDLF05	6	5.9	0.07	-	-	5.9	-	0.2	0.0005	0.01	0.044	-	-	-	3.1	-	2
MDLF05	8	8	0.05	-	21	0.7	0.00003	0.47	0.0005	-	0.02	-	-	-	1.6	-	5
MDLF06	2	2	3.6	-	-	490	0.00002	1.7	-	-	0.2	0.0033	-	-	8.5	0.00032	-
MDLF06	4	3.9	0.13	-	-	17	0.00002	0.03	-	-	0.061	0.0005	-	-	7.9	0.00013	-
MDLF06	6	5.9	0.04	-	-	5.1	-	-	-	-	0.008	-	-	-	2.5	-	-
MDLF06	8	8	0.05	-	17	0.9	0.00002	0.23	0.0002	-	0.003	-	-	-	0.63	-	4
MDLF07	2	2.1	-	-	-	470	-	2	0.0002	0.04	2.1	0.0051	-	-	41	0.00012	-
MDLF07	4	3.8	0.24	-	-	17	-	0.06	0.0002	0.03	0.35	0.0005	-	-	15	0.00003	2
MDLF07	6	6.2	0.08	-	7	7.1	-	-	0.0017	0.03	0.051	-	-	-	3.7	-	-
MDLF07	7	6.5	-	-	-	2	-	0.08	0.0001	-	0.0029	-	-	-	0.09	-	-
MDLF07	8	7.9	0.07	-	26	1.3	0.00001	1.2	0.0011	0.02	0.032	-	-	-	1.2	-	7
MDLF08	2	2.1	-	-	-	470	-	20	0.0005	0.07	2.1	0.0059	-	-	130	0.00052	4
MDLF08	4	4.1	0.65	-	-	29	-	0.27	0.0002	0.06	0.34	0.0003	-	-	62	0.00011	5
MDLF08	6	6.1	0.41	-	14	15	-	0.03	0.0012	0.04	0.18	-	-	-	39	-	3
MDLF08	7	8.8	0.01	-	8	-	-	0.04	0.0006	-	0.007	-	-	-	1.2	-	-
MDLF08	8	8.2	0.2	-	60	1	-	0.02	0.0016	0.03	0.058	-	-	-	18	-	4
MDLF09	2	2	0.01	-	-	1400	0.00002	150	0.0009	0.13	9.7	0.01	-	-	280	0.00097	13
MDLF09	4	4	1.6	-	-	59	-	4.3	0.0002	0.1	2	0.0015	-	-	210	0.00032	13
MDLF09	6	5.8	0.9	-	17	29	-	0.04	0.0017	0.06	0.52	-	-	-	110	-	14
MDLF09	8	8.1	0.33	-	85	1.8	-	0.03	0.0016	0.05	0.17	-	-	-	30	-	17
MDLF10	2	2	-	-	-	490	0.00001	3.5	0.0008	0.04	1.7	0.0019	-	-	38	0.0002	-
MDLF10	4	4	0.28	-	-	18	-	0.11	0.0005	0.05	0.35	0.0002	-	-	17	0.00003	-
MDLF10	6	6.1	0.06	-	5	6.2	0.00002	0.09	0.0021	0.02	0.029	-	-	-	2.3	-	-
MDLF10	8	7.8	0.04	-	14	1	0.00001	0.53	0.0017	0.02	0.019	-	-	-	1.1	-	8
MDLF11	2	2	76	-	-	1100	0.00026	35	0.0048	1.6	4.4	0.0077	0.00023	-	18000	0.0027	22
MDLF11	4	4	43	-	-	240	0.00024	7.4	0.0042	1.2	2.6	0.0012	-	-	9700	0.00062	25
MDLF11	6	6.2	8.4	-	430	110	-	0.58	0.0012	1.2	0.74	-	-	-	1700	-	41
MDLF11	8	8.1	0.93	-	170	1.6	-	0.03	0.0027	0.98	0.062	-	-	-	24	-	49
MDLF12	2	2	5.8	-	-	570	0.00002	2.9	-	0.02	0.58	0.0031	-	-	270	0.0003	
MDLF12	4	3.9	2.5	-	-	87	0.00002	0.69	0.0002	0.01	0.43	0.001	-	-	240	0.00018	2
MDLF12	6	6	0.99	-	63	29	-	0.03	0.0005	0.02	0.14	-	-	-	91	-	-
MDLF12	8	8	0.17	-	57	1.2	-	0.01	0.0002	0.02	0.036	-	-	-	15	-	-
MDLF13	2	2.2	2.8	-	-	370	-	5.7	-	0.04	0.048	0.0031	-	-	41	0.00012	4
MDLF13	4	4.1	0.29	-	-	21	-	0.2	-	0.03	0.0012	0.0002	-	-	20	-	2

Appendix A.4 - LEAF 1313 results

Sample	Target pH	Measured pH	EC	TDS (calculated)	Total Alkalinity	Acidy	Ag	Al	As	B	Ba	Be	Bi	CO ₃	Ca	Cd	Cl
			mS/cm		mg CaCO ₃ /L	mg CaCO ₃ /L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO ₃ /L	mg/L	mg/L	mg/L
MDLF13	6	6.1	0.09	-	7	4.2	-		-	0.02	0.00012	-	-	-	4.6	-	2
MDLF13	8	7.9	0.05	-	18	0.9	-	0.06	0.0002	0.02	0.00012	-	-	-	1.2	-	2
MDLF14	2	2.1	3.5	-	-	480	-	1.4	-	0.01	0.018	0.0037	-	-	26	0.00085	8
MDLF14	4	4	0.34	-	-	21	-	0.15	-	0.01	0.00031	0.0008	-	-	15	0.0001	8
MDLF14	6	5.9	0.2	-	10	4.5	-	0.02	0.0002	0.01	-	-	-	-	6.9	-	10
MDLF14	8	7.8	0.12	-	22	1.2	-	0.03	0.0002	0.01	-	-	-	-	2.4	-	9
MDLF15	2	2.1	4.1	-	-	520	-	13	0.0009	0.13	0.039	0.016	-	-	200	0.0017	5
MDLF15	4	3.8	1.2	-	-	56	-	1.3	0.0002	0.11	0.013	0.0045	-	-	170	0.001	6
MDLF15	6	6.1	0.81	-	23	17	0.00001	0.03	0.0001	0.06	0.0018	-	-	-	120	0.00019	5
MDLF15	8	7.9	0.58	-	64	2	-	0.02	0.0001	0.03	0.00028	-	-	-	67	-	4
MDRC0693_06-12	Natural	7.8	36	200	11	-	0.0001	0.005	0.001	0.1	0.0089	0.0001	0.0001	-	14	0.0002	31
MDRC0693_06-12	13	13	3800	21000	8700	-	0.001	4.9	0.041	0.12	0.001	0.001	0.001	-	1	0.001	24
MDRC0693_06-12	12	12	210	1100	430	-	0.001	0.33	0.018	0.15	0.001	0.001	0.001	-	1	0.001	28
MDRC0693_06-12	10.5	10	36	200	37	-	0.001	0.05	0.01	0.12	0.001	0.001	0.001	-	1	0.001	25
MDRC0693_06-12	9	9.1	31	170	14	-	0.0001	0.005	0.001	0.09	0.0028	0.0001	0.0001	-	5.2	0.0009	26
MDRC0693_06-12	8	7.7	34	180	7	-	0.0001	0.005	0.001	0.11	0.0085	0.0001	0.0001	-	13	0.0001	28
MDRC0693_06-12	7	6.8	36	200	7	-	0.0001	0.005	0.001	0.1	0.012	0.0001	0.0001	-	12	0.0001	28
MDRC0693_06-12	5.5	5.4	46	250	2	-	0.0001	0.005	0.001	0.14	0.029	0.0001	0.0001	-	17	0.0005	29
MDRC0693_06-12	4	4.2	58	320	1	-	0.0001	0.19	0.001	0.16	0.072	0.001	0.0001	-	27	0.0002	29
MDRC0693_06-12	2	1.9	640	3500	1	-	0.0001	3.5	0.001	0.2	0.43	0.0064	0.0001	-	45	0.0025	25
Base Blank-1		13	4400	24000	9900	-	0.001	0.05	0.01	0.05	0.0048	0.001	0.001	-	1	0.001	2
Water Blank-1		6	0.2	5	1	-	0.0001	0.005	0.001	0.005	0.0001	0.0001	0.0001	-	0.1	0.0001	1
Acid Blank-1		1.7	920	5100	1	-	0.0001	0.005	0.001	0.018	0.0008	0.0001	0.0001	-	0.2	0.0008	1
MDRC0973_04-12	Natural	8.7	18	97	43	-	0.0001	0.011	0.003	0.09	0.02	0.0001	0.0001	-	6.7	0.0004	8
MDRC0973_04-12	13	13	1200	6800	3000	-	0.001	8.3	0.11	0.16	0.0021	0.0036	0.001	-	1	0.001	8
MDRC0973_04-12	12	12	190	1000	500	-	0.001	1.5	0.06	0.17	0.0011	0.001	0.001	-	10	0.001	9
MDRC0973_04-12	10.5	10	26	140	67	-	0.001	0.32	0.022	0.13	0.005	0.001	0.001	-	1	0.001	8
MDRC0973_04-12	9	8.7	15	84	39	-	0.0001	0.012	0.002	0.1	0.014	0.0001	0.0001	-	5.8	0.0001	7
MDRC0973_04-12	8	8.4	19	100	44	-	0.0001	0.016	0.002	0.09	0.03	0.0001	0.0001	-	7.6	0.0001	9
MDRC0973_04-12	7	7.4	30	160	46	-	0.0001	0.005	0.001	0.11	0.052	0.0001	0.0001	-	16	0.0001	9
MDRC0973_04-12	5.5	5.2	53	290	3	-	0.0001	0.009	0.001	0.16	0.13	0.0001	0.0001	-	36	0.0005	8
MDRC0973_04-12	4	4.1	86	480	1	-	0.0001	0.77	0.003	0.18	0.22	0.0008	0.0001	-	64	0.0017	9
MDRC0973_04-12	2	2.1	470	2600	1	-	0.0001	19	0.004	0.23	1.1	0.0075	0.0001	-	110	0.002	9
Base Blank-2		13	4900	27000	11000	-	0.001	0.05	0.01	0.05	0.0048	0.001	0.001	-	1	0.001	1
Water Blank-2		6	1	6	3	-	0.0001	0.005	0.001	0.005	0.0001	0.0001	0.0001	-	0.1	0.0001	1
Acid Blank-2		1.7	880	4800	1	-	0.0001	0.005	0.001	0.016	0.0008	0.0001	0.0001	-	0.2	0.0009	1
MDRC0973_34-46	Natural	7.2	4.5	25	5	-	0.0001	0.04	0.001	0.041	0.0021	0.0001	0.0001	-	1.1	0.0002	2
MDRC0973_34-46	13	13	4500	25000	10000	-	0.001	21	0.082	0.056	0.001	0.001	0.001	-	1	0.001	2
MDRC0973_34-46	12	12	240	1300	650	-	0.001	4.8	0.057	0.071	0.001	0.001	0.001	-	1	0.001	2
MDRC0973_34-46	10.5	10	11	60	28	-	0.001	0.54	0.01	0.095	0.001	0.001	0.001	-	1	0.001	2
MDRC0973_34-46	9	9	7.2	39	12	-	0.0001	0.16	0.001	0.07	0.0002	0.0001	0.0001	-	0.1	0.0001	2
MDRC0973_34-46	8	8.2	5	28	7	-	0.0001	0.46	0.001	0.09	0.0012	0.0001	0.0001	-	0.2	0.0002	2
MDRC0973_34-46	7	7.1	4.1	22	3	-	0.0001	0.19	0.001	0.031	0.0032	0.0001	0.0001	-	1	0.0001	2
MDRC0973_34-46	5.5	5.4	8.4	46	1	-	0.0001	0.005	0.001	0.054	0.017	0.0001	0.0001	-	4.2	0.0001	1
MDRC0973_34-46	4	4.4	14	77	1	-	0.0001	0.18	0.001	0.041	0.062	0.0002	0.0001	-	8.3	0.0007	1
MDRC0973_34-46	2	2.1	420	2300	1	-	0.0001	9.8	0.001	0.051	0.5	0.0017	0.0001	-	12	0.0014	2
Base Blank-3		13	5000	27000	11000	-	0.001	0.05	0.01	0.05	0.0046	0.001	0.001	-	1	0.001	1
Water Blank-3		5.9	0.2	5	1	-	0.0001	0.005	0.001	0.005	0.0001	0.0001	0.0001	-	0.1	0.0001	1
Acid Blank-3		2.3	170	930	1	-	0.0001	0.005	0.001	0.005	0.0002	0.0001	0.0001	-	0.1	0.0004	1
MDRC1384_00-06	Natural	6.8	12	64	4	-	0.0001	0.041	0.001	0.11	0.011	0.0001	0.0001	-	2.4	0.0001	14
MDRC1384_00-06	13	13	2400	13000	5600	-	0.001	11	0.21	0.16	0.001	0.001	0.001	-	1	0.001	14
MDRC1384_00-06	12	12	130	690	450	-	0.001	0.33	0.11	0.18	0.001	0.001	0.001	-	1	0.001	15
MDRC1384_00-06	10.5	10	25	140	54	-	0.001	0.25	0.029	0.088	0.0016	0.001	0.001	-	1	0.001	14

Appendix A.4 - LEAF 1313 results

Sample	Target pH	Measured pH	EC	TDS (calculated)	Total Alkalinity	Acidy	Ag	Al	As	B	Ba	Be	Bi	CO ₃	Ca	Cd	Cl
			mS/cm		mg CaCO ₃ /L	mg CaCO ₃ /L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO ₃ /L	mg/L	mg/L	mg/L
MDRC1384_00-06	9	8.9	15	84	16	-	0.0001	0.14	0.006	0.08	0.0036	0.0001	0.0001	-	1	0.0001	14
MDRC1384_00-06	8	8.4	17	94	26	-	0.0001	0.18	0.003	0.1	0.0029	0.0001	0.0001	-	0.9	0.0001	14
MDRC1384_00-06	7	7	11	61	6	-	0.0001	0.016	0.001	0.1	0.015	0.0001	0.0001	-	2.2	0.0001	14
MDRC1384_00-06	5.5	5.7	19	100	2	-	0.0001	0.005	0.001	0.11	0.048	0.0001	0.0001	-	7	0.0004	13
MDRC1384_00-06	4	3.8	61	340	1	-	0.0001	0.51	0.001	0.15	0.3	0.0036	0.0001	-	34	0.0012	14
MDRC1384_00-06	2	2	550	3000	1	-	0.0001	9.6	0.003	0.19	2.2	0.011	0.0001	-	77	0.0017	14
Base Blank-4		13	3100	17000	6500	-	0.001	0.05	0.01	0.05	0.0029	0.001	0.001	-	1	0.001	1
Water Blank-4		5.8	0.6	5	1	-	0.0001	0.005	0.001	0.005	0.0001	0.0001	0.0001	-	0.1	0.0001	1
Acid Blank-4		1.8	830	4600	1	-	0.0001	0.005	0.001	0.015	0.0007	0.0001	0.0001	-	0.2	0.0006	1
MDRC1572_60-66	Natural	7.4	11	58	8	-	0.0001	0.01	0.001	0.043	0.0009	0.0001	0.0001	-	0.5	0.001	10
MDRC1572_60-66	13	13	2100	12000	4700	-	0.001	6.4	0.019	0.065	0.0034	0.001	0.001	-	6.4	0.001	10
MDRC1572_60-66	12	12	77	420	270	-	0.001	0.38	0.01	0.078	0.001	0.001	0.001	-	2.2	0.001	10
MDRC1572_60-66	10.5	11	29	160	79	-	0.001	0.17	0.024	0.1	0.001	0.001	0.001	-	1	0.001	11
MDRC1572_60-66	9	9.4	14	79	24	-	0.0001	0.006	0.001	0.04	0.0015	0.0001	0.0001	-	0.8	0.0003	10
MDRC1572_60-66	8	7.9	11	62	5	-	0.0001	0.009	0.001	0.043	0.0004	0.0001	0.0001	-	0.4	0.0005	10
MDRC1572_60-66	7	7.1	10	55	6	-	0.0001	0.005	0.001	0.08	0.0005	0.0001	0.0001	-	0.5	0.0003	9
MDRC1572_60-66	5.5	5.2	20	110	1	-	0.0001	0.013	0.001	0.054	0.0018	0.0001	0.0001	-	3.1	0.0001	10
MDRC1572_60-66	4	4	42	230	1	-	0.0001	0.13	0.001	0.08	0.012	0.0004	0.0001	-	15	0.0017	9
MDRC1572_60-66	2	2.1	640	3500	1	-	0.0001	1.1	0.002	0.09	0.078	0.0058	0.0023	-	56	0.0068	9
Base Blank-5		13	2700	15000	5800	-	0.001	0.05	0.01	0.05	0.0026	0.001	0.001	-	1	0.001	1
Water Blank-5		5.7	0.2	5	1	-	0.0001	0.005	0.001	0.005	0.0001	0.0001	0.0001	-	0.1	0.0001	1
Acid Blank-5		2.5	170	930	1	-	0.0001	0.026	0.001	0.005	0.0003	0.0001	0.0001	-	0.1	0.0004	1

Appendix A.4 - LEAF 1313 results

Sample	Target pH	Co	Cr	Cs	Cu	F	Fe	HCO ₃	Hg	K	La	Li	Mg	Mn	Mo	Na	Ni
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO ₃ /L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDLF01	2	0.098	-	-	0.029	-	0.53	-	-	13	-	-	18	2.1	-	3.6	0.05
MDLF01	4	0.024	-	-	-	-	-	-	-	12	-	-	13	0.73	-	6.1	0.02
MDLF01	6	0.0012	-	-	-	0.2	-	6	-	5.9	-	-	3.1	0.066	0.0001	5.2	-
MDLF01	7		-	-	-	-	0.12	4	-	0.9	-	-	0.18	0.004	0.00018	0.4	-
MDLF01	8	0.0009	-	-	0.003	0.5	0.68	26	-	4.4	-	-	1.4	0.023	0.0013	12	-
MDLF02	2	0.051	-	-	0.059	-	0.29	-	-	15	-	-	25	3.2	-	15	0.05
MDLF02	4	0.0043	-	-	0.001	-	-	-	-	9.2	-	-	11	0.34	-	13	-
MDLF02	6	0.0006	-	-	-	0.1	-	5	-	5.3	-	-	2.9	0.016	-	13	-
MDLF02	8	0.0005	-	-	0.001	0.5	0.28	16	-	5.2	-	-	1.1	0.003	0.00061	16	-
MDLF03	2	0.013	0.04	-	0.013	-	6.8	-	-	2.6	-	-	4.6	6.3	0.00013	4.2	0.02
MDLF03	4	0.0052	-	-	-	-	-	-	-	1.9	-	-	3.3	0.72	-	1.7	-
MDLF03	6	0.0003	-	-	-	0.1	-	4	-	1.1	-	-	2	0.087	-	1.4	-
MDLF03	8	-	-	-	-	0.3	-	14	-	0.9	-	-	1.1	0.004	0.00099	5.6	-
MDLF04	2	0.17	0.02	-	0.016	0.6	0.88	-	0.0002	30	-	-	120	3.2	-	82	0.15
MDLF04	4	0.013	-	-	0.001	0.8	-	-	-	27	-	-	84	0.89	-	85	0.03
MDLF04	6	0.0012	-	-	-	1.1	-	8	-	22	-	-	67	0.085	0.00016	87	-
MDLF04	8	0.0005	-	-	-	1.4	-	13	-	22	-	-	57	0.003	0.00086	85	-
MDLF05	2	0.039	0.01	-	0.011	-	0.52	-	-	9.1	-	-	16	3.1	-	3.3	0.02
MDLF05	4	0.0053	-	-	-	-	-	-	-	5.4	-	-	5.7	0.36	-	2.8	-
MDLF05	6	0.0011	-	-	-	0.2	0.24	4	-	4.1	-	-	2.3	0.066	-	3.2	-
MDLF05	8	0.0009	-	-	0.002	0.4	0.62	21	-	3.4	-	-	1.1	0.011	0.00032	8	-
MDLF06	2	0.066	-	-	0.031	-	0.56	-	-	2.9	-	-	2.8	1.3	-	0.7	0.05
MDLF06	4	0.01	-	-	-	-	-	-	-	4	-	-	2.7	0.55	-	1	0.01
MDLF06	6	-	-	-	-	-	-	3	-	1.9	-	-	1	0.008	-	0.8	-
MDLF06	8	0.0002	-	-	0.002	0.3	0.13	17	-	1.7	-	-	0.27	0.006	0.00041	8	-
MDLF07	2	0.15	-	-	0.029	-	0.48	-	-	15	-	-	17	3.9	-	4.6	0.05
MDLF07	4	0.024	-	-	0.001	-	-	-	-	9.8	-	-	6.8	0.76	-	4.5	0.01
MDLF07	6	0.0025	-	-	-	0.1	-	7	-	5.6	-	-	1.8	0.13	-	4.6	-
MDLF07	7	-	-	-	-	-	0.03	3	-	0.5	-	-	0.03	0.006	-	0.2	-
MDLF07	8	0.0023	-	-	0.004	0.4	0.76	26	-	3.3	-	-	0.62	0.048	0.00055	13	-
MDLF08	2	0.26	0.03	-	0.046	-	3.1	-	-	27	-	-	52	6.9	-	11	0.14
MDLF08	4	0.026	-	-	-	-	-	-	-	16	-	-	28	1.1	-	9.4	0.02
MDLF08	6	0.0011	-	-	-	0.2	-	14	-	11	-	-	18	0.16	0.00024	8.7	-
MDLF08	7	-	-	-	0.002	-	0.02	8	-	0.9	-	-	0.53		0.00014	0.5	-
MDLF08	8	0.0001	-	-	-	0.7	-	60	-	8.8	-	-	8.5	0.002	0.0022	8.7	-
MDLF09	2	0.43	0.2	-	0.27	-	22	-	-	49	-	-	54	13	-	30	0.24
MDLF09	4	0.071	-	-	0.004	0.2	0.03	-	-	29	-	-	35	2.2	-	29	0.06
MDLF09	6	0.004	-	-	0.002	0.2	-	17	-	17	-	-	21	0.29	0.00018	28	0.01
MDLF09	8	0.0023	-	-	0.002	0.8	-	85	-	14	-	-	7.9	0.003	0.0038	27	-
MDLF10	2	0.073	0.02	-	0.038	-	1.9	-	-	14	-	-	21	3.2	0.00016	5.7	0.07
MDLF10	4	0.008	-	-	-	-	-	-	-	9.9	-	-	10	0.45	-	6	0.01
MDLF10	6	-	-	-	-	-	0.04	5	-	4.2	-	-	1.5	0.009	0.00009	3.9	-
MDLF10	8	-	-	-	0.001	0.2	0.34	14	-	3.5	-	-	0.74	0.004	0.0017	4.7	-
MDLF11	2	0.15	0.18	-	0.064	0.4	1.2	-	0.0004	86	-	-	660	7.5	0.00018	220	0.13
MDLF11	4	0.047	0.04	-	0.021	1.2	-	-	-	72	-	-	370	2.4	0.00019	200	0.07
MDLF11	6	0.0012	-	-	-	1.4	-	430	-	54	-	-	73	0.099	0.0011	190	-
MDLF11	8	-	-	-	-	1.6	-	170	-	30	-	-	3.2	0.001	0.0077	190	-
MDLF12	2	0.058	-	-	0.005	-	0.67	-	-	14	-	-	160	2.6	-	7.7	0.04
MDLF12	4	0.013	-	-	-	0.1	0.12	-	-	15	-	-	140	1.2	-	28	0.01
MDLF12	6	0.0002	-	-	-	0.4	-	63	-	11	-	-	61	0.11	0.00011	9.1	-
MDLF12	8	-	-	-	-	0.3	-	57	-	9.4	-	-	9.1	-	0.00039	8.8	-
MDLF13	2	0.035	-	-	0.008	-	0.23	-	-	14	-	-	17	22	-	7.3	0.04
MDLF13	4	0.0011	-	-	-	-	-	-	-	7.9	-	-	9.5	3.2	-	6.5	-

Appendix A.4 - LEAF 1313 results

Sample	Target pH	Co	Cr	Cs	Cu	F	Fe	HCO ₃	Hg	K	La	Li	Mg	Mn	Mo	Na	Ni
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO ₃ /L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDLF13	6	-	-	-	-	0.2	-	7	-	4.7	-	-	2.8	0.006	-	5.6	-
MDLF13	8	-	-	-	-	0.5	0.18	18	-	3.2	-	-	0.76	0.019	0.00008	7.2	-
MDLF14	2	0.39	0.01	-	0.017	-	1.7	-	-	12	-	-	15	48	-	16	0.16
MDLF14	4	0.094	-	-	-	-	-	-	-	8.1	-	-	9.6	15	-	16	0.05
MDLF14	6	0.013	-	-	-	0.1	-	10	-	6.8	-	-	4.9	1.3	0.00007	17	0.01
MDLF14	8	0.0093	-	-	-	0.3	-	22	-	5.5	-	-	1.9	0.038	0.0014	21	0.01
MDLF15	2	0.33	0.03	0.000002	0.82	-	12	-	-	13	-	-	36	72	-	16	0.44
MDLF15	4	0.2	-	-	0.14	0.1	-	-	-	13	-	-	30	41	-	16	0.28
MDLF15	6	0.044	-	-	0.001	0.1	-	23	-	10	-	-	27	16	-	17	0.07
MDLF15	8	0.0021	-	-	-	0.3	-	64	-	8.9	-	-	18	1.1	0.0012	47	-
MDRC0693_06-12	Natural	0.0005	0.0005	-	0.0002	-	0.005	-	0.0001	4	0.0001	0.0046	11	0.0057	0.001	37	0.001
MDRC0693_06-12	13	0.002	0.005	-	0.0022	-	0.06	-	0.001	5100	0.001	0.001	1	0.0014	0.01	33	0.01
MDRC0693_06-12	12	0.001	0.005	-	0.0011	-	0.05	-	0.001	360	0.001	2.3	1	0.001	0.01	26	0.01
MDRC0693_06-12	10.5	0.001	0.005	-	0.001	-	0.05	-	0.001	60	0.001	0.0023	1	0.001	0.01	23	0.01
MDRC0693_06-12	9	0.0003	0.0007	-	0.0009	-	0.005	-	0.0001	26	0.0001	0.0026	4.5	0.0027	0.002	29	0.001
MDRC0693_06-12	8	0.0006	0.0005	-	0.0002	-	0.005	-	0.0001	3.7	0.0001	0.0072	9.9	0.0021	0.001	33	0.001
MDRC0693_06-12	7	0.0016	0.0005	-	0.0001	-	0.005	-	0.0001	4	0.0001	0.0088	11	0.018	0.001	36	0.001
MDRC0693_06-12	5.5	0.017	0.0005	-	0.0008	-	0.005	-	0.0001	5.5	0.0001	0.0083	15	0.35	0.001	42	0.006
MDRC0693_06-12	4	0.11	0.0011	-	0.0009	-	0.005	-	0.0001	8.1	0.0006	0.0074	21	2.1	0.001	41	0.023
MDRC0693_06-12	2	0.38	0.11	-	0.022	-	6.9	-	0.0001	8.8	0.014	0.01	40	9.7	0.001	43	0.09
Base Blank-1		0.001	0.005	-	0.001	-	0.05	-	0.001	5900	0.001	0.001	1	0.001	0.01	3	0.01
Water Blank-1		0.0001	0.0005	-	0.0001	-	0.005	-	0.0001	0.1	0.0001	0.0001	0.1	0.0001	0.001	0.1	0.001
Acid Blank-1		0.0001	0.0005	-	0.0021	-	0.1	-	0.0001	0.6	0.0001	0.0001	0.1	0.001	0.001	0.5	0.001
MDRC0973_04-12	Natural	0.0028	0.0005	-	0.0007	-	0.005	-	0.0001	7.5	0.0001	0.0013	3.7	0.0002	0.002	20	0.001
MDRC0973_04-12	13	0.0025	0.005	-	0.0067	-	0.05	-	0.001	1600	0.001	0.001	1	0.004	0.01	24	0.01
MDRC0973_04-12	12	0.0023	0.005	-	0.0036	-	0.5	-	0.001	350	0.001	0.001	10	0.001	0.01	19	0.01
MDRC0973_04-12	10.5	0.0029	0.005	-	0.0013	-	0.15	-	0.001	49	0.001	0.001	1	0.0012	0.01	16	0.01
MDRC0973_04-12	9	0.0023	0.0005	-	0.0006	-	0.005	-	0.0001	7.1	0.0001	0.001	3.1	0.0001	0.001	17	0.001
MDRC0973_04-12	8	0.0029	0.0005	-	0.0008	-	0.005	-	0.0001	7.8	0.0001	0.0011	4.3	0.0001	0.001	21	0.001
MDRC0973_04-12	7	0.0033	0.0005	-	0.0008	-	0.005	-	0.0001	10	0.0001	0.003	8.9	0.011	0.001	23	0.002
MDRC0973_04-12	5.5	0.021	0.0005	-	0.0004	-	0.005	-	0.0001	15	0.0001	0.0084	19	0.26	0.001	22	0.012
MDRC0973_04-12	4	0.11	0.001	-	0.0011	-	0.018	-	0.0001	20	0.0004	0.011	32	1.4	0.001	25	0.046
MDRC0973_04-12	2	0.4	0.065	-	0.032	-	3.1	-	0.0001	30	0.0062	0.016	53	6.9	0.001	26	0.15
Base Blank-2		0.001	0.005	-	0.001	-	0.05	-	0.001	6100	0.001	0.001	1	0.0012	0.01	4	0.01
Water Blank-2		0.0001	0.0005	-	0.0001	-	0.005	-	0.0001	0.1	0.0001	0.0001	0.1	0.0001	0.001	0.1	0.001
Acid Blank-2		0.0001	0.0005	-	0.0018	-	0.005	-	0.0001	0.6	0.0001	0.0001	0.1	0.0001	0.001	0.6	0.001
MDRC0973_34-46	Natural	0.021	0.0005	-	0.0054	-	0.093	-	0.0001	1.7	0.0001	0.0012	0.6	0.018	0.001	6.2	0.009
MDRC0973_34-46	13	0.013	0.005	-	0.01	-	0.22	-	0.001	5400	0.001	0.001	1	0.0033	0.019	7.4	0.011
MDRC0973_34-46	12	0.011	0.005	-	0.0062	-	2.2	-	0.001	410	0.001	0.001	1	0.0025	0.016	4	0.011
MDRC0973_34-46	10.5	0.015	0.005	-	0.0028	-	0.7	-	0.001	24	0.001	0.001	1	0.0036	0.01	3.5	0.01
MDRC0973_34-46	9	0.016	0.0005	-	0.0038	-	0.24	-	0.0001	15	0.0001	0.0004	0.1	0.0061	0.005	4.3	0.009
MDRC0973_34-46	8	0.013	0.0005	-	0.0034	-	0.61	-	0.0001	8.7	0.0001	0.0007	0.1	0.02	0.002	4.5	0.008
MDRC0973_34-46	7	0.022	0.0005	-	0.005	-	0.14	-	0.0001	1.6	0.0001	0.0013	0.6	0.016	0.001	5.9	0.009
MDRC0973_34-46	5.5	0.023	0.0005	-	0.0007	-	0.097	-	0.0001	2.5	0.0001	0.0028	2.3	0.085	0.001	6.4	0.007
MDRC0973_34-46	4	0.03	0.0005	-	0.0004	-	0.12	-	0.0001	3	0.0001	0.0031	4.3	0.4	0.003	7	0.012
MDRC0973_34-46	2	0.091	0.071	-	0.021	-	11	-	0.0001	4.3	0.016	0.0036	6.2	2.4	0.001	7.8	0.036
Base Blank-3		0.001	0.005	-	0.0011	-	0.05	-	0.001	6000	0.001	0.001	1	0.0014	0.01	3.6	0.01
Water Blank-3		0.0001	0.0005	-	0.0001	-	0.005	-	0.0001	0.1	0.0001	0.0001	0.1	0.0001	0.001	0.1	0.001
Acid Blank-3		0.0001	0.0005	-	0.0004	-	0.005	-	0.0001	0.1	0.0001	0.0001	0.1	0.0001	0.001	0.1	0.001
MDRC1384_00-06	Natural	0.0005	0.0005	-	0.0004	-	0.022	-	0.0001	6.6	0.0001	0.0053	2	0.015	0.001	11	0.001
MDRC1384_00-06	13	0.0069	0.005	-	0.035	-	0.05	-	0.001	3000	0.001	0.001	1	0.0019	0.01	15	0.01
MDRC1384_00-06	12	0.0017	0.005	-	0.018	-	0.05	-	0.001	310	0.001	0.001	1	0.001	0.01	11	0.01
MDRC1384_00-06	10.5	0.001	0.005	-	0.0038	-	0.13	-	0.001	56	0.001	0.001	1	0.0013	0.01	8.1	0.01

Appendix A.4 - LEAF 1313 results

Sample	Target pH	Co	Cr	Cs	Cu	F	Fe	HCO ₃	Hg	K	La	Li	Mg	Mn	Mo	Na	Ni
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO ₃ /L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDRC1384_00-06	9	0.0002	0.0006	-	0.0009	-	0.098	-	0.0001	26	0.0001	0.0003	0.7	0.0006	0.002	9.8	0.001
MDRC1384_00-06	8	0.0002	0.0007	-	0.0008	-	0.15	-	0.0001	31	0.0001	0.0005	0.7	0.001	0.002	11	0.001
MDRC1384_00-06	7	0.0004	0.0005	-	0.0002	-	0.008	-	0.0001	8	0.0001	0.0017	1.9	0.013	0.001	11	0.001
MDRC1384_00-06	5.5	0.0064	0.0005	-	0.0017	-	0.005	-	0.0001	9.5	0.0001	0.0079	6	0.1	0.001	12	0.005
MDRC1384_00-06	4	0.11	0.0014	-	0.005	-	0.007	-	0.0001	18	0.0006	0.015	28	2	0.001	15	0.046
MDRC1384_00-06	2	0.43	0.047	-	0.032	-	2.2	-	0.0001	28	0.014	0.024	62	9	0.001	16	0.17
Base Blank-4		0.001	0.005	-	0.001	-	0.05	-	0.001	3700	0.001	0.001	1	0.0014	0.01	2.2	0.01
Water Blank-4		0.0001	0.0005	-	0.0001	-	0.005	-	0.0001	0.1	0.0001	0.0001	0.1	0.0001	0.001	0.1	0.001
Acid Blank-4		0.0001	0.0005	-	0.0017	-	0.005	-	0.0001	0.5	0.0001	0.0001	0.1	0.0001	0.001	0.6	0.001
MDRC1572_60-66	Natural	0.039	0.0014	-	0.0054	-	0.073	-	0.0001	2.6	0.0001	0.0046	0.4	0.012	0.001	21	0.033
MDRC1572_60-66	13	0.013	0.005	-	0.0015	-	0.76	-	0.001	2600	0.001	0.001	1	0.001	0.01	39	0.033
MDRC1572_60-66	12	0.017	0.005	-	0.0012	-	0.1	-	0.001	190	0.001	0.001	1	0.001	0.01	22	0.033
MDRC1572_60-66	10.5	0.028	0.005	-	0.0029	-	0.05	-	0.001	60	0.001	0.001	1	0.0021	0.01	18	0.036
MDRC1572_60-66	9	0.035	0.0016	-	0.0044	-	0.039	-	0.0001	12	0.0001	0.0016	0.7	0.017	0.004	21	0.035
MDRC1572_60-66	8	0.035	0.0009	-	0.007	-	0.062	-	0.0001	3.6	0.0001	0.0036	0.3	0.017	0.002	20	0.034
MDRC1572_60-66	7	0.037	0.0012	-	0.0049	-	0.067	-	0.0001	2.5	0.0001	0.0049	0.4	0.0091	0.001	20	0.03
MDRC1572_60-66	5.5	0.043	0.0005	-	0.0019	-	0.18	-	0.0001	5	0.0001	0.016	2.7	0.017	0.001	29	0.025
MDRC1572_60-66	4	0.031	0.001	-	0.0007	-	0.23	-	0.0001	8.3	0.0001	0.018	13	0.11	0.001	32	0.017
MDRC1572_60-66	2	0.046	0.012	-	0.0098	-	1.1	-	0.0001	14	0.001	0.033	46	0.82	0.001	36	0.042
Base Blank-5		0.001	0.005	-	0.001	-	0.05	-	0.001	3400	0.001	0.001	1	0.0014	0.01	1.9	0.01
Water Blank-5		0.0001	0.0005	-	0.0001	-	0.005	-	0.0001	0.1	0.0001	0.0001	0.1	0.0001	0.001	0.1	0.001
Acid Blank-5		0.0001	0.0005	-	0.0004	-	0.016	-	0.0001	0.1	0.0001	0.0001	0.1	0.0006	0.001	0.1	0.001

Appendix A.4 - LEAF 1313 results

Sample	Target pH	OH	P	Pb	S	SO ₄	Sb	Se	Si	Sn	Sr	Th	Ti	Tl	U	V	Zn
		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	mg/L	mg/L	mg/L
MDLF01	2	-	-	0.0025	0.7	2.1	0.00004	-	20	0.0004	0.34	0.00001	-	0.00027	0.0048	-	0.02
MDLF01	4	-	-	-	2.4	7.1	0.00007	-	15	0.0003	0.19	-	-	0.00009	0.00027	-	-
MDLF01	6	-	-	-	3	9.1	0.00032	-	13	0.0003	0.043	-	-	0.00002	0.000013	-	-
MDLF01	7	-	-	-	0.2	0.58	0.00006	-	2	0.0006	0.0025	-	-	-	-	-	-
MDLF01	8	-	-	-	3.2	9.7	0.00045	-	14	0.0001	0.019	0.00014	-	0.00002	0.00006	-	-
MDLF02	2	-	-	0.0008	0.6	1.8	0.00002	-	24	0.0003	0.41	0.000035	-	0.00013	0.022	-	0.06
MDLF02	4	-	-	-	1.9	5.8	0.00002	-	12	0.0003	0.14	-	-	0.00006	0.0011	-	-
MDLF02	6	-	-	-	3.7	11	0.00008	-	10	0.0003	0.031	-	-	0.00001	0.00002	-	-
MDLF02	8	-	-	-	4.3	13	0.00012	-	7.6	0.0002	0.012	0.000072	-	-	0.000045	-	-
MDLF03	2	-	-	0.0083	-	-	-	-	5.4	0.0003	0.045	0.00005	-	0.00023	0.0013	-	0.03
MDLF03	4	-	-	-	0.5	1.5	0.00001	-	2.4	0.0003	0.03	-	-	0.00006	0.000089	-	-
MDLF03	6	-	-	-	0.9	2.8	0.00012	-	2.9	0.0003	0.017	-	-	0.00001	-	-	-
MDLF03	8	-	-	-	1.1	3.3	0.00079	-	3.2	0.0003	0.0077	-	-	-	-	-	-
MDLF04	2	-	-	0.0028	340	1000	0.00009	0.0012	34	0.0003	2.5	0.0031	-	0.0015	0.047	-	0.03
MDLF04	4	-	-	0.0014	470	1400	0.00005	0.001	19	0.0002	2.7	-	-	0.00035	0.0024	-	-
MDLF04	6	-	-	-	530	1600	0.00013	0.001	14	0.0002	3.8	-	-	0.00013	0.00014	-	-
MDLF04	8	-	-	-	510	1500	0.00015	0.0008	6.8	0.0003	2.8	-	-	0.00011	0.00012	-	-
MDLF05	2	-	-	0.0021	0.3	0.96	-	-	14	0.0003	0.29	-	-	0.00008	0.0023	-	0.02
MDLF05	4	-	-	-	0.8	2.5	-	-	4.8	0.0003	0.083	-	-	0.00002	0.00013	-	-
MDLF05	6	-	-	-	0.8	2.4	0.00003	-	8.3	0.0001	0.029	0.000024	-	-	0.000019	-	-
MDLF05	8	-	-	-	1	2.9	0.00005	-	8.6	-	0.014	0.000055	-	0.00001	0.000052	-	-
MDLF06	2	-	-	0.0022	-	-	-	-	5.1	0.0002	0.061	-	-	0.00016	0.012	-	0.23
MDLF06	4	-	-	-	-	-	-	-	3.8	0.0003	0.046	-	-	0.00008	0.000093	-	0.02
MDLF06	6	-	-	-	0.2	0.58	-	-	4.7	0.0004	0.013	-	-	0.00002	-	-	-
MDLF06	8	-	-	-	0.5	1.4	0.00006	-	3.3	0.0002	0.0034	0.000034	-	0.00002	0.000053	-	-
MDLF07	2	-	-	0.0033	0.4	1.3	0.00002	-	21	0.0004	0.35	0.000014	-	0.00047	0.0049	-	0.03
MDLF07	4	-	-	-	1.3	3.7	0.00002	-	11	0.0003	0.11	-	-	0.00011	0.00013	-	-
MDLF07	6	-	-	-	2.7	8.1	0.00011	-	12	0.0004	0.024	-	-	0.00003	0.000008	-	-
MDLF07	7	-	-	-	-	-	0.00002	-	0.74	0.0003	0.00075	-	-	-	-	-	-
MDLF07	8	-	-	0.0007	2.3	6.9	0.00018	-	11	-	0.009	0.00018	-	0.00003	0.000075	-	-
MDLF08	2	-	-	0.0046	1.6	4.7	0.00003	-	35	0.0003	0.67	0.000087	-	0.00046	0.009	-	0.06
MDLF08	4	-	-	-	2.9	8.7	0.00008	-	17	0.0003	0.31	-	-	0.00006	0.00037	-	-
MDLF08	6	-	-	-	3.1	9.3	0.00024	-	16	0.0003	0.19	-	-	0.00003	0.000032	-	-
MDLF08	7	-	-	-	0.2	0.5	0.00004	-	2.3	0.0003	0.0059	-	-	-	-	-	-
MDLF08	8	-	-	-	3.7	11	0.00035	-	15	0.0003	0.087	-	-	0.00001	0.00018	-	-
MDLF09	2	-	-	0.044	0.9	2.7	0.00003	-	99	0.0003	0.8	0.0012	-	0.0026	0.017	-	0.26
MDLF09	4	-	-	-	2.5	7.5	0.00006	-	36	0.0003	0.49	-	-	0.00028	0.00068	-	0.01
MDLF09	6	-	-	-	4.4	13	0.00035	-	18	0.0003	0.26	-	-	0.00007	0.000046	-	-
MDLF09	8	-	-	-	5.1	15	0.00048	0.0006	10	0.0003	0.087	-	-	0.00003	0.000074	-	-
MDLF10	2	-	-	0.0065	0.3	0.83	0.00005	-	19	0.0003	0.33	0.000017	-	0.0011	0.0076	-	0.04
MDLF10	4	-	-	-	0.9	2.6	0.00007	-	11	0.0003	0.13	-	-	0.00015	0.0004	-	-
MDLF10	6	-	-	-	0.8	2.4	0.00031	-	6.8	0.0005	0.016	0.000057	-	0.00002	0.000017	-	-
MDLF10	8	-	-	-	1	2.9	0.00058	-	8	0.0001	0.0078	0.000099	-	0.00001	0.000059	-	-
MDLF11	2	-	-	0.043	52	150	0.0011	0.0074	69	-	15	0.0077	-	0.0011	0.013	-	0.08
MDLF11	4	-	-	0.0079	35	110	-	0.016	49	0.0004	8.9	0.00053	-	0.00048	0.00096	-	0.05
MDLF11	6	-	-	-	25	75	0.0002	0.0052	39	0.0003	2.2	-	0.03	0.0001	0.01	-	-
MDLF11	8	-	-	-	24	72	0.00014	0.0062	16	0.0003	0.17	-	-	0.00002	0.0023	0.01	-
MDLF12	2	-	-	0.0034	-	-	0.00002	-	15	0.0003	0.37	0.000061	-	0.00008	0.0043	-	0.06
MDLF12	4	-	-	-	0.4	1.3	0.00006	-	9.7	0.0003	0.34	-	-	0.00004	0.00027	-	0.02
MDLF12	6	-	-	-	0.7	2	0.00036	-	14	0.0003	0.22	-	-	0.00002	0.000015	-	-
MDLF12	8	-	-	-	0.6	1.8	0.00038	-	4.4	0.0003	0.051	-	-	0.00001	0.00012	-	-
MDLF13	2	-	-	-	-	-	-	-	17	0.0003	1.1	-	-	-	0.024	-	0.11
MDLF13	4	-	-	-	0.2	0.58	-	-	11	0.0003	0.28	-	-	-	0.00055	-	-

Appendix A.4 - LEAF 1313 results

Sample	Target pH	OH	P	Pb	S	SO ₄	Sb	Se	Si	Sn	Sr	Th	Ti	Tl	U	V	Zn
		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	mg/L	mg/L	mg/L
MDLF13	6	-	-	-	1.1	3.2	0.00004	-	6.4	0.0003	0.015	-	-	-	0.000007	-	-
MDLF13	8	-	-	-	1.2	3.6	0.00009	-	4.8	0.0003	0.0029	0.000024	-	-	0.000015	-	-
MDLF14	2	-	-	-	1.8	5.4	-	-	10	0.0003	0.78	0.000014	-	-	0.0074	-	0.07
MDLF14	4	-	-	-	4.1	12	0.00002	-	5.9	0.0003	0.28	-	-	-	0.00048	-	0.02
MDLF14	6	-	-	-	6.6	20	0.00009	-	5.4	0.0003	0.034	-	-	-	0.000009	-	-
MDLF14	8	-	-	-	6.6	20	0.00017	-	3.4	0.0003	0.0046	-	-	-	0.000012	-	-
MDLF15	2	-	-	0.013	84	250	0.00002	0.0018	14	0.0003	0.36	0.00084	-	0.00039	0.0092	-	0.34
MDLF15	4	-	-	-	100	300	0.00001	0.0024	6.3	0.0003	0.28	-	-	0.00008	0.0003	-	0.15
MDLF15	6	-	-	-	95	290	0.00001	0.0032	4.2	0.0003	0.19	-	-	0.00003	0.000014	-	-
MDLF15	8	-	-	-	78	230	0.00003	0.0026	2.5	0.0003	0.099	-	-	0.00002	0.00028	-	-
MDRC0693_06-12	Natural	-	-	0.0001	-	100	0.0001	0.001	6.5	0.0001	0.11	0.0001	0.0005	0.0001	0.0001	0.0001	0.001
MDRC0693_06-12	13	-	-	0.001	-	51	0.001	0.01	110	0.001	0.0043	0.001	0.005	0.001	0.001	0.03	0.013
MDRC0693_06-12	12	-	-	0.001	-	63	0.001	0.01	53	0.001	0.0043	0.001	0.005	0.001	0.001	0.016	0.014
MDRC0693_06-12	10.5	-	-	0.001	-	56	0.001	0.01	13	0.001	0.006	0.001	0.005	0.001	0.001	0.0022	0.014
MDRC0693_06-12	9	-	-	0.0001	-	70	0.0001	0.001	7.9	0.0001	0.045	0.0001	0.0005	0.0001	0.0001	0.0002	0.001
MDRC0693_06-12	8	-	-	0.0001	-	91	0.0001	0.001	6.2	0.0001	0.097	0.0001	0.0005	0.0001	0.0001	0.0001	0.001
MDRC0693_06-12	7	-	-	0.0001	-	79	0.0001	0.001	5.9	0.0001	0.1	0.0001	0.0005	0.0001	0.0001	0.0001	0.001
MDRC0693_06-12	5.5	-	-	0.0001	-	79	0.0001	0.001	6.6	0.0001	0.16	0.0001	0.0005	0.0001	0.0001	0.0001	0.002
MDRC0693_06-12	4	-	-	0.0001	-	70	0.0001	0.001	9.2	0.0001	0.24	0.0001	0.0005	0.0001	0.0002	0.0001	0.01
MDRC0693_06-12	2	-	-	0.0006	-	39	0.0001	0.001	22	0.0001	0.5	0.0001	0.0056	0.0001	0.0043	0.0012	0.17
Base Blank-1		-	-	0.001	-	1	0.001	0.01	0.5	0.001	0.001	0.001	0.005	0.001	0.001	0.001	0.012
Water Blank-1		-	-	0.0001	-	0.1	0.0001	0.001	0.05	0.0001	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.001
Acid Blank-1		-	-	0.0001	-	0.1	0.0001	0.001	0.05	0.0001	0.0014	0.0001	0.0005	0.0001	0.0001	0.0001	0.001
MDRC0973_04-12	Natural	-	-	0.0001	-	22	0.0002	0.001	10	0.0001	0.043	0.0001	0.0005	0.0001	0.0001	0.0024	0.001
MDRC0973_04-12	13	-	-	0.001	-	27	0.001	0.01	96	0.001	0.0057	0.001	0.005	0.001	0.001	0.18	0.017
MDRC0973_04-12	12	-	-	0.001	-	27	0.001	0.01	61	0.001	0.0056	0.001	0.005	0.001	0.001	0.13	0.012
MDRC0973_04-12	10.5	-	-	0.001	-	20	0.001	0.01	17	0.001	0.0058	0.001	0.005	0.001	0.001	0.044	0.012
MDRC0973_04-12	9	-	-	0.0001	-	19	0.0002	0.001	9.5	0.0001	0.034	0.0001	0.0005	0.0001	0.0001	0.0023	0.001
MDRC0973_04-12	8	-	-	0.0001	-	23	0.0002	0.001	10	0.0001	0.051	0.0001	0.0005	0.0001	0.0001	0.0019	0.002
MDRC0973_04-12	7	-	-	0.0001	-	23	0.0002	0.001	10	0.0001	0.096	0.0001	0.0005	0.0001	0.0001	0.0004	0.001
MDRC0973_04-12	5.5	-	-	0.0001	-	18	0.0001	0.001	13	0.0001	0.21	0.0001	0.0005	0.0001	0.0001	0.0001	0.003
MDRC0973_04-12	4	-	-	0.0001	-	17	0.0001	0.001	20	0.0001	0.39	0.0001	0.0005	0.0001	0.0004	0.0001	0.009
MDRC0973_04-12	2	-	-	0.0064	-	10	0.0001	0.001	43	0.0001	0.71	0.0001	0.0017	0.0007	0.0099	0.0052	0.15
Base Blank-2		-	-	0.001	-	1	0.001	0.01	0.5	0.001	0.0011	0.001	0.005	0.001	0.001	0.001	0.01
Water Blank-2		-	-	0.0001	-	0.1	0.0001	0.001	0.05	0.0001	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.001
Acid Blank-2		-	-	0.0001	-	0.1	0.0001	0.001	0.05	0.0001	0.0012	0.0001	0.0005	0.0001	0.0001	0.0001	0.001
MDRC0973_34-46	Natural	-	-	0.0002	-	12	0.0001	0.001	4.7	0.0001	0.0069	0.0001	0.0005	0.0001	0.0001	0.0001	0.024
MDRC0973_34-46	13	-	-	0.001	-	9.8	0.001	0.01	77	0.0013	0.001	0.001	0.005	0.001	0.0015	0.067	0.014
MDRC0973_34-46	12	-	-	0.001	-	9.9	0.001	0.01	34	0.001	0.001	0.001	0.011	0.001	0.001	0.036	0.017
MDRC0973_34-46	10.5	-	-	0.001	-	10	0.001	0.01	8.2	0.001	0.001	0.001	0.005	0.001	0.001	0.0051	0.014
MDRC0973_34-46	9	-	-	0.0002	-	13	0.0002	0.001	5.3	0.0001	0.0003	0.0001	0.0013	0.0001	0.0001	0.0003	0.005
MDRC0973_34-46	8	-	-	0.0002	-	10	0.0002	0.001	4.9	0.0001	0.0017	0.0001	0.0033	0.0001	0.0001	0.0004	0.011
MDRC0973_34-46	7	-	-	0.0002	-	11	0.0001	0.001	5.2	0.0001	0.0067	0.0001	0.0008	0.0001	0.0001	0.0002	0.026
MDRC0973_34-46	5.5	-	-	0.0001	-	6.9	0.0001	0.001	5.4	0.0001	0.029	0.0001	0.0005	0.0001	0.0001	0.0001	0.002
MDRC0973_34-46	4	-	-	0.0001	-	4.1	0.0001	0.001	7.1	0.0001	0.061	0.0001	0.0005	0.0001	0.0001	0.0001	0.008
MDRC0973_34-46	2	-	-	0.01	-	1.4	0.0001	0.001	14	0.0001	0.1	0.0001	0.0051	0.0014	0.011	0.0002	0.16
Base Blank-3		-	-	0.001	-	1	0.001	0.01	0.5	0.001	0.001	0.001	0.005	0.001	0.001	0.001	0.01
Water Blank-3		-	-	0.0001	-	0.1	0.0001	0.001	0.05	0.0001	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.001
Acid Blank-3		-	-	0.0001	-	0.1	0.0001	0.001	0.05	0.0001	0.0003	0.0001	0.0005	0.0001	0.0001	0.0001	0.001
MDRC1384_00-06	Natural	-	-	0.0001	-	17	0.0001	0.001	13	0.0001	0.014	0.0001	0.0005	0.0001	0.0001	0.0003	0.003
MDRC1384_00-06	13	-	-	0.001	-	24	0.001	0.01	150	0.001	0.001	0.001	0.005	0.001	0.001	0.5	0.012
MDRC1384_00-06	12	-	-	0.001	-	20	0.001	0.01	75	0.001	0.0014	0.001	0.005	0.001	0.001	0.33	0.014
MDRC1384_00-06	10.5	-	-	0.001	-	17	0.001	0.01	17	0.001	0.0021	0.001	0.005	0.001	0.001	0.087	0.013

Appendix A.4 - LEAF 1313 results

Sample	Target pH	OH	P	Pb	S	SO ₄	Sb	Se	Si	Sn	Sr	Th	Ti	Tl	U	V	Zn
		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	mg/L	mg/L	mg/L
MDRC1384_00-06	9	-	-	0.0001	-	18	0.0001	0.001	12	0.0001	0.0054	0.0001	0.0013	0.0001	0.0001	0.0056	0.001
MDRC1384_00-06	8	-	-	0.0001	-	20	0.0001	0.001	13	0.0001	0.0053	0.0001	0.002	0.0001	0.0001	0.0038	0.001
MDRC1384_00-06	7	-	-	0.0001	-	17	0.0001	0.001	13	0.0001	0.013	0.0001	0.0005	0.0001	0.0001	0.0004	0.001
MDRC1384_00-06	5.5	-	-	0.0002	-	14	0.0001	0.001	14	0.0001	0.042	0.0001	0.0005	0.0001	0.0001	0.0001	0.017
MDRC1384_00-06	4	-	-	0.0002	-	9.9	0.0001	0.001	25	0.0001	0.21	0.0001	0.0005	0.0001	0.0003	0.0001	0.011
MDRC1384_00-06	2	-	-	0.007	-	3.3	0.0001	0.001	53	0.0001	0.53	0.0001	0.001	0.0004	0.0091	0.0035	0.052
Base Blank-4		-	-	0.001	-	1	0.001	0.01	0.5	0.001	0.001	0.001	0.005	0.001	0.001	0.001	0.01
Water Blank-4		-	-	0.0001	-	0.1	0.0001	0.001	0.05	0.0001	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.001
Acid Blank-4		-	-	0.0001	-	0.1	0.0001	0.001	0.05	0.0001	0.0011	0.0001	0.0005	0.0001	0.0001	0.0001	0.001
MDRC1572_60-66	Natural	-	-	0.0002	-	29	0.0001	0.001	8.7	0.0001	0.0025	0.0001	0.0005	0.0001	0.0001	0.0001	0.26
MDRC1572_60-66	13	-	-	0.001	-	16	0.001	0.01	47	0.001	0.04	0.001	0.005	0.001	0.001	0.028	0.014
MDRC1572_60-66	12	-	-	0.001	-	22	0.001	0.01	24	0.001	0.0076	0.001	0.005	0.001	0.001	0.016	0.015
MDRC1572_60-66	10.5	-	-	0.001	-	24	0.001	0.01	8.4	0.001	0.0023	0.001	0.005	0.001	0.001	0.005	0.023
MDRC1572_60-66	9	-	-	0.0001	-	30	0.0001	0.001	6.4	0.0001	0.0042	0.0001	0.0005	0.0001	0.0001	0.0004	0.23
MDRC1572_60-66	8	-	-	0.0001	-	29	0.0001	0.001	7.1	0.0001	0.0022	0.0001	0.0005	0.0001	0.0001	0.0002	0.27
MDRC1572_60-66	7	-	-	0.0002	-	26	0.0001	0.001	8.2	0.0001	0.0025	0.0001	0.0005	0.0001	0.0001	0.0001	0.25
MDRC1572_60-66	5.5	-	-	0.0001	-	24	0.0001	0.001	11	0.0001	0.016	0.0001	0.0005	0.0001	0.0001	0.0001	0.006
MDRC1572_60-66	4	-	-	0.0001	-	15	0.0001	0.001	16	0.0001	0.075	0.0001	0.0005	0.0001	0.0003	0.0001	0.036
MDRC1572_60-66	2	-	-	0.0056	-	6.4	0.0001	0.001	41	0.0001	0.28	0.0001	0.0083	0.0001	0.01	0.0012	0.49
Base Blank-5		-	-	0.001	-	1	0.001	0.01	0.5	0.001	0.001	0.001	0.005	0.001	0.001	0.001	0.01
Water Blank-5		-	-	0.0001	-	0.1	0.0001	0.001	0.05	0.0001	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.001
Acid Blank-5		-	-	0.0001	-	0.1	0.0001	0.001	0.05	0.0001	0.0003	0.0001	0.0005	0.0001	0.0001	0.0001	0.001

Appendix A.4 - LEAF 1314 results

Sample ID	Extract ID	Date	Weight (dry)	Volume	L/S Ratio	Cumulative L/S Ratio	pH	ECond	TDS (calculated)	Ag	Al	Alkalinity	As	B	Ba	Be	Bi	Ca	Cd	Cl
			g	mL				mS/m	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDRC0693_06-12	1T08 + 1T09	19/11/2023	770	3,700	4.8	9.6	7.2	2.6	14	0.0001	0.018	9	0.001	0.048	0.0013	0.0001	0.0001	0.3	0.0001	1
MDRC0693_06-12	1T06 + 1T07	13/11/2023	770	2,200	2.9	4.8	7.4	3.6	20	0.0001	0.059	14	0.001	0.09	0.0016	0.0001	0.0001	0.5	0.0001	1
MDRC0693_06-12	1T04 + 1T05	10/11/2023	770	760	1.0	1.9	7.4	7.1	39	0.0001	0.025	25	0.001	0.2	0.0031	0.0001	0.0001	0.9	0.0001	2
MDRC0693_06-12	1T03	9/11/2023	770	360	0.5	0.9	7.5	14.8	81	0.0001	0.029	46	0.001	0.46	0.008	0.0001	0.0001	3.4	0.0001	4
MDRC0693_06-12	1T02	8/11/2023	770	220	0.3	0.5	7.5	54.4	300	0.0001	0.006	80	0.001	0.85	0.025	0.0001	0.0001	41.7	0.0001	13
MDRC0693_06-12	1T01	8/11/2023	770	140	0.2	0.2	6.9	1210	6,600	0.0002	0.009	185	0.002	1.5	0.056	0.0002	0.0002	476	0.0004	1650
MDRC0693_06-12	Blank-1	8/11/2023		200			5.7	0.2	5	0.0001	0.005	1	0.001	0.005	0.0001	0.0001	0.0001	0.1	0.0001	1
MDRC0973_04-12	2T08 + 2T09	19/11/2023	802	3,700	4.6	9.5	7.6	4	22	0.0001	0.019	18	0.007	0.045	0.014	0.0001	0.0001	1.8	0.0001	1
MDRC0973_04-12	2T06 + 2T07	13/11/2023	802	2,400	3.0	4.9	7.9	8.3	46	0.0001	0.018	36	0.008	0.1	0.016	0.0001	0.0001	2.4	0.0001	1
MDRC0973_04-12	2T04 + 2T05	10/11/2023	802	750	0.9	1.9	8.2	15	83	0.0001	0.014	66	0.005	0.17	0.015	0.0001	0.0001	2.8	0.0001	1
MDRC0973_04-12	2T03	9/11/2023	802	380	0.5	1.0	8.3	25.3	140	0.0001	0.019	110	0.003	0.26	0.0084	0.0001	0.0001	3.8	0.0001	1
MDRC0973_04-12	2T02	8/11/2023	802	240	0.3	0.5	8.5	41.6	230	0.0001	0.056	194	0.002	0.59	0.01	0.0001	0.0001	6.8	0.0001	1
MDRC0973_04-12	2T01	8/11/2023	802	170	0.2	0.2	7.9	298	1,600	0.0001	0.088	379	0.002	0.7	0.027	0.0001	0.0001	168	0.0002	323
MDRC0973_04-12	Blank-2	8/11/2023		200			5.8	0.2	5	0.0001	0.005	1	0.001	0.005	0.0001	0.0001	0.0001	0.1	0.0001	1
MDRC0973_34-46	3T08 + 3T09	19/11/2023	914	4,500	4.9	9.9	7	1.3	7	0.0001	0.013	5	0.001	0.027	0.0034	0.0001	0.0001	1	0.0001	1
MDRC0973_34-46	3T06 + 3T07	13/11/2023	914	2,700	3.0	5.0	7	1.8	10	0.0001	0.007	5	0.001	0.032	0.0026	0.0001	0.0001	1	0.0001	1
MDRC0973_34-46	3T04 + 3T05	10/11/2023	914	900	1.0	2.0	7.1	4.3	23	0.0001	0.042	9	0.001	0.08	0.021	0.0001	0.0001	1.2	0.0001	1
MDRC0973_34-46	3T03	9/11/2023	914	470	0.5	1.0	6.9	7.6	42	0.0001	0.023	14	0.001	0.11	0.003	0.0001	0.0001	1.5	0.0003	1
MDRC0973_34-46	3T02	8/11/2023	914	290	0.3	0.5	7.3	19.7	110	0.0001	0.01	20	0.001	0.13	0.0069	0.0001	0.0001	4.7	0.0004	4
MDRC0973_34-46	3T01	8/11/2023	914	190	0.2	0.2	6.8	84.1	460	0.0001	0.066	66	0.001	0.2	0.034	0.0001	0.0001	28.5	0.0005	64
MDRC0973_34-46	Blank-3	8/11/2023		200			5.5	0.2	5	0.0001	0.011	1	0.001	0.005	0.0002	0.0001	0.0001	0.1	0.0001	1
MDRC1384_00-06	4T08 + 4T09	19/11/2023	785	3,700	4.7	9.3	6.9	1.6	9	0.0001	0.046	4	0.002	0.09	0.002	0.0001	0.0001	0.1	0.0001	1
MDRC1384_00-06	4T06 + 4T07	13/11/2023	785	2,300	2.9	4.6	6.9	2	11	0.0001	0.12	4	0.001	0.1	0.0016	0.0001	0.0001	0.2	0.0001	1
MDRC1384_00-06	4T04 + 4T05	10/11/2023	785	760	1.0	1.7	7.1	3.7	20	0.0001	0.029	8	0.001	0.2	0.0025	0.0001	0.0001	0.3	0.0001	1
MDRC1384_00-06	4T03	9/11/2023	785	360	0.5	0.7	7.4	6.8	38	0.0001	0.03	12	0.001	0.3	0.0039	0.0001	0.0001	0.8	0.0001	1
MDRC1384_00-06	4T02	8/11/2023	785	110	0.1	0.2	7.4	31.7	170	0.0001	0.02	17	0.001	0.4	0.022	0.0001	0.0001	8.8	0.0001	5
MDRC1384_00-06	4T01	8/11/2023	785	77	0.1	0.1	7.7	384	2,100	0.0001	0.007	92	0.001	0.45	0.19	0.0001	0.0001	264	0.0002	895
MDRC1384_00-06	Blank-4	8/11/2023		200			5.7	0.2	5	0.0001	0.01	1	0.001	0.005	0.0001	0.0001	0.0001	0.1	0.0001	1
MDRC1475_06-12	5T08 + 5T09	23/01/2024	908	1,800	2.0	6.9	7.4	3.9	21	0.0001	0.092	12	0.019	0.046	0.0042	0.0001	0.0001	0.2	0.0001	1
MDRC1475_06-12	5T06 + 5T07	16/01/2024	908	2,700	3.0	4.9	7.4	5	28	0.0001	0.085	12	0.026	0.07	0.0041	0.0001	0.0001	0.4	0.0001	1
MDRC1475_06-12	5T04 + 5T05	12/01/2024	908	880	1.0	1.9	7.2	8.2	45	0.0001	0.021	20	0.016	0.12	0.0066	0.0001	0.0001	0.4	0.0001	1
MDRC1475_06-12	5T03	11/01/2024	908	440	0.5	1.0	7.3	13.1	72	0.0001	0.049	28	0.011	0.24	0.0073	0.0001	0.0001	0.9	0.0001	2
MDRC1475_06-12	5T02	10/01/2024	908	240	0.3	0.5	7.3	20.8	110	0.0001	0.018	48	0.005	0.41	0.0089	0.0001	0.0001	1.9	0.0001	1
MDRC1475_06-12	5T01	10/01/2024	908	180	0.2	0.2	7.3	113	620	0.0001	0.037	171	0.003	0.41	0.03	0.0001	0.0001	50.8	0.0005	95
MDRC1475_06-12	Blank - 5	10/01/2024		200			5.8	0.2	5	0.0001	0.005	1	0.001	0.005	0.0001	0.0001	0.0001	0.1	0.0001	1

Appendix A.4 - LEAF 1314 results

Sample ID	Extract ID	Date	Co	Cr	Cu	F	Fe	Hg	K	La	Li	Mg	Mn	Mo	N total	Na	Ni	P	Pb	SO ₄	Sb
			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
MDRC0693_06-12	1T08 + 1T09	19/11/2023	0.0001	0.0005	0.0005	0.3	0.014	0.0001	0.6	0.0001	0.0008	0.1	0.0006	0.004	0.08	4.6	0.001	0.1	0.0001	0.7	0.0002
MDRC0693_06-12	1T06 + 1T07	13/11/2023	0.0001	0.0008	0.0026	0.56	0.042	0.0001	0.8	0.0001	0.0014	0.2	0.0014	0.009	0.08	7.3	0.002	0.1	0.0001	1.3	0.0003
MDRC0693_06-12	1T04 + 1T05	10/11/2023	0.0003	0.0006	0.0008	1.7	0.03	0.0001	1.4	0.0001	0.0022	0.5	0.0024	0.008	0.1	13.3	0.001	0.1	0.0001	2.8	0.0004
MDRC0693_06-12	1T03	9/11/2023	0.001	0.0015	0.0009	6.4	0.038	0.0001	2.9	0.0001	0.0039	1.7	0.0031	0.004	0.11	26.2	0.001	0.1	0.0001	6.5	0.0004
MDRC0693_06-12	1T02	8/11/2023	0.0018	0.001	0.0015	3.6	0.005	0.0001	6.2	0.0001	0.0076	11.1	0.0074	0.005	0.45	53.5	0.001	0.1	0.0001	158	0.0004
MDRC0693_06-12	1T01	8/11/2023	0.081	0.0027	0.011	1	0.014	0.0002	84.5	0.001	0.14	919	0.47	0.017	30	1770	0.021	0.1	0.0004	5070	0.0007
MDRC0693_06-12	Blank-1	8/11/2023	0.0001	0.0005	0.0001	0.05	0.005	0.0001	0.1	0.0001	0.0001	0.1	0.0001	0.001	0.01	0.1	0.001	0.1	0.0001	0.1	0.0001
MDRC0973_04-12	2T08 + 2T09	19/11/2023	0.0004	0.0005	0.0003	0.21	0.005	0.0001	3.9	0.0001	0.0005	0.9	0.0005	0.001	0.03	2.8	0.001	0.1	0.0001	1.6	0.0001
MDRC0973_04-12	2T06 + 2T07	13/11/2023	0.0012	0.0006	0.0004	0.79	0.005	0.0002	5.8	0.0001	0.0016	1.3	0.0008	0.002	0.04	10.1	0.001	0.1	0.0001	3.6	0.0003
MDRC0973_04-12	2T04 + 2T05	10/11/2023	0.0025	0.0011	0.0008	1.8	0.005	0.0003	7.2	0.0001	0.0014	1.7	0.001	0.005	0.09	22.4	0.001	0.1	0.0001	6.5	0.0004
MDRC0973_04-12	2T03	9/11/2023	0.0051	0.0026	0.0015	4.7	0.006	0.0002	9.8	0.0001	0.0027	2.4	0.0027	0.013	0.07	44	0.003	0.1	0.0001	12.5	0.0007
MDRC0973_04-12	2T02	8/11/2023	0.012	0.0026	0.0032	3.8	0.079	0.0002	13.8	0.0001	0.0042	4.2	0.0043	0.017	0.14	75.2	0.004	0.1	0.0001	23.7	0.0009
MDRC0973_04-12	2T01	8/11/2023	0.075	0.0037	0.011	1.3	0.01	0.0001	45.4	0.0001	0.017	135	0.08	0.005	28	295	0.044	0.1	0.0001	735	0.0011
MDRC0973_04-12	Blank-2	8/11/2023	0.0001	0.0005	0.0001	0.05	0.005	0.0001	0.1	0.0001	0.0001	0.1	0.0001	0.001	0.01	0.1	0.001	0.1	0.0001	0.1	0.0001
MDRC0973_34-46	3T08 + 3T09	19/11/2023	0.0033	0.0005	0.0008	0.23	0.011	0.0001	1.1	0.0001	0.0012	0.6	0.0076	0.001	0.04	0.2	0.001	0.1	0.0001	1	0.0001
MDRC0973_34-46	3T06 + 3T07	13/11/2023	0.0071	0.0005	0.0043	0.35	0.012	0.0001	1.5	0.0001	0.0018	0.6	0.0074	0.001	0.14	1.4	0.001	0.1	0.0001	3.4	0.0001
MDRC0973_34-46	3T04 + 3T05	10/11/2023	0.048	0.0007	0.0073	0.55	0.1	0.0001	2.3	0.0001	0.0037	0.7	0.017	0.001	0.32	7	0.005	0.1	0.0005	18.3	0.0003
MDRC0973_34-46	3T03	9/11/2023	0.18	0.0012	0.017	0.51	0.25	0.0001	2.9	0.0001	0.0033	0.8	0.038	0.001	0.71	12.6	0.019	0.1	0.0007	27.7	0.0003
MDRC0973_34-46	3T02	8/11/2023	0.58	0.0006	0.032	0.44	0.41	0.0001	4.9	0.0001	0.006	2.4	0.066	0.001	1.5	28.3	0.068	0.1	0.0008	65.5	0.0003
MDRC0973_34-46	3T01	8/11/2023	1.8	0.0006	0.053	0.25	0.78	0.0001	15	0.0001	0.024	16	0.15	0.001	4.5	118	0.27	0.1	0.0007	219	0.0005
MDRC0973_34-46	Blank-3	8/11/2023	0.0001	0.0005	0.0002	0.05	0.054	0.0001	0.1	0.0001	0.0001	0.1	0.0005	0.001	0.01	0.1	0.001	0.1	0.0001	0.1	0.0001
MDRC1384_00-06	4T08 + 4T09	19/11/2023	0.0001	0.0007	0.0004	0.89	0.022	0.0001	1.2	0.0001	0.0007	0.1	0.0016	0.004	0.16	2.5	0.001	0.1	0.0001	1.8	0.0001
MDRC1384_00-06	4T06 + 4T07	13/11/2023	0.0001	0.0008	0.0006	0.91	0.064	0.0001	1.4	0.0001	0.0008	0.1	0.0023	0.003	0.11	3.2	0.001	0.1	0.0001	2.9	0.0001
MDRC1384_00-06	4T04 + 4T05	10/11/2023	0.0003	0.0012	0.0005	0.98	0.016	0.0001	1.9	0.0001	0.0012	0.2	0.0027	0.003	0.17	5.1	0.001	0.1	0.0001	5.1	0.0001
MDRC1384_00-06	4T03	9/11/2023	0.0008	0.0006	0.0008	0.77	0.025	0.0001	3.5	0.0001	0.0021	0.7	0.0082	0.002	0.19	9.7	0.001	0.1	0.0001	14	0.0001
MDRC1384_00-06	4T02	8/11/2023	0.0036	0.0005	0.0022		0.015	0.0001	11.1	0.0001	0.0057	7.2	0.064	0.001	0.97	33.9	0.003	0.1	0.0001	106	0.0001
MDRC1384_00-06	4T01	8/11/2023	0.074	0.0008	0.0019		0.005	0.0001	57.2	0.0009	0.036	225	1.8	0.001	12	197	0.051	0.1	0.0001	752	0.0005
MDRC1384_00-06	Blank-4	8/11/2023	0.0001	0.0005	0.0002	0.05	0.005	0.0001	0.1	0.0001	0.0001	0.1	0.0001	0.001	0.01	0.1	0.001	0.1	0.0001	0.1	0.0001
MDRC1475_06-12	5T08 + 5T09	23/01/2024	0.0001	0.0006	0.001	0.26	0.005	0.0001	1.5	0.0001	0.0004	0.1	0.0009	0.003	0.01	7.2	0.001	0.1	0.0001	6.1	0.0003
MDRC1475_06-12	5T06 + 5T07	16/01/2024	0.0001	0.0007	0.0005	0.48	0.009	0.0001	1.6	0.0001	0.0004	0.1	0.0007	0.003	0.02	8.6	0.001	0.1	0.0001	8.4	0.0004
MDRC1475_06-12	5T04 + 5T05	12/01/2024	0.0001	0.0005	0.001	1.7	0.012	0.0001	2.2	0.0001	0.0007	0.3	0.0011	0.006	0.1	14.8	0.001	0.1	0.0001	13.8	0.0004
MDRC1475_06-12	5T03	11/01/2024	0.0004	0.0005	0.0022	0.05	0.005	0.0001	3.2	0.0001	0.0011	0.5	0.0021	0.011	0.05	23.3	0.001	0.1	0.0001	22.8	0.0007
MDRC1475_06-12	5T02	10/01/2024	0.0028	0.001	0.0053	1.7	0.005	0.0001	4.6	0.0001	0.0018	1.4	0.0076	0.029	0.13	35.3	0.002	0.1	0.0001	38.3	0.0011
MDRC1475_06-12	5T01	10/01/2024	0.017	0.0027	0.012	0.87	0.005	0.0001	16	0.0001	0.0053	34.5	0.15	0.021	6.9	126	0.012	0.1	0.0001	201	0.0013
MDRC1475_06-12	Blank - 5	10/01/2024	0.0001	0.0005	0.0001	0.05	0.005	0.0001	0.1	0.0001	0.0001	0.1	0.0001	0.001	0.01	0.1	0.001	0.1	0.0001	0.1	0.0001

Appendix A.4 - LEAF 1314 results

Sample ID	Extract ID	Date	Se	Si	Sn	Sr	Th	Ti	Tl	U	V	Y	Zn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDRC0693_06-12	1T08 + 1T09	19/11/2023	0.001	11	0.0001	0.002	0.0001	0.0005	0.0001	0.0001	0.0002	0.0002	0.001
MDRC0693_06-12	1T06 + 1T07	13/11/2023	0.001	13	0.0001	0.0027	0.0001	0.0005	0.0001	0.0001	0.0003	0.0002	0.004
MDRC0693_06-12	1T04 + 1T05	10/11/2023	0.001	14	0.0001	0.0066	0.0001	0.0005	0.0001	0.0001	0.0002	0.0002	0.003
MDRC0693_06-12	1T03	9/11/2023	0.001	15	0.0001	0.024	0.0001	0.0006	0.0001	0.0001	0.0002	0.0002	0.002
MDRC0693_06-12	1T02	8/11/2023	0.001	15	0.0001	0.25	0.0001	0.0005	0.0001	0.0001	0.0002	0.0002	0.002
MDRC0693_06-12	1T01	8/11/2023	0.023	19	0.0002	5.3	0.0002	0.001	0.0002	0.0003	0.0003	0.0008	0.018
MDRC0693_06-12	Blank-1	8/11/2023	0.001	0.05	0.0001	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.0002	0.001
MDRC0973_04-12	2T08 + 2T09	19/11/2023	0.001	10	0.0001	0.012	0.0001	0.0005	0.0001	0.0001	0.0082	0.0002	0.001
MDRC0973_04-12	2T06 + 2T07	13/11/2023	0.001	14	0.0001	0.016	0.0001	0.0005	0.0001	0.0001	0.0068	0.0002	0.001
MDRC0973_04-12	2T04 + 2T05	10/11/2023	0.001	15	0.0001	0.02	0.0001	0.0005	0.0001	0.0001	0.0043	0.0003	0.001
MDRC0973_04-12	2T03	9/11/2023	0.001	17	0.0001	0.027	0.0001	0.0005	0.0001	0.0001	0.0028	0.0004	0.003
MDRC0973_04-12	2T02	8/11/2023	0.001	18	0.0001	0.048	0.0001	0.0005	0.0001	0.0001	0.0022	0.0005	0.005
MDRC0973_04-12	2T01	8/11/2023	0.016	20	0.0001	1.2	0.0001	0.0005	0.0001	0.0025	0.0019	0.0007	0.003
MDRC0973_04-12	Blank-2	8/11/2023	0.001	0.05	0.0001	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.0002	0.001
MDRC0973_34-46	3T08 + 3T09	19/11/2023	0.001	6.7	0.0003	0.0069	0.0001	0.0005	0.0001	0.0001	0.0001	0.0002	0.002
MDRC0973_34-46	3T06 + 3T07	13/11/2023	0.001	7.8	0.0001	0.006	0.0001	0.0005	0.0001	0.0001	0.0001	0.0002	0.004
MDRC0973_34-46	3T04 + 3T05	10/11/2023	0.001	11	0.0001	0.0075	0.0001	0.0005	0.0001	0.0001	0.0003	0.0003	0.017
MDRC0973_34-46	3T03	9/11/2023	0.001	9.8	0.0001	0.0087	0.0001	0.0005	0.0001	0.0001	0.0001	0.0003	0.043
MDRC0973_34-46	3T02	8/11/2023	0.001	11	0.0001	0.025	0.0001	0.0005	0.0001	0.0001	0.0001	0.0003	0.13
MDRC0973_34-46	3T01	8/11/2023	0.004	13	0.0001	0.17	0.0001	0.0005	0.0002	0.0001	0.0001	0.0003	0.15
MDRC0973_34-46	Blank-3	8/11/2023	0.001	0.05	0.0001	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.0002	0.002
MDRC1384_00-06	4T08 + 4T09	19/11/2023	0.001	16	0.0001	0.001	0.0001	0.0005	0.0001	0.0001	0.0021	0.0002	0.001
MDRC1384_00-06	4T06 + 4T07	13/11/2023	0.001	15	0.0001	0.001	0.0001	0.0005	0.0001	0.0001	0.0017	0.0002	0.001
MDRC1384_00-06	4T04 + 4T05	10/11/2023	0.001	18	0.0001	0.0017	0.0001	0.0005	0.0001	0.0001	0.0011	0.0002	0.001
MDRC1384_00-06	4T03	9/11/2023	0.001	24	0.0001	0.0052	0.0001	0.0005	0.0001	0.0001	0.0007	0.0002	0.002
MDRC1384_00-06	4T02	8/11/2023	0.001	25	0.0001	0.052	0.0001	0.0005	0.0001	0.0001	0.0005	0.0002	0.003
MDRC1384_00-06	4T01	8/11/2023	0.005	27	0.0001	1.4	0.0001	0.0005	0.0002	0.0001	0.0005	0.001	0.009
MDRC1384_00-06	Blank-4	8/11/2023	0.001	0.05	0.0001	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.0002	0.001
MDRC1475_06-12	5T08 + 5T09	23/01/2024	0.001	26	0.0001	0.0016	0.0001	0.0005	0.0001	0.0001	0.025	0.0002	0.002
MDRC1475_06-12	5T06 + 5T07	16/01/2024	0.001	29	0.0001	0.0019	0.0001	0.0005	0.0001	0.0001	0.026	0.0002	0.001
MDRC1475_06-12	5T04 + 5T05	12/01/2024	0.001	32	0.0001	0.0034	0.0001	0.0005	0.0001	0.0001	0.016	0.0003	0.004
MDRC1475_06-12	5T03	11/01/2024	0.001	32	0.0001	0.0065	0.0001	0.0005	0.0001	0.0001	0.011	0.0007	0.002
MDRC1475_06-12	5T02	10/01/2024	0.001	30	0.0001	0.016	0.0001	0.0005	0.0001	0.0001	0.0066	0.0009	0.006
MDRC1475_06-12	5T01	10/01/2024	0.003	32	0.0001	0.33	0.0001	0.0005	0.0001	0.0005	0.0038	0.0013	0.029
MDRC1475_06-12	Blank - 5	10/01/2024	0.001	0.05	0.0001	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.0002	0.001

Appendix A.4 - LEAF 1316 results

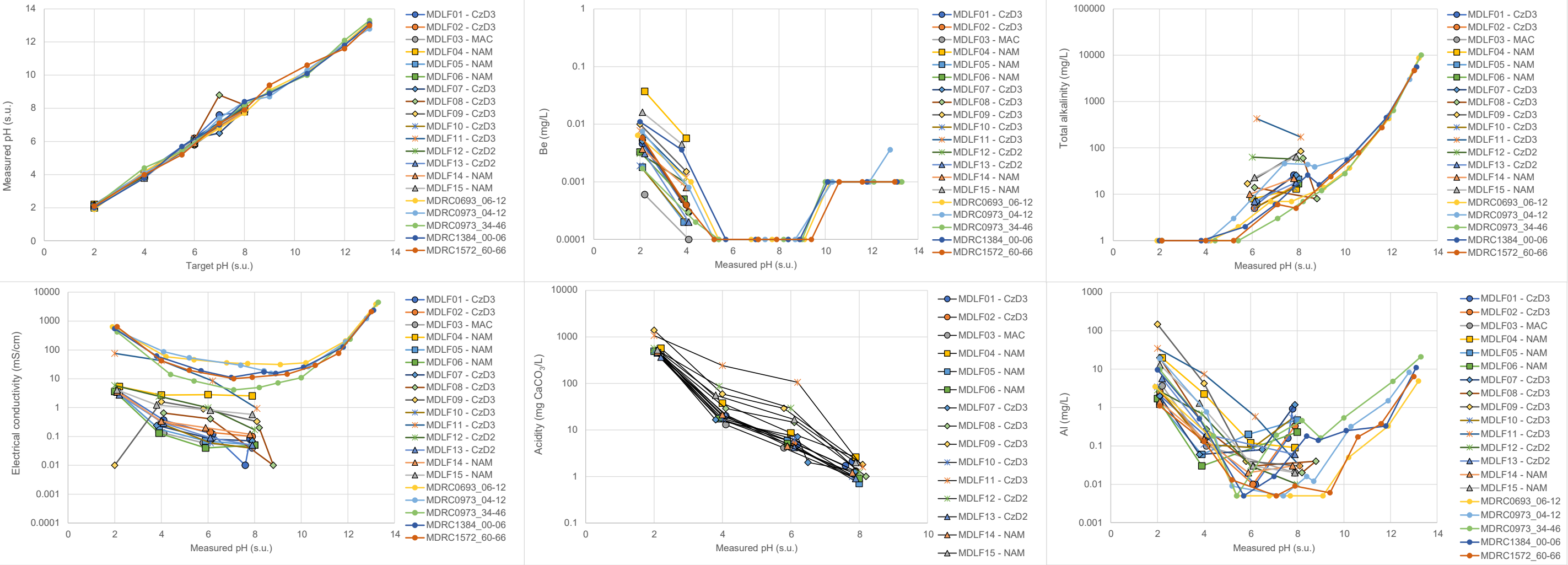
Sample ID	Client Id	pH	ECond	TDS	Alkaline	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Cl	Co	Cr
			mS/m	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDRC1397_58-66	T1	6.7	6.2	34	3	0.0001	0.006	0.001	0.053	0.002	0.0001	0.0001	1.1	0.0001	7	0.0005	0.0005
MDRC1397_58-66	T2	6.6	10.5	58	4	0.0001	0.011	0.001	0.07	0.005	0.0001	0.0001	1.7	0.0001	14	0.001	0.0009
MDRC1397_58-66	T3	6.6	24.5	130	6	0.0001	0.02	0.001	0.08	0.0066	0.0001	0.0001	4.8	0.0002	33	0.0026	0.0013
MDRC1397_58-66	T4	6.5	47.8	260	11	0.0001	0.017	0.001	0.11	0.0052	0.0001	0.0001	10.7	0.0004	72	0.0043	0.0022
MDRC1397_58-66	blank	5.6	0.2	5	1	0.0001	0.005	0.001	0.005	0.0001	0.0001	0.0001	0.1	0.0001	1	0.0001	0.0005

Sample ID	Client Id	Cu	F	Fe	Hg	K	La	Li	Mg	Mn	Mo	N total	Na	Ni	P	Pb	SO ₄
		0.0001	0.05	0.005	0.0001	0.1	0.0001	0.0001	0.1	0.0001	0.001	0.01	0.1	0.001	0.1	0.0001	0.1
		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
MDRC1397_58-66	T1	0.014	0.35	0.017	0.0001	2.2	0.0001	0.0082	0.6	0.0017	0.001	0.37	7.5	0.004	0.1	0.0004	8.7
MDRC1397_58-66	T2	0.019	0.44	0.021	0.0001	3.4	0.0001	0.014	1.2	0.003	0.001	0.67	13.5	0.003	0.1	0.0005	16.4
MDRC1397_58-66	T3	0.043	0.46	0.065	0.0001	6.5	0.0001	0.023	3.6	0.0096	0.001	1.4	31	0.011	0.1	0.0013	39.9
MDRC1397_58-66	T4	0.072	0.41	0.073	0.0001	10.1	0.0001	0.038	8.1	0.017	0.001	2.5	58.7	0.015	0.1	0.0018	74.8
MDRC1397_58-66	blank	0.0001	0.05	0.005	0.0001	0.1	0.0001	0.0001	0.1	0.0001	0.001	0.03	0.1	0.001	0.1	0.0001	0.1

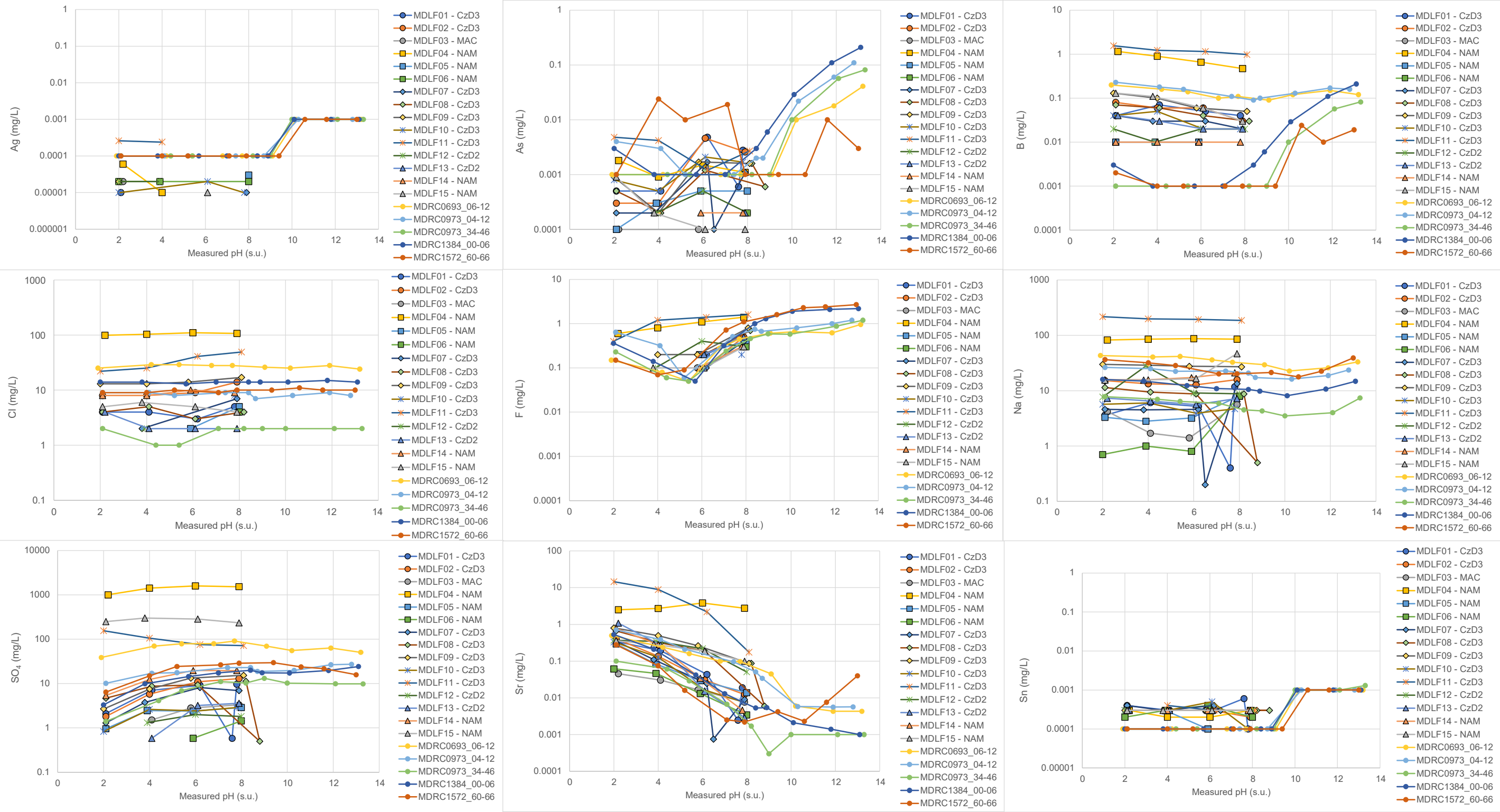
Sample ID	Client Id	Sb	Se	Si	Sn	Sr	Th	Ti	Tl	U	V	Y	Zn
		0.0001	0.001	0.05	0.0001	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.0002	0.001
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDRC1397_58-66	T1	0.0001	0.001	2.5	0.0001	0.0057	0.0001	0.0012	0.0001	0.0001	0.0004	0.004	0.027
MDRC1397_58-66	T2	0.0001	0.001	4.1	0.0001	0.011	0.0001	0.0005	0.0001	0.0001	0.0004	0.0055	0.032
MDRC1397_58-66	T3	0.0002	0.001	6.7	0.0001	0.025	0.0001	0.0005	0.0001	0.0001	0.0005	0.0081	0.08
MDRC1397_58-66	T4	0.0003	0.001	10	0.0001	0.052	0.0001	0.0005	0.0001	0.0001	0.0005	0.012	0.14
MDRC1397_58-66	blank	0.0001	0.001	0.05	0.0001	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.0002	0.001

Appendix A.5 LEAF plots

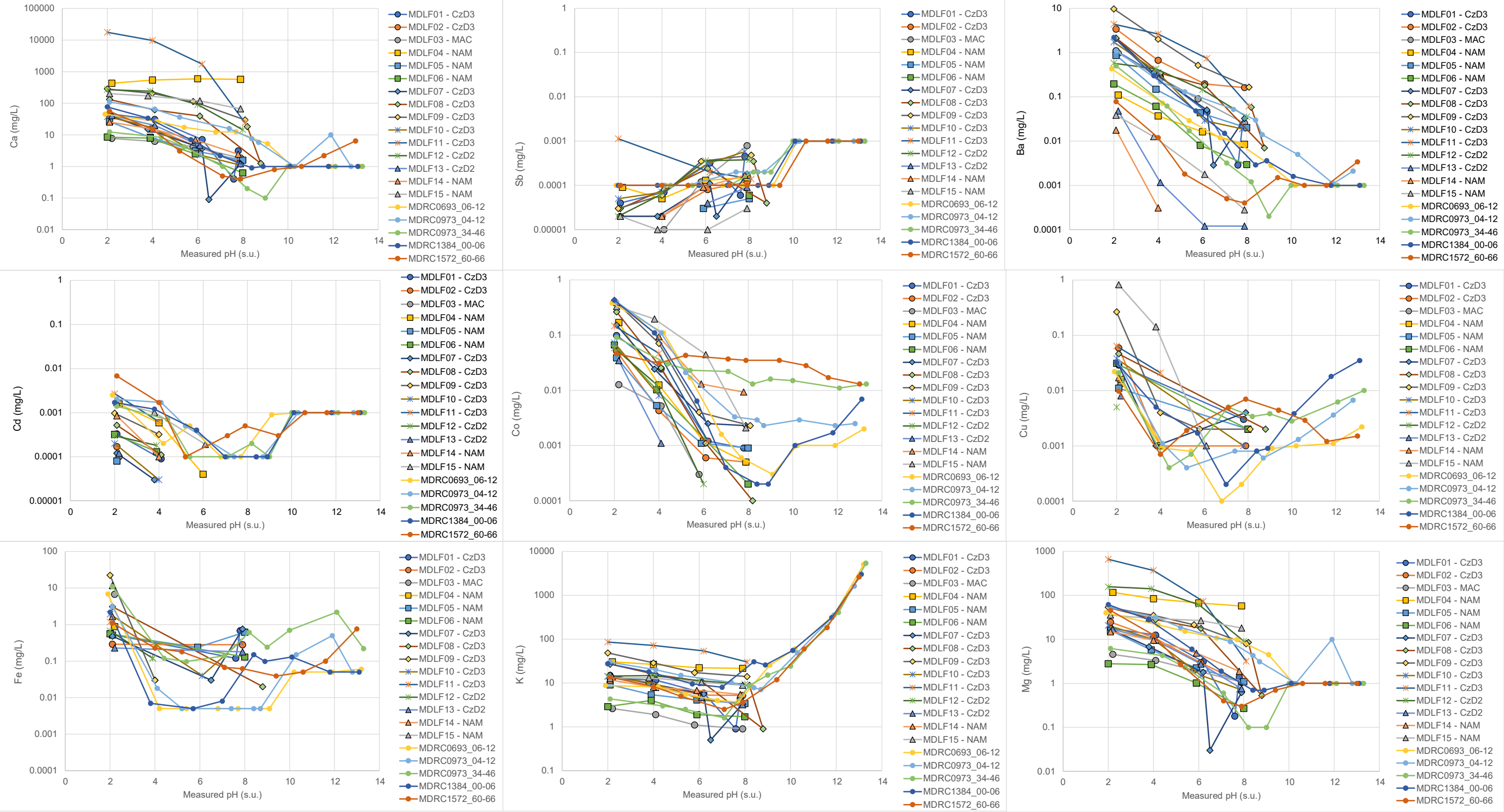
Appendix A.5 - LEAF 1313 plots



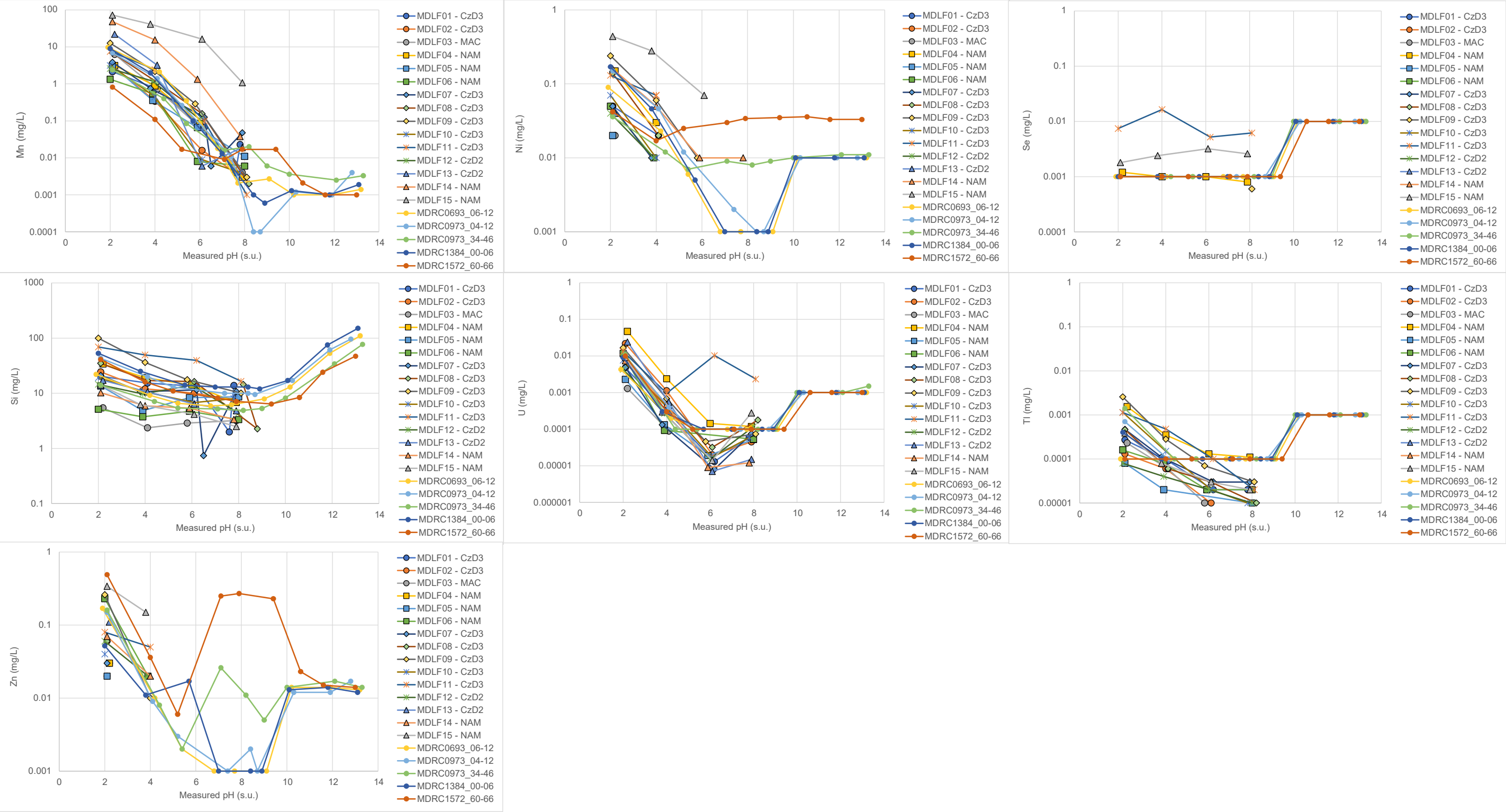
Appendix A.5 - LEAF 1313 plots



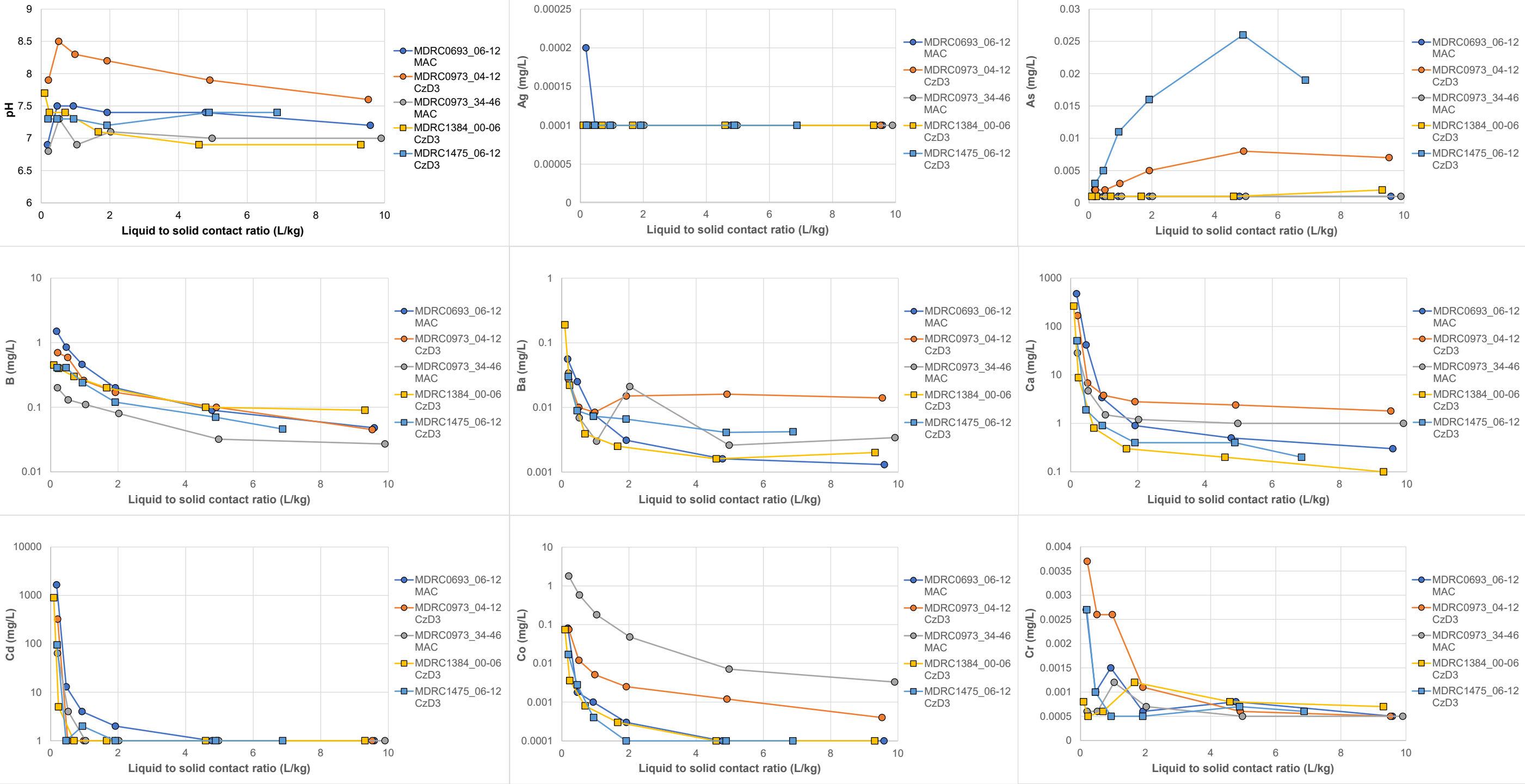
Appendix A.5 - LEAF 1313 plots



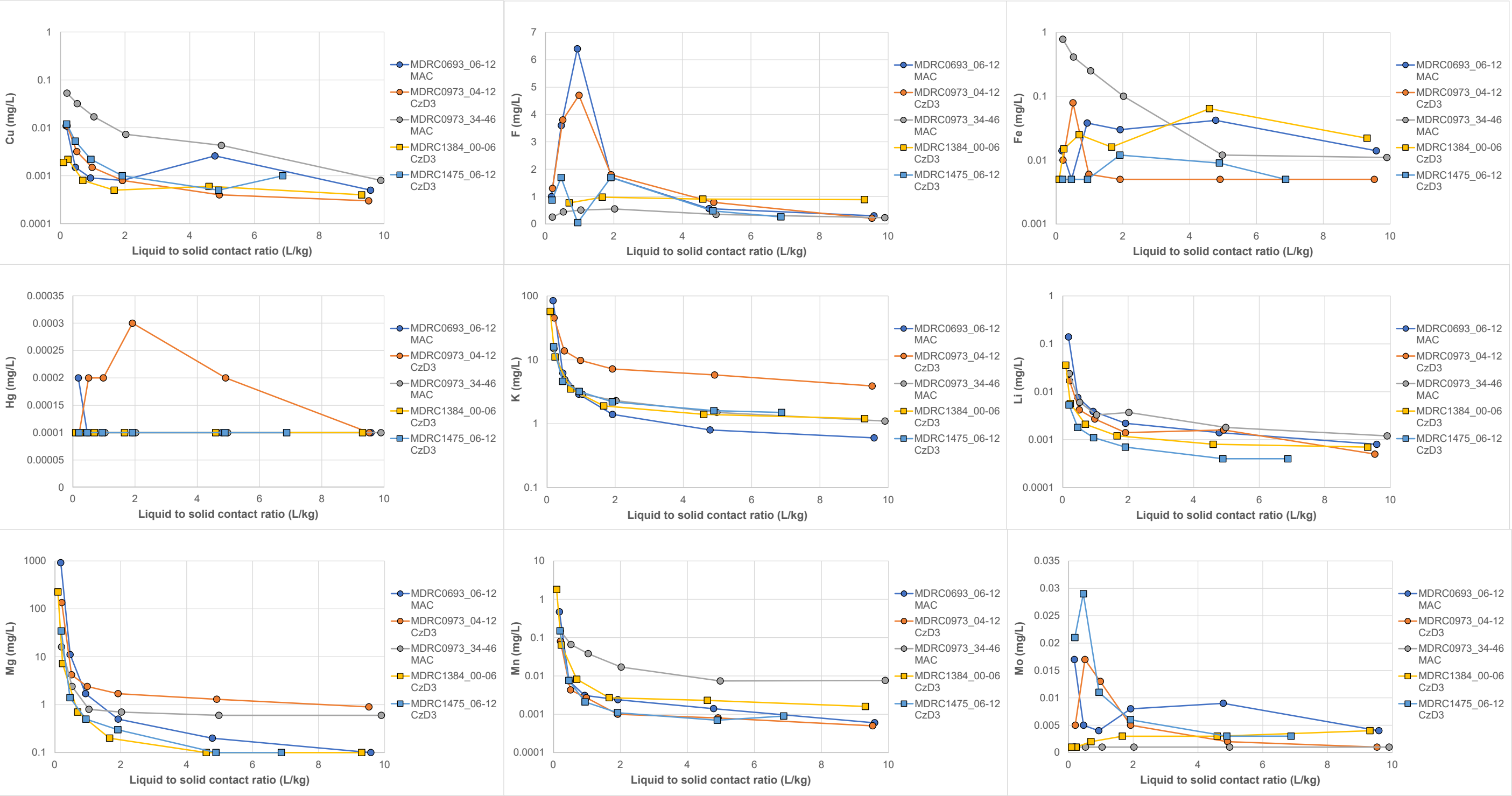
Appendix A.5 - LEAF 1313 plots



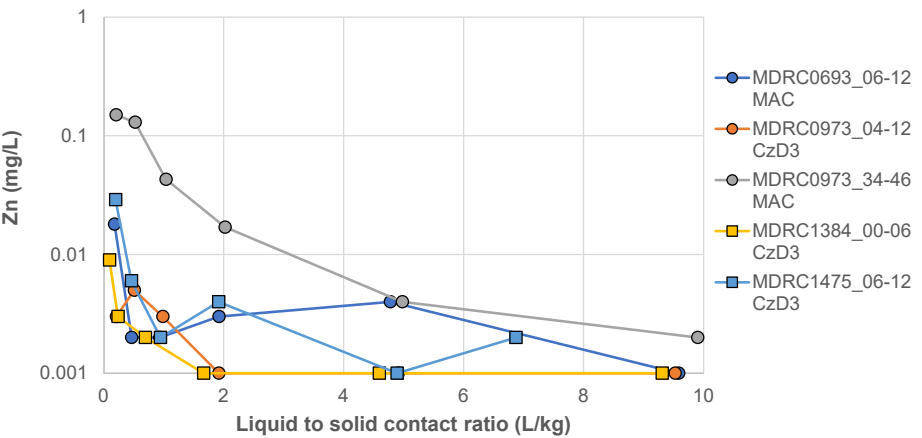
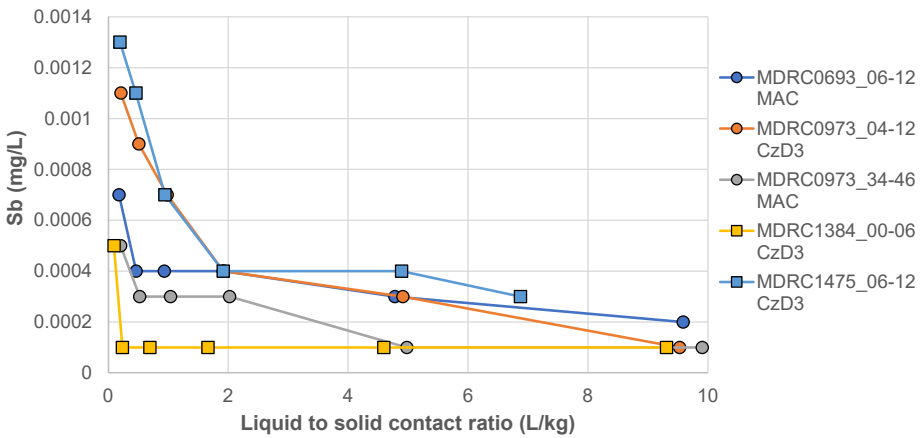
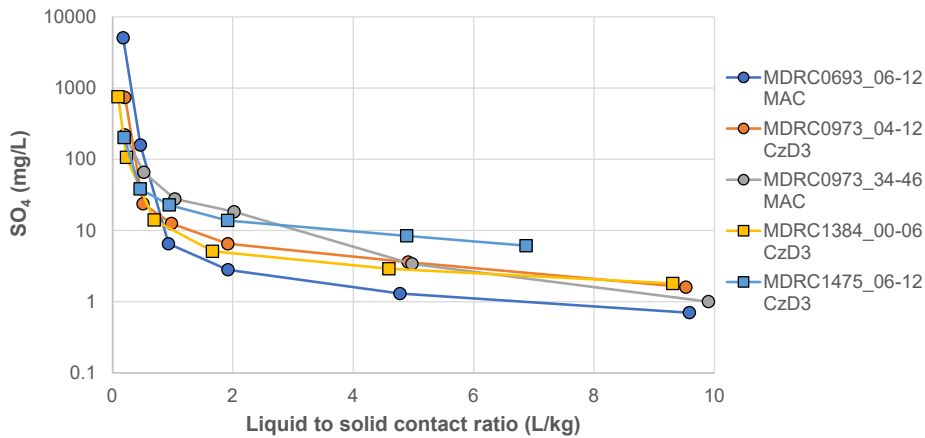
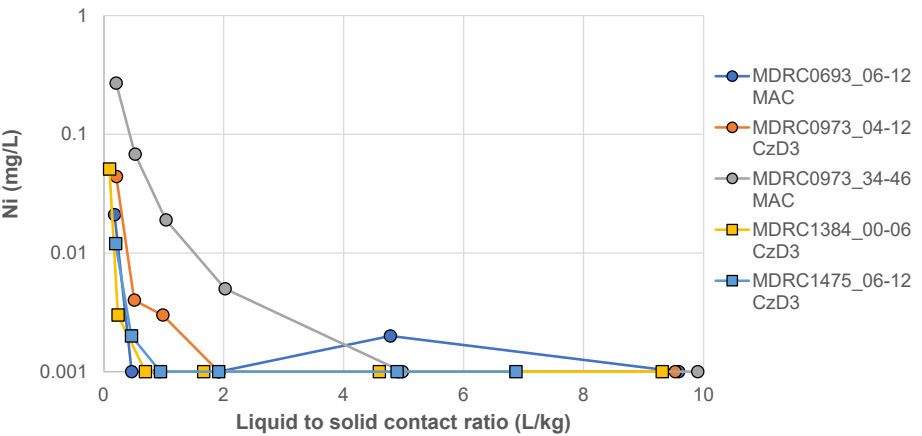
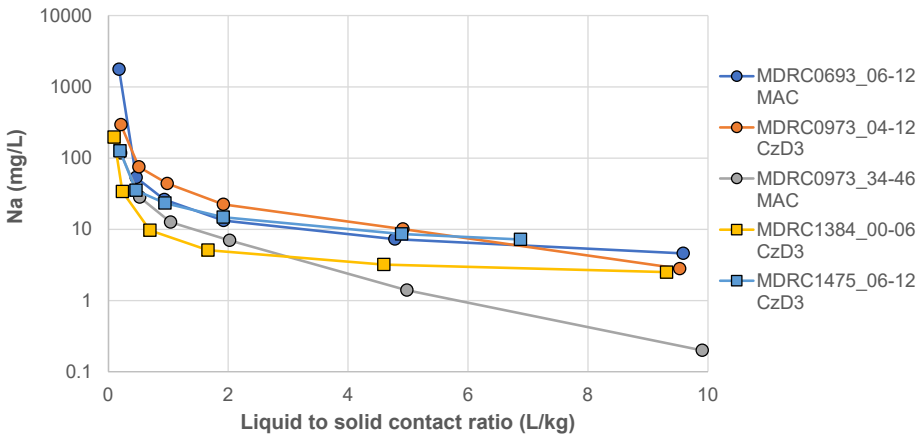
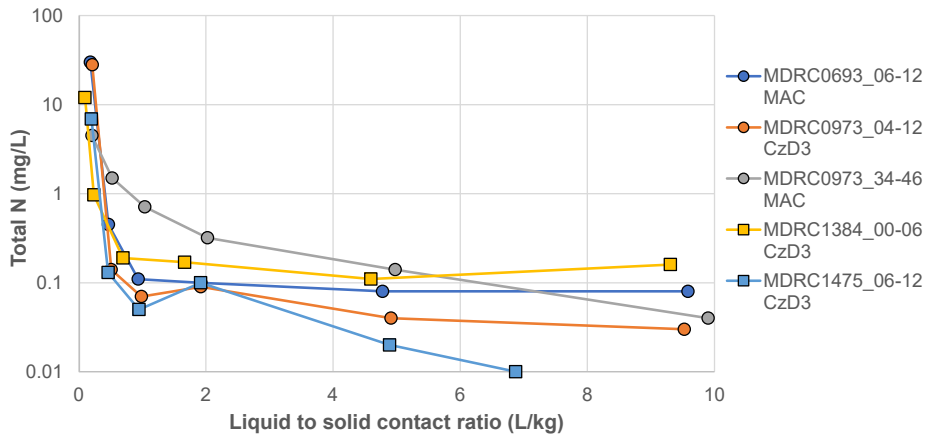
Appendix A.5 - LEAF 1314 plots



Appendix A.5 - LEAF 1314 plots



Appendix A.5 - LEAF 1314 plots



Appendix A.6 Kinetic laboratory results and plots

Appendix A.6 - Kinetic test results

Sample ID: MDRC1486_86-94
Status: Terminated

Date	Week	Sample Mass	Mass of Fluid (Output)	pH	Cond.	Alkalinity Total	Cl	SO4	F	Total N by calc.	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba	Bi	Cd	Cr	Co	Cu
		g	mL	pH Unit	mS/m	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
23/10/2023	0	900	240	4.1	445	1	39	2810	1.6	1.6	414	361	94.6	184	0.1	23	0.0001	8.7	0.005	0.38	0.027	0.0001	0.0043	0.0078	0.89	0.69
20/11/2023	4	900	260	4.2	175	1	17	1020	0.35	0.36	166	91.7	39.8	42.5	0.1	17	0.0001	0.76	0.001	0.29	0.0046	0.0001	0.0015	0.0005	0.26	0.084
18/12/2023	8	900	270	4.1	172	1	16	1030	0.05	0.3	167	93.7	34.7	25.2	0.1	18	0.0001	1.3	0.001	0.26	0.0073	0.0001	0.0024	0.0005	0.4	0.12
15/01/2024	12	900	310	3.9	163	1	8	914	0.52	0.3	128	77	30.3	14.6	0.1	17	0.0001	1.6	0.001	0.27	0.01	0.0001	0.0029	0.0008	0.41	0.14
12/02/2024	16	900	430	3.8	131	1	5	749	0.42	0.28	94.9	59.7	26.4	9.7	0.1	15	0.0001	1.3	0.002	0.23	0.01	0.0001	0.0027	0.0007	0.36	0.14
11/03/2024	20	900	300	3.8	115	1	3	617	0.46	0.15	75.7	44.6	17.8	5	0.1	11	0.0001	1.6	0.004	0.15	0.013	0.0001	0.003	0.0008	0.4	0.18
8/04/2024	24	900	300	3.7	153	1	3	873	0.67	0.09	98.8	59	22.2	5.4	0.1	14	0.0001	3.6	0.002	0.18	0.02	0.0001	0.0047	0.0015	0.59	0.27
6/05/2024	28	900	310	3.7	131	1	2	817	0.6	0.21	93.2	50.7	17.5	3.7	0.1	10	0.0001	3.1	0.003	0.14	0.019	0.0001	0.0045	0.0012	0.58	0.21
3/06/2024	32	900	320	4.1	169	1	3	1020	0.81	0.29	93.5	65.2	20.1	6.5	0.1	11	0.0001	6	0.001	0.15	0.021	0.0001	0.0059	0.0012	0.78	0.22
1/07/2024	36	900	320	3.9	143	1	3	861	0.65	0.24	73.1	50.8	17.9	5.4	0.1	9.5	0.0001	3.6	0.003	0.14	0.02	0.0001	0.0047	0.0007	0.7	0.14
29/07/2024	40	900	340	4.1	69.3	1	2	345	0.23	0.22	28.8	18.7	9.3	1.6	0.1	5.2	0.0001	1.2	0.001	0.07	0.011	0.0001	0.0021	0.0005	0.25	0.056
26/08/2024	44	900	430	4.4	58.9	1	1	287	0.11	0.41	20.3	17	7.9	2	0.1	1.1	0.0001	0.34	0.004	0.028	0.008	0.0001	0.0016	0.0005	0.23	0.038
23/09/2024	48	900	220	3.9	179	1	4	1030	0.66	0.44	75.3	55.7	22.2	4.9	0.1	10	0.0001	4.2	0.004	0.14	0.029	0.0001	0.0064	0.001	0.83	0.22

Sample ID: MDRC1348_94-100
Status: Terminated

Date	Week	Sample Mass	Mass of Fluid (Output)	pH	Cond.	Alkalinity Total	Cl	SO4	F	Total N by calc.	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba	Bi	Cd	Cr	Co	Cu
		g	mL	pH Unit	mS/m	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
23/10/2023	0	900	270	6.1	101	8	18	467	0.16	1.3	61.2	73.8	12.3	31.9	0.1	1	0.0001	0.027	0.003	0.042	0.002	0.0001	0.0001	0.0005	0.034	0.0023
20/11/2023	4	900	320	6.7	136	7	46	710	0.33	1.1	49.4	129	16.4	35.1	0.1	0.98	0.0001	0.005	0.001	0.07	0.0014	0.0001	0.0001	0.0005	0.024	0.0012
18/12/2023	8	900	330	6.7	72.2	5	16	349	0.52	0.55	27.4	67.9	6.8	8.4	0.1	0.64	0.0001	0.005	0.001	0.036	0.0009	0.0001	0.0001	0.0005	0.012	0.0007
15/01/2024	12	900	330	6.8	65.2	7	10	299	0.27	0.3	21.4	56.9	4.4	4.3	0.1	0.52	0.0001	0.005	0.001	0.035	0.0006	0.0001	0.0001	0.0005	0.0077	0.0005
12/02/2024	16	900	340	6.8	53.3	4	7	261	0.24	0.35	18.8	52.1	2.9	2.1	0.1	0.38	0.0001	0.005	0.001	0.02	0.0004	0.0001	0.0001	0.0005	0.0048	0.0005
11/03/2024	20	900	340	6.9	54.7	6	6	257	0.23	0.33	17.1	53.9	2.1	1.4	0.1	0.27	0.0001	0.005	0.001	0.011	0.0005	0.0001	0.0001	0.0005	0.0037	0.0007
8/04/2024	24	900	340	7	51.7	9	5	239	0.26	0.26	14.6	52.9	1.4	0.8	0.1	0.2	0.0001	0.005	0.001	0.013	0.0003	0.0001	0.0001	0.0005	0.002	0.0005
6/05/2024	28	900	340	7.2	48.5	11	5	242	0.26	0.31	13.3	55.7	1	0.4	0.1	0.14	0.0001	0.005	0.001	0.01	0.0001	0.0001	0.0001	0.0005	0.0011	0.0003
3/06/2024	32	900	350	7.5	52.1	13	5	246	0.25	0.24	12.2	57.7	0.8	0.4	0.1	0.1	0.0001	0.005	0.001	0.006	0.0003	0.0001	0.0001	0.0008	0.0007	0.0005
1/07/2024	36	900	350	7.5	53.8	21	6	259	0.25	0.28	11.5	62.6	0.7	0.4	0.1	0.08	0.0001	0.011	0.001	0.008	0.0002	0.0001	0.0001	0.0005	0.0004	0.0003
29/07/2024	40	900	340	7.5	49.8	25	6	226	0.24	0.28	10.5	55.8	0.5	0.3	0.3	0.07	0.0001	0.006	0.001	0.006	0.0002	0.0001	0.0001	0.0005	0.0003	0.0006
26/08/2024	44	900	340	7.6	54.9	26	6	258	0.18	0.26	11.3	62.7	0.4	0.2	0.1	0.06	0.0001	0.005	0.001	0.005	0.0001	0.0001	0.0001	0.0005	0.0002	0.0001
23/09/2024	48	900	340	7.5	58.5	27	5	275	0.17	0.28	10.6	66.4	0.4	0.2	0.1	0.05	0.0001	0.005	0.001	0.005	0.0003	0.0001	0.0001	0.0005	0.0002	0.0003

Sample ID: MDRC1415_98-104
Status: Terminated

Date	Week	Sample Mass (Dry)	Mass of Fluid (Output)	pH	Cond.	Alkalinity Total	Cl	SO4	F	Total N by calc.	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba	Bi	Cd	Cr	Co	Cu
		g	mL	pH Unit	mS/m	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
23/10/2023	0	900	260	4	455	1	73	2890	3.1	1.4	305	418	41.8	197	0.1	11	0.0001	13	0.006	0.24	0.073	0.0001	0.0066	0.0056	2.2	0.55
20/11/2023	4	900	310	4.3	242	1	56	1500	0.67	0.7	166	165	15.9	55.6	0.1	10	0.0001	1.5	0.002	0.14	0.04	0.0001	0.0042	0.0006	0.7	0.048
18/12/2023	8	900	310	4.3	182	1	26	1100	0.49	0.39	122	115	8.8	19.8	0.1	8.6	0.0001	0.97	0.001	0.063	0.03	0.0001	0.0033	0.0005	0.53	0.028
15/01/2024	12	900	330	4.4	143	1	12	795	0.35	0.18	80.6	76.3	5.1	8.7	0.1	7	0.0001	0.56	0.001	0.052	0.019	0.0001	0.0025	0.0005	0.31	0.017
12/02/2024	16	900	340	4.4	90.8	1	5	502	0.2	0.11	61.3	43.5	2.6	3.2	0.1	3.4	0.0001	0.27	0.001	0.03	0.0094	0.0001	0.0012	0.0005	0.15	0.0069
11/03/2024	20	900	330	4.4	185	1	10	1160	0.42	0.17	102	116	4.8	8.5	0.1	6.1	0.0001	0.54	0.001	0.05	0.012	0.0001	0.0035	0.0005	0.35	0.011
8/04/2024	24	900	340	4.5	151	1	6	893	0.34	0.07	83.7	87	4	4.7	0.1	6	0.0001	0.47	0.002	0.06	0.011	0.0001	0.0023	0.0005	0.23	0.0076
6/05/2024	28	900	330	4.5	110	1	4	681	0.3	0.16	74.2	61.5	2.7	2.4	0.1	4.6	0.0001	0.3	0.001	0.03	0.0093	0.0001	0.0017	0.0005	0.17	0.0049
3/06/2024	32	900	340	4.9	130	1	4	764	0.36	0.12	74.7	72.2	2.8	3.1	0.1	5	0.0001	0.29	0.002	0.028	0.0098	0.0001	0.0019	0.0005	0.18	0.0047
1/07/2024	36	900	350	4.6	87.4	1	2	482	0.24	0.18	58.8	40.8	1.8	1.4	0.1	3.6	0.0001	0.26	0.001	0.02	0.0085	0.0001	0.0011	0.0005	0.13	0.004
29/07/2024	40	900	350	4.7	111	1	3	620	0.31	0.16	64.9	55.5	2.1	1.7	0.1	4.5	0.0001	0.29	0.002	0.03	0.011	0.0001	0.0015	0.0005	0.12	0.0039
26/08/2024	44	900	340	4.6	109	1	3	604	0.28	0.15	65.7	52.7	1.8	1.7	0.1	4.1	0.0001	0.35	0.001	0.018	0.01	0.0001	0.0014	0.0005	0.15	0.007
23/09/2024	48	900	330	4.6	187	1	4	1150	0.57	0.22	107	109	3.2	3.4	0.1	6.7	0.0001	0.57	0.001	0.022	0.015	0.0001	0.0025	0.0005	0.25	0.0049

Sample ID: MDRC0964_06-12
Status: Ongoing

Date	Week	Sample Mass	Mass of Fluid (Output)	pH	Cond.	Alkalinity Total	Cl	SO4	F	Total N by calc.	Ca	Mg	K	Na	P	Si	Ag	Al	As	B	Ba	Bi	Cd	Cr	Co	Cu
		g	mL	pH Unit	mS/m	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
23/10/2023	0	900	210	7.6	170	74	224	358	1.2	15	56.7	52.7	33.6	223	0.1	25	0.0001	0.025	0.013	0.62	0.14	0.0001	0.0048	0.001	2.3	0.47
20/11/2023	4	900	200	7.3	43.9	27	28	139	5.7	1.5	10.3	8.5	11.5	64.3	0.1	29	0.0001	0.011	0.02	0.51	0.015	0.0001	0.0012	0.0011	0.58	0.14
18/12/2023	8	900	200	7	26.5	28	7	86.1	3	0.73	5.9	4.7	8.1	40.2	0.1	26	0.0001	0.042	0.03	0.38	0.012	0.0001	0.0005	0.0022	0.21	0.051
15/01/2024	12	900	200	7.1	22.9	29	3	73.5	5.1	0.54	5	3.9	7.3	34.1	0.1	27	0.0001	0.009	0.034	0.32	0.017	0.0001	0.0003	0.0018	0.1	0.029
12/02/2024	16	900	190	7.4	18	28	4	52.9	4.5	0.57	3.8	3.1	6.5	29.1	0.1	25	0.0001	0.024	0.037	0.35	0.016	0.0001	0.0001	0.0027	0.05	0.02
11/03/2024	20	900	200	7.1	14.1	23	3	28.4	4.8	0.54	2	1.6	4.9	20.8	0.1	29	0.0001	0.084	0.044	0.4	0.0051	0.0001	0.0001	0.0033	0.029	0.015
8/04/2023	24	900	210	7.5	10.6	24	2	13.1	4.2	0.35	1	0.9	3.9	16.7	0.1	28	0.0001	0.068	0.064	0.36	0.0033	0.0001	0.0001	0.0034	0.011	0.0094
6/05/2024	28	900	240	7.7	8.9	25	2	10.1	3.4	0.47	0.5	0.8	3.6	15.9	0.1	27	0.0001	0.17	0.058	0.3	0.0027	0.0001	0.0001	0.004	0.0058	0.0069
3/06/2024	32	900	240	8	6.6	24	1	7	2.8	0.49	0.4	0.5	2.9	13.6	0.1	28	0.0001	0.15	0.071	0.29	0.0009	0.0001	0.0001	0.011	0.0034	0.0049
1/07/2024	36	900	240	7.6	7	21	1	5.2	1.9	0.85	0.5	0.4	2.8	13	0.1	26	0.0001	0.054	0.068	0.22	0.0019	0.0001	0.0001	0.014	0.0023	0.0042
29/07/2024	40	900	250	7.5	6.4	22	1	5.8	1.1	0.68	0.6	0.5	2.7	10.5	0.1	22	0.0001	0.2	0.051	0.16	0.003	0.0001	0.0001	0.024	0.002	0.0053
26/08/2024	44	900	240	7.6	6.9	25	1	5	1.5	0.59	0.5	0.5	3.1	12.4	0.2	28	0.0001	0.098	0.065	0.22	0.0018	0.0001	0.0001	0.029	0.0016	0.0038
23/09/2024	48	900	250	7.5	6.8	24	1	4.5	1.5	0.46	0.1	0.4	2.7	11.4	0.1	26	0.0001	0.044	0.063	0.11	0.0014	0.0001	0.0001	0.032	0.0016	0.0029

Appendix A.6 - Kinetic test results

Sample ID: MDRC1486_86-94
Status: Terminated

Date	Week	Sample Mass	Mass of Fluid (Output)	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	TI	U	V	Zn	Hg	Li	Be	La	Y	TDS
		g	mL	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
23/10/2023	0	900	240	0.14	130	0.001	5.6	0.003	0.0001	0.058	0.0001	1.3	0.0001	0.0005	0.0002	0.0027	0.0001	17	0.0001	0.29	0.02	0.0055	0.075	2400
20/11/2023	4	900	260	0.009	69	0.001	1.5	0.0001	0.0001	0.028	0.0001	0.54	0.0001	0.0005	0.0001	0.0004	0.0001	5	0.0001	0.14	0.0068	0.001	0.014	960
18/12/2023	8	900	270	0.012	110	0.001	2.2	0.0001	0.0001	0.028	0.0001	0.71	0.0001	0.0005	0.0001	0.0006	0.0001	7.3	0.0001	0.16	0.012	0.0018	0.021	950
15/01/2024	12	900	310	0.025	120	0.001	2.2	0.0001	0.0001	0.018	0.0001	0.65	0.0001	0.0005	0.0001	0.001	0.0001	7.9	0.0001	0.2	0.017	0.0022	0.026	890
12/02/2024	16	900	430	0.041	120	0.001	1.8	0.0037	0.0001	0.011	0.0001	0.53	0.0001	0.0005	0.0002	0.001	0.0001	6.9	0.0001	0.16	0.02	0.0018	0.02	720
11/03/2024	20	900	300	0.037	110	0.001	2	0.0004	0.0001	0.01	0.0001	0.5	0.0001	0.0005	0.0001	0.0013	0.0001	6.7	0.0001	0.11	0.017	0.0019	0.022	630
8/04/2024	24	900	300	0.12	190	0.001	2.8	0.0003	0.0001	0.011	0.0001	0.74	0.0001	0.0005	0.0002	0.0026	0.0001	10	0.0001	0.21	0.033	0.0056	0.048	840
6/05/2024	28	900	310	0.11	180	0.001	2.6	0.0002	0.0001	0.008	0.0001	0.75	0.0001	0.0005	0.0002	0.0019	0.0001	9.2	0.0001	0.21	0.028	0.0036	0.039	720
3/06/2024	32	900	320	0.23	270	0.001	3.8	0.0002	0.0001	0.011	0.0001	0.87	0.0001	0.0005	0.0001	0.0017	0.0001	12	0.0001	0.33	0.028	0.0057	0.061	930
1/07/2024	36	900	320	0.052	230	0.001	2.9	0.0001	0.0001	0.01	0.0001	0.74	0.0001	0.0005	0.0001	0.001	0.0001	9.6	0.0001	0.26	0.017	0.0043	0.043	780
29/07/2024	40	900	340	0.031	95	0.001	1.2	0.0001	0.0001	0.003	0.0001	0.28	0.0001	0.0005	0.0003	0.0004	0.0001	3.8	0.0001	0.11	0.009	0.0015	0.013	380
26/08/2024	44	900	430	0.007	84	0.001	0.94	0.0001	0.0001	0.003	0.0001	0.26	0.0001	0.0005	0.0001	0.0001	0.0001	2.9	0.0001	0.096	0.0045	0.0004	0.0027	320
23/09/2024	48	900	220	0.071	310	0.001	3.6	0.0001	0.0001	0.009	0.0001	0.9	0.0001	0.0005	0.0003	0.0015	0.0001	11	0.0001	0.35	0.024	0.0052	0.051	980

Sample ID: MDRC1348_94-100
Status: Terminated

Date	Week	Sample Mass	Mass of Fluid (Output)	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	TI	U	V	Zn	Hg	Li	Be	La	Y	TDS
		g	mL	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
23/10/2023	0	900	270	0.012	14	0.001	0.057	0.0004	0.0001	0.011	0.0001	0.091	0.0001	0.0005	0.0008	0.0001	0.0001	0.11	0.0001	0.041	0.0001	0.0001	0.0002	550
20/11/2023	4	900	320	0.005	28	0.001	0.038	0.0001	0.0001	0.017	0.0001	0.08	0.0001	0.0005	0.0009	0.0001	0.0001	0.031	0.0001	0.028	0.0001	0.0001	0.0002	750
18/12/2023	8	900	330	0.005	16	0.001	0.021	0.0001	0.0001	0.008	0.0001	0.044	0.0001	0.0005	0.0005	0.0001	0.0001	0.015	0.0001	0.018	0.0001	0.0001	0.0002	400
15/01/2024	12	900	330	0.005	13	0.001	0.014	0.0001	0.0001	0.005	0.0001	0.031	0.0001	0.0005	0.0004	0.0001	0.0001	0.011	0.0001	0.02	0.0001	0.0001	0.0002	360
12/02/2024	16	900	340	0.006	8.3	0.001	0.009	0.0001	0.0001	0.004	0.0001	0.022	0.0001	0.0005	0.0003	0.0001	0.0001	0.008	0.0001	0.019	0.0001	0.0001	0.0002	290
11/03/2024	20	900	340	0.005	4.9	0.001	0.007	0.0001	0.0001	0.004	0.0001	0.019	0.0001	0.0005	0.0003	0.0001	0.0001	0.007	0.0001	0.01	0.0001	0.0001	0.0002	300
8/04/2024	24	900	340	0.005	2.1	0.001	0.004	0.0001	0.0001	0.003	0.0001	0.013	0.0001	0.0005	0.0002	0.0001	0.0001	0.005	0.0002	0.011	0.0001	0.0001	0.0002	280
6/05/2024	28	900	340	0.005	0.9	0.001	0.003	0.0001	0.0001	0.003	0.0001	0.0092	0.0001	0.0005	0.0002	0.0001	0.0001	0.003	0.0001	0.012	0.0001	0.0001	0.0002	270
3/06/2024	32	900	350	0.009	0.43	0.001	0.002	0.0001	0.0001	0.003	0.0001	0.0064	0.0001	0.0005	0.0001	0.0001	0.0001	0.004	0.0001	0.0096	0.0001	0.0001	0.0002	290
1/07/2024	36	900	350	0.005	0.22	0.001	0.001	0.0001	0.0001	0.003	0.0001	0.0047	0.0001	0.0005	0.0001	0.0001	0.0001	0.002	0.0001	0.007	0.0001	0.0001	0.0002	300
29/07/2024	40	900	340	0.005	0.13	0.001	0.001	0.0001	0.0001	0.002	0.0001	0.004	0.0001	0.0005	0.0001	0.0001	0.0001	0.003	0.0001	0.011	0.0001	0.0001	0.0002	270
26/08/2024	44	900	340	0.005	0.087	0.001	0.001	0.0001	0.0001	0.002	0.0001	0.0033	0.0001	0.0005	0.0001	0.0001	0.0001	0.002	0.0001	0.0096	0.0001	0.0001	0.0002	300
23/09/2024	48	900	340	0.005	0.06	0.001	0.001	0.0001	0.0001	0.002	0.0001	0.0039	0.0001	0.0005	0.0001	0.0001	0.0001	0.001	0.0002	0.008	0.0001	0.0001	0.0002	320

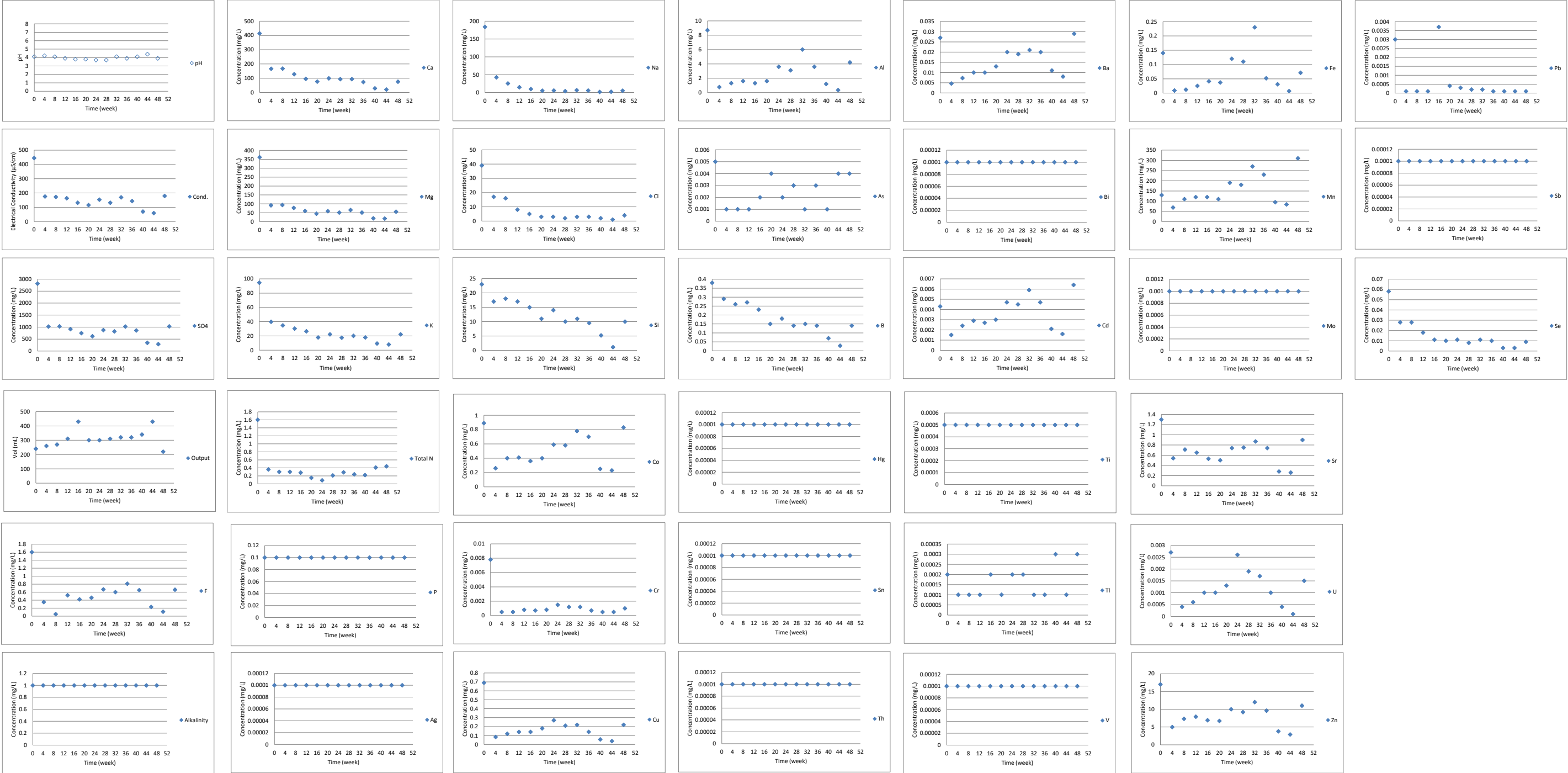
Sample ID: MDRC1415_98-104
Status: Terminated

Date	Week	Sample Mass (Dry)	Mass of Fluid (Output)	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	TI	U	V	Zn	Hg	Li	Be	La	Y	TDS
		g	mL	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
23/10/2023	0	900	260	0.89	260	0.001	7.2	0.0027	0.0001	0.15	0.0001	1.2	0.0001	0.0005	0.0006	0.0037	0.0003	8.2	0.0001	0.037	0.018	0.017	0.15	2500
20/11/2023	4	900	310	0.9	240	0.001	2.6	0.0002	0.0001	0.086	0.0001	0.48	0.0001	0.0005	0.0003	0.001	0.0001	2.4	0.0001	0.026	0.005	0.0074	0.053	1300
18/12/2023	8	900	310	0.74	210	0.001	2.1	0.0005	0.0001	0.063	0.0001	0.34	0.0001	0.0005	0.0002	0.0007	0.0001	1.5	0.0001	0.021	0.0031	0.0062	0.039	1000
15/01/2024	12	900	330	0.45	170	0.001	1.3	0.0001	0.0001	0.041	0.0001	0.2	0.0001	0.0005	0.0001	0.0004	0.0001	0.9	0.0001	0.02	0.0022	0.0042	0.027	780
12/02/2024	16	900	340	0.19	98	0.001	0.63	0.0001	0.0001	0.019	0.0001	0.13	0.0001	0.0005	0.0001	0.0002	0.0001	0.43	0.0001	0.016	0.0012	0.0019	0.012	500
11/03/2024	20	900	330	0.38	260	0.001	1.5	0.0003	0.0001	0.05	0.0001	0.19	0.0001	0.0005	0.0001	0.0004	0.0001	0.83	0.0001	0.019	0.0014	0.0059	0.042	1000
8/04/2024	24	900	340	0.19	200	0.001	0.97	0.0001	0.0001	0.032	0.0001	0.14	0.0001	0.0005	0.0001	0.0003	0.0001	0.57	0.0001	0.023	0.0014	0.0042	0.026	830
6/05/2024	28	900	330	0.13	140	0.001	0.74	0.0001	0.0001	0.018	0.0001	0.12	0.0001	0.0005	0.0001	0.0002	0.0001	0.44	0.0001	0.018	0.001	0.003	0.016	600
3/06/2024	32	900	340	0.1	180	0.001	0.91	0.0001	0.0001	0.022	0.0001	0.11	0.0001	0.0005	0.0001	0.0001	0.0001	0.44	0.0001	0.019	0.0009	0.0029	0.02	720
1/07/2024	36	900	350	0.066	100	0.001	0.59	0.0001	0.0001	0.014	0.0001	0.084	0.0001	0.0005	0.0001	0.0001	0.0001	0.26	0.0001	0.012	0.0005	0.0016	0.0096	480
29/07/2024	40	900	350	0.081	130	0.001	0.77	0.0001	0.0001	0.018	0.0001	0.07	0.0001	0.0005	0.0002	0.0001	0.0001	0.31	0.0001	0.015	0.0007	0.0024	0.015	610
26/08/2024	44	900	340	0.048	130	0.001	0.72	0.0001	0.0001	0.015	0.0001	0.09	0.0001	0.0005	0.0001	0.0001	0.0001	0.29	0.0001	0.014	0.0006	0.0023	0.014	600
23/09/2024	48	900	330	0.092	260	0.001	1.2	0.0001	0.0001	0.028	0.0001	0.13	0.0001	0.0005	0.0001	0.0002	0.0001	0.48	0.0001	0.029	0.0009	0.005	0.032	1000

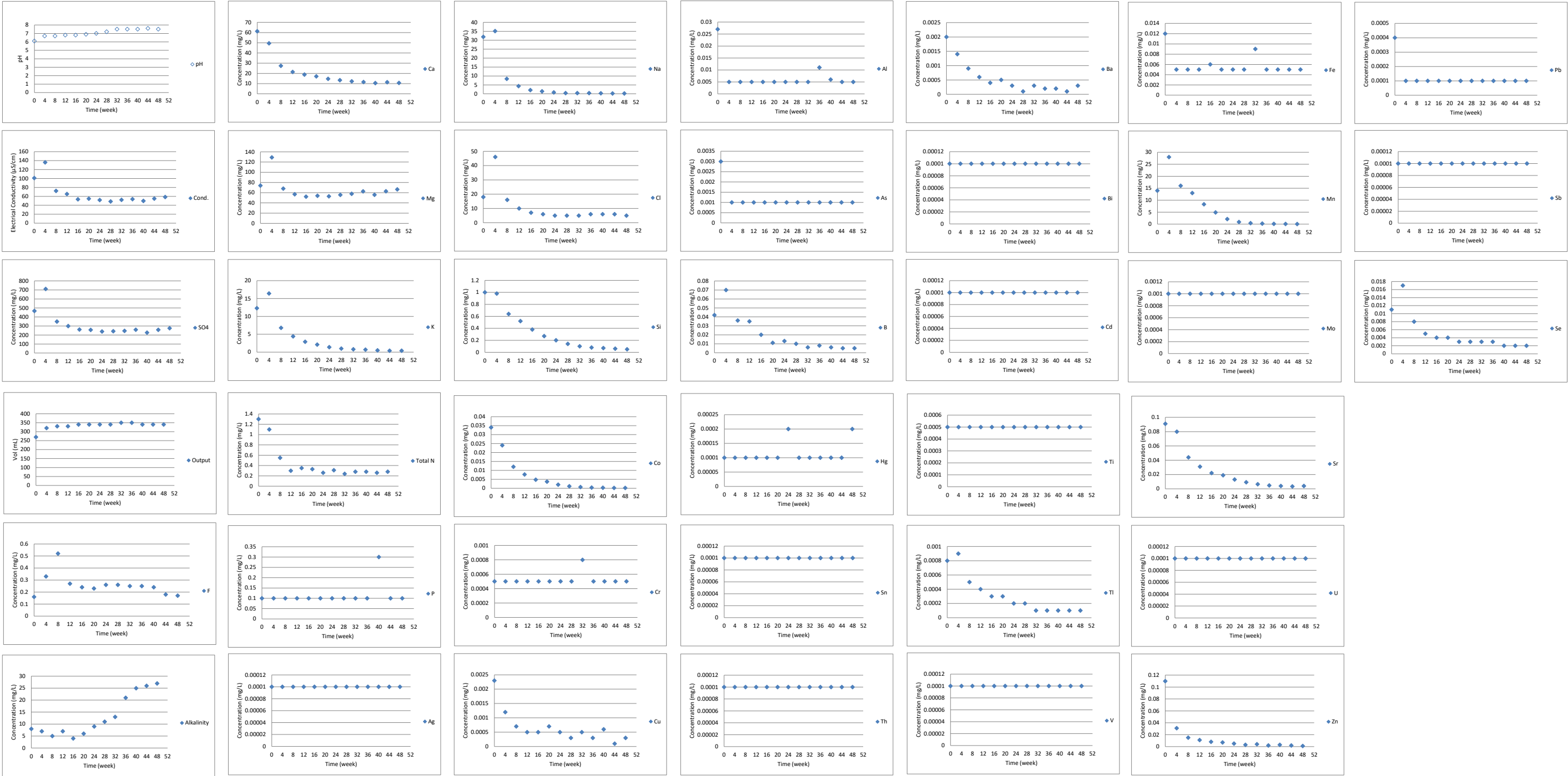
Sample ID: MDRC0964_06-12
Status: Ongoing

Date	Week	Sample Mass	Mass of Fluid (Output)	Fe	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	Ti	U	V	Zn	Hg	Li	Be	La	Y	TDS	
		g	mL	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	
23/10/2023	0	900	210	0.14	1.1	0.009	0.6	0.0042	0.0014	0.003	0.0001	0.5	0.0003	0.0005	0.0002	0.0002	0.0035	0.15	0.0001	0.0029	0.0001	0.002	0.039	940	
20/11/2023	4	900	200	0.025	0.19	0.017	0.13	0.0003	0.0012	0.001	0.0001	0.083	0.0001	0.0005	0.0001	0.0002	0.016	0.017	0.0001	0.0018	0.0001	0.0001	0.0085	240	
18/12/2023	8	900	200	0.033	0.26	0.013	0.062	0.0001	0.0009	0.001	0.0001	0.045	0.0001	0.0006	0.0001	0.0001	0.031	0.021	0.0001	0.0016	0.0001	0.0001	0.003	150	
15/01/2024	12	900	200	0.008	0.091	0.011	0.041	0.0001	0.0009	0.001	0.0001	0.042	0.0001	0.0005	0.0001	0.0001	0.033	0.009	0.0001	0.0005	0.0015	0.0001	0.0001	0.0017	130
12/02/2024	16	900	190	0.021	0.17	0.01	0.027	0.0001	0.0009	0.001	0.0002	0.031	0.0001	0.0005	0.0001	0.0001	0.029	0.01	0.0001	0.0017	0.0001	0.0001	0.001	99	
11/03/2024	20	900	200	0.077	0.33	0.009	0.021	0.0001	0.0008	0.001	0.0001	0.013	0.0001	0.0008	0.0001	0.0001	0.039	0.021	0.0001	0.0024	0.0001	0.0001	0.0006	77	
8/04/2023	24	900	210	0.041	0.15	0.008	0.011	0.0001	0.001	0.001	0.0001	0.0075	0.0001	0.0019	0.0001	0.0001	0.053	0.007	0.0001	0.0019	0.0008	0.0001	0.0001	0.0003	59
6/05/2024	28	900	240	0.14	0.19	0.004	0.009	0.0001	0.0007	0.001	0.0001	0.0065	0.0001	0.0023	0.0001	0.0001	0.046	0.007	0.0001	0.0008	0.0001	0.0001	0.0002	49	
3/06/2024	32	900	240	0.15	0.053	0.004	0.005	0.0001	0.0008	0.001	0.0001	0.0033	0.0001	0.0005	0.0001	0.0001	0.051	0.003	0.0001	0.0005	0.0001	0.0001	0.0002	36	
1/07/2024	36	900	240	0.038	0.044	0.004	0.004	0.0001	0.0008	0.001	0.0001	0.0037	0.0001	0.0005	0.0001	0.0001	0.042	0.014	0.0001	0.001	0.0001	0.0001	0.0001	39	
29/07/2024	40	900	250	0.17	0.21	0.003	0.005	0.0002	0.0009	0.001	0.0001	0.0049	0.0001	0.0014	0.0002	0.0001	0.022	0.028	0.0001	0.0012	0.0001	0.0001	0.0002	35	
26/08/2024	44	900	240	0.049	0.079	0.003	0.004	0.0001	0.0009	0.001	0.0001	0.0043	0.0001	0.0055	0.0001	0.0001	0.034	0.006	0.0001	0.0006	0.0001	0.0001	0.0002	38	
23/09/2024	48	900	250	0.019	0.31	0.002	0.004	0.0001	0.0007	0.001	0.0001	0.0041	0.0001	0.002	0.0001	0.0001	0.043	0.005	0.0001	0.0009	0.0001	0.0001	0.0001	0.0002	38

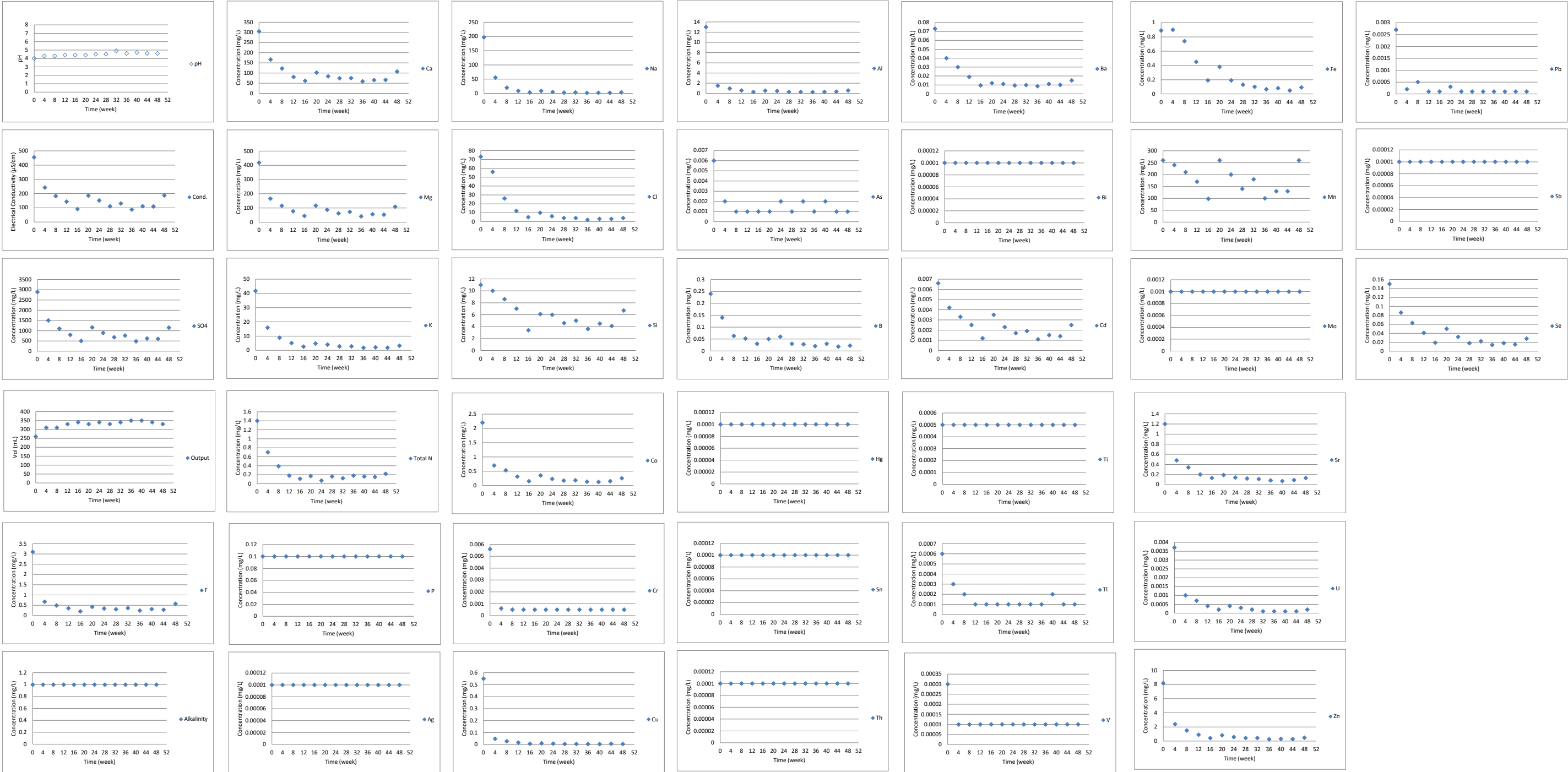
Appendix A.6 - Elemental concentration plots, sample MDRC1486_86-94



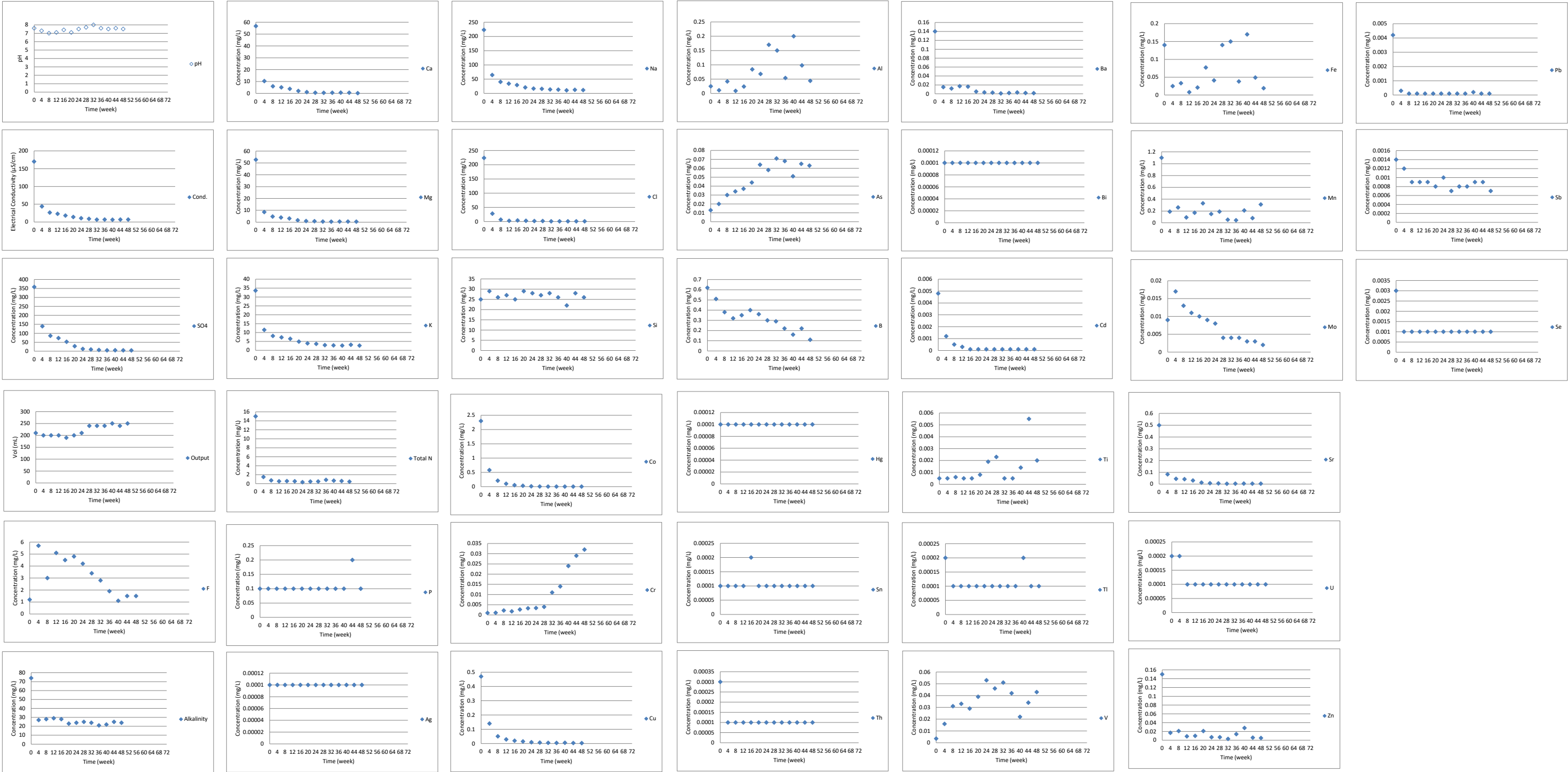
Appendix A.6 - Elemental concentration plots, sample MDRC1348_94-100



Appendix A.6 - Elemental concentration plots, sample MDRC1415_98-104



Appendix A.6 - Elemental concentration plots, sample MDCR0964_06-12



Appendix A.7 Laboratory reports Phases 1 and 2



WORLD RECOGNISED
ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing, Accreditation No. 8

Purchase Order: 9000000133

ChemCentre Reference: 22S4297 R2

Hancock Prospecting
P.O Locked Bag No. 2
West Perth WA 6872

Attention: Colleen Burgers

ChemCentre

Scientific Services Division

Amended Report



Resources and Chemistry Precinct
Cnr Manning Road and Townsing Drive
Bentley
WA 6102

T +61 8 9422 9800

F +61 8 9422 9801

www.chemcentre.wa.gov.au

ABN 40 991 885 705

Report On: 167 samples received on 25/05/2023

<u>LAB ID</u>	<u>Material</u>	<u>Client ID and Description</u>
22S4297 / 001	rock	MDRC0693_06-12
22S4297 / 002	rock	MDRC0717_00-04
22S4297 / 003	rock	MDRC0719_02-06
22S4297 / 004	rock	MDRC0719_06-12
22S4297 / 005	rock	MDRC0740_04-10
22S4297 / 006	rock	MDRC0762_10-16
22S4297 / 007	rock	MDRC0964_06-12
22S4297 / 008	rock	MDRC0971_06-12
22S4297 / 009	rock	MDRC0972_06-14
22S4297 / 010	rock	MDRC0972_34-40
22S4297 / 011	rock	MDRC0973_04-12
22S4297 / 012	rock	MDRC0973_20-24
22S4297 / 013	rock	MDRC0973_34-46
22S4297 / 014	rock	MDRC0974_22-38
22S4297 / 015	rock	MDRC0975_06-12
22S4297 / 016	rock	MDRC0976_08-14
22S4297 / 017	rock	MDRC0976_26-32
22S4297 / 018	rock	MDRC0984_06-12
22S4297 / 019	rock	MDRC0984_30-36
22S4297 / 020	rock	MDRC1338_12-18
22S4297 / 021	rock	MDRC1338_24-30
22S4297 / 022	rock	MDRC1338_40-46
22S4297 / 023	rock	MDRC1338_58-64
22S4297 / 024	rock	MDRC1338_102-108
22S4297 / 025	rock	MDRC1339_32-38
22S4297 / 026	rock	MDRC1339_44-50
22S4297 / 027	rock	MDRC1339_88-112
22S4297 / 028	rock	MDRC1348_56-62
22S4297 / 029	rock	MDRC1348_80-86
22S4297 / 030	rock	MDRC1348_86-92
22S4297 / 031	rock	MDRC1348_94-100
22S4297 / 032	rock	MDRC1350_34-42
22S4297 / 033	rock	MDRC1357_04-10
22S4297 / 034	rock	MDRC1357_26-32
22S4297 / 035	rock	MDRC1357_34-40
22S4297 / 036	rock	MDRC1357_88-94
22S4297 / 037	rock	MDRC1371_42-46
22S4297 / 038	rock	MDRC1371_60-64
22S4297 / 039	rock	MDRC1371_108-116
22S4297 / 040	rock	MDRC1374_10-18
22S4297 / 041	rock	MDRC1374_22-28
22S4297 / 042	rock	MDRC1374_66-72
22S4297 / 043	rock	MDRC1374_94-100
22S4297 / 044	rock	MDRC1382_48-54
22S4297 / 045	rock	MDRC1384_00-06
22S4297 / 046	rock	MDRC1384_06-10
22S4297 / 047	rock	MDRC1384_16-22

<u>LAB ID</u>	<u>Material</u>	<u>Client ID and Description</u>
22S4297 / 048	rock	MDRC1384_50-56
22S4297 / 049	rock	MDRC1384_62-68
22S4297 / 050	rock	MDRC1391_44-50
22S4297 / 051	rock	MDRC1391_58-62
22S4297 / 052	rock	MDRC1391_64-70
22S4297 / 053	rock	MDRC1391_76-82
22S4297 / 054	rock	MDRC1397_58-66
22S4297 / 055	rock	MDRC1397_82-88
22S4297 / 056	rock	MDRC1403_38-44
22S4297 / 057	rock	MDRC1409_06-12
22S4297 / 058	rock	MDRC1409_34-40
22S4297 / 059	rock	MDRC1409_48-52
22S4297 / 060	rock	MDRC1412_10-16
22S4297 / 061	rock	MDRC1412_72-84
22S4297 / 062	rock	MDRC1412_106-112
22S4297 / 063	rock	MDRC1413_26-38
22S4297 / 064	rock	MDRC1414_06-12
22S4297 / 065	rock	MDRC1414_32-38
22S4297 / 066	rock	MDRC1414_62-68
22S4297 / 067	rock	MDRC1415_10-16
22S4297 / 068	rock	MDRC1415_44-50
22S4297 / 069	rock	MDRC1415_92-98
22S4297 / 070	rock	MDRC1415_98-104
22S4297 / 071	rock	MDRC1424_22-26
22S4297 / 072	rock	MDRC1424_48-54
22S4297 / 073	rock	MDRC1438_04-10
22S4297 / 074	rock	MDRC1438_20-26
22S4297 / 075	rock	MDRC1440_28-34
22S4297 / 076	rock	MDRC1440_60-66
22S4297 / 077	rock	MDRC1440_66-72
22S4297 / 078	rock	MDRC1440_72-78
22S4297 / 079	rock	MDRC1440_78-88
22S4297 / 080	rock	MDRC1441_28-34
22S4297 / 081	rock	MDRC1441_100-106
22S4297 / 082	rock	MDRC1459_18-24
22S4297 / 083	rock	MDRC1459_52-58
22S4297 / 084	rock	MDRC1460_06-12
22S4297 / 085	rock	MDRC1460_30-36
22S4297 / 086	rock	MDRC1460_60-64
22S4297 / 087	rock	MDRC1460_64-74
22S4297 / 088	rock	MDRC1460_74-78
22S4297 / 089	rock	MDRC1460_78-84
22S4297 / 090	rock	MDRC1460_84-88
22S4297 / 091	rock	MDRC1460_90-94
22S4297 / 092	rock	MDRC1475_06-12
22S4297 / 093	rock	MDRC1478_38-44
22S4297 / 094	rock	MDRC1486_18-24
22S4297 / 095	rock	MDRC1486_46-52
22S4297 / 096	rock	MDRC1486_80-86
22S4297 / 097	rock	MDRC1486_86-94
22S4297 / 098	rock	MDRC1490_44-52
22S4297 / 099	rock	MDRC1490_84-88
22S4297 / 100	rock	MDRC1490_88-92
22S4297 / 101	rock	MDRC1498_46-52
22S4297 / 102	rock	MDRC1507_70-76
22S4297 / 103	rock	MDRC1513_14-20
22S4297 / 104	rock	MDRC1513_20-24
22S4297 / 105	rock	MDRC1513_52-58
22S4297 / 106	rock	MDRC1513_60-64
22S4297 / 107	rock	MDRC1521_08-14
22S4297 / 108	rock	MDRC1521_14-18
22S4297 / 109	rock	MDRC1521_36-42
22S4297 / 110	rock	MDRC1521_90-96
22S4297 / 111	rock	MDRC1521_96-102
22S4297 / 112	rock	MDRC1523_24-32
22S4297 / 113	rock	MDRC1523_32-36
22S4297 / 114	rock	MDRC1526_70-74
22S4297 / 115	rock	MDRC1526_92-98

<u>LAB ID</u>	<u>Material</u>	<u>Client ID and Description</u>
22S4297 / 116	rock	MDRC1528_32-38
22S4297 / 117	rock	MDRC1528_60-68
22S4297 / 118	rock	MDRC1528_68-74
22S4297 / 119	rock	MDRC1534_06-12
22S4297 / 120	rock	MDRC1534_16-20
22S4297 / 121	rock	MDRC1534_20-30
22S4297 / 122	rock	MDRC1535_40-46
22S4297 / 123	rock	MDRC1535_46-72
22S4297 / 124	rock	MDRC1536_00-04
22S4297 / 125	rock	MDRC1536_04-08
22S4297 / 126	rock	MDRC1536_12-18
22S4297 / 127	rock	MDRC1536_30-36
22S4297 / 128	rock	MDRC1536_36-44
22S4297 / 129	rock	MDRC1536_82-88
22S4297 / 130	rock	MDRC1542_76-82
22S4297 / 131	rock	MDRC1549_28-34
22S4297 / 132	rock	MDRC1549_56-62
22S4297 / 133	rock	MDRC1549_68-74
22S4297 / 134	rock	MDRC1549_74-90
22S4297 / 135	rock	MDRC1549_90-96
22S4297 / 136	rock	MDRC1551_08-14
22S4297 / 137	rock	MDRC1551_16-22
22S4297 / 138	rock	MDRC1551_24-30
22S4297 / 139	rock	MDRC1551_52-62
22S4297 / 140	rock	MDRC1551_82-90
22S4297 / 141	rock	MDRC1552_18-24
22S4297 / 142	rock	MDRC1552_64-70
22S4297 / 143	rock	MDRC1552_82-88
22S4297 / 144	rock	MDRC1554_54-60
22S4297 / 145	rock	MDRC1554_94-100
22S4297 / 146	rock	MDRC1554_106-112
22S4297 / 147	rock	MDRC1569_08-14
22S4297 / 148	rock	MDRC1569_26-32
22S4297 / 149	rock	MDRC1569_32-40
22S4297 / 150	rock	MDRC1569_40-44
22S4297 / 151	rock	MDRC1569_50-56
22S4297 / 152	rock	MDRC1572_02-10
22S4297 / 153	rock	MDRC1572_24-30
22S4297 / 154	rock	MDRC1572_60-66
22S4297 / 155	rock	MDRC1573_06-12
22S4297 / 156	rock	MDRC1573_34-40
22S4297 / 157	rock	MDRC1576_00-06
22S4297 / 158	rock	MDRC1573_58-62
22S4297 / 159	rock	MDRC1576_62-68
22S4297 / 160	rock	MDRC1576_76-80
22S4297 / 161	rock	MDRC1576_80-94
22S4297 / 162	rock	MDRC1599_02-08
22S4297 / 163	rock	MDRC1599_28-34
22S4297 / 164	rock	MDRC1599_52-58
22S4297 / 165	rock	MDRC1599_72-78
22S4297 / 166	rock	MDRC1599_90-96
22S4297 / 167	rock	MDRC1599_96-100

LAB ID	001			002	003	004
Client ID	MDRC0693_06-12			MDRC0717_00-04	MDRC0719_02-06	MDRC0719_06-12
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	140	7	25	19
pH, 1:2 soil:water*	ARD		7.3	6.0	6.2	6.3
Acid Neutralising Capacity	ARD	kg H2SO4	2.6	3.0	1.6	1.0
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5

LAB ID			001	002	003	004
Client ID			MDRC0693_06-1	MDRC0717_00-	MDRC0719_02-	MDRC0719_06-
			2	04	06	12
Sampled						
Analyte	Method	Unit				
NAG pH*	ARD		7.0	6.0	6.2	5.8
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.05	0.02	0.02	0.02
Carbon	(combs)	%	0.07	0.22	0.14	0.09
Sulfur*	(combs)	%	0.06	0.06	0.06	0.05
Nitrogen	(total)	%	<0.005		<0.005	
Aluminium	iMET2SAICP	mg/kg	7060		22100	
Antimony	iMET2SAMS	mg/kg	<0.10		0.45	
Arsenic	iMET2SAMS	mg/kg	6.0		18	
Barium	iMET2SAICP	mg/kg	97		38	
Beryllium	iMET2SAICP	mg/kg	1.5		0.72	
Bismuth*	iMET2SAMS	mg/kg	0.17		0.32	
Cadmium	iMET2SAMS	mg/kg	<0.10		<0.10	
Calcium	iMET2SAICP	mg/kg	810		160	
Chromium	iMET2SAICP	mg/kg	34		83	
Cobalt	iMET2SAMS	mg/kg	29		5.2	
Copper	iMET2SAMS	mg/kg	7.4		17	
Iron	iMET2SAICP	mg/kg	180000		320000	
Lanthanum*	iMET2SAICP	mg/kg	5.8		1.2	
Lead	iMET2SAMS	mg/kg	2.2		15	
Lithium	iMET2SAICP	mg/kg	<2.0		<2.0	
Magnesium	iMET2SAICP	mg/kg	1300		150	
Manganese	iMET2SAICP	mg/kg	2800		1200	
Mercury	iMET2SAMS	mg/kg	<0.04		0.07	
Molybdenum	iMET2SAMS	mg/kg	0.53		0.89	
Nickel	iMET2SAICP	mg/kg	35		<10	
Phosphorus	iMET2SAICP	mg/kg	60		150	
Potassium	iMET2SAICP	mg/kg	280		65	
Selenium	iMET2SAMS	mg/kg	0.13		0.47	
Silver	iMET2SAMS	mg/kg	<0.10		<0.10	
Sodium	iMET2SAICP	mg/kg	540		120	
Strontium	iMET2SAICP	mg/kg	15		3.5	
Sulfur	iMET2SAICP	mg/kg	460		370	
Thallium	iMET2SAMS	mg/kg	0.15		<0.10	
Thorium	iMET2SAMS	mg/kg	1.2		5.8	
Tin	iMET2SAMS	mg/kg	<1.0		1.6	
Titanium	iMET2SAICP	mg/kg	110		1100	
Uranium	iMET2SAMS	mg/kg	0.57		2.4	
Vanadium	iMET2SAICP	mg/kg	23		93	
Yttrium*	iMET2SAMS	mg/kg	8.0		1.8	
Zinc	iMET2SAICP	mg/kg	78		<50	
pH	iPH1WASE		6.9	6.6	6.6	6.5
Electrical Conductivity	iEC1WZSE	mS/m	63.9	3.3	11.8	9.2
Alkalinity as CaCO3	iALK1WATI	mg/L	10	3	4	3
TDS (calculated)	iSOL1WDCA	mg/L	350	18	65	51
Aluminium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	0.010	0.010	0.076	0.11

LAB ID Client ID			001 MDRC0693_06-1 2	002 MDRC0717_00- 04	003 MDRC0719_02- 06	004 MDRC0719_06- 12
Sampled						
Analyte	Method	Unit				
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.12	<0.02	0.02	0.03
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	24.5	1.1	2.6	2.3
Chloride	iCO1WCDA	mg/L	57	6	19	12
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	0.003	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	0.008
Copper	iMET1WCMS	mg/L	0.0002	<0.0001	<0.0001	<0.0001
Fluoride	iF1WASE	mg/L	0.51	<0.05	<0.05	<0.05
Iron	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	0.006	<0.005	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	19.9	0.7	1.9	1.2
Manganese	iMET1WCICP	mg/L	0.004	0.017	0.021	0.015
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	1.2	0.42	0.54	0.31
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	6.1	1.0	3.1	3.3
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	6.7	2.3	4.8	5.1
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	59.0	2.9	13.8	10.1
Strontium	iMET1WCICP	mg/L	0.22	0.011	0.029	0.030
Sulphate (from S)	iMET1WCICP	mg/L	177	0.7	15.0	15.8
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	0.006	<0.005	<0.005	<0.005
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)		2/6/2023		2/6/2023	
	ARD		1/6/2023	1/6/2023	1/6/2023	1/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		2/6/2023	2/6/2023	2/6/2023	2/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCICP		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCMS		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET2SAICP		28/8/2023		28/8/2023	
	iMET2SAMS		28/8/2023		28/8/2023	
	iNP1WTFIA		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient
22S4297						

LAB ID			005	006	007	008
Client ID			MDRC0740_04-1	MDRC0762_10-	MDRC0964_06-	MDRC0971_06-
			0	16	12	12
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	35	77	33	12
pH, 1:2 soil:water*	ARD		8.6	6.8	8.1	7.6
Acid Neutralising Capacity	ARD	kg H2SO4	12	1.0	3.6	2.9
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		9.3	6.4	7.3	6.4
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	0.02	0.02	0.02
Carbon	(combs)	%	0.12	<0.05	0.05	<0.05
Sulfur*	(combs)	%	0.02	0.03	0.18	0.14
Nitrogen	(total)	%	<0.005	<0.005		0.006
Aluminium	iMET2SAICP	mg/kg	2110	3600		9550
Antimony	iMET2SAMS	mg/kg	0.46	0.91		0.52
Arsenic	iMET2SAMS	mg/kg	4.8	7.2		26
Barium	iMET2SAICP	mg/kg	51	24		90
Beryllium	iMET2SAICP	mg/kg	<0.50	0.62		0.71
Bismuth*	iMET2SAMS	mg/kg	<0.10	0.22		0.36
Cadmium	iMET2SAMS	mg/kg	<0.10	<0.10		0.12
Calcium	iMET2SAICP	mg/kg	3700	240		730
Chromium	iMET2SAICP	mg/kg	15	32		110
Cobalt	iMET2SAMS	mg/kg	5.8	7.2		12
Copper	iMET2SAMS	mg/kg	4.0	3.8		51
Iron	iMET2SAICP	mg/kg	220000	210000		97000
Lanthanum*	iMET2SAICP	mg/kg	1.2	2.4		6.9
Lead	iMET2SAMS	mg/kg	2.4	5.8		11
Lithium	iMET2SAICP	mg/kg	<2.0	<2.0		2.8
Magnesium	iMET2SAICP	mg/kg	230	220		1500
Manganese	iMET2SAICP	mg/kg	2000	400		250
Mercury	iMET2SAMS	mg/kg	<0.04	<0.04		<0.04
Molybdenum	iMET2SAMS	mg/kg	0.51	0.28		1.2
Nickel	iMET2SAICP	mg/kg	<10	<10		40
Phosphorus	iMET2SAICP	mg/kg	130	66		160
Potassium	iMET2SAICP	mg/kg	180	110		1600
Selenium	iMET2SAMS	mg/kg	<0.10	0.29		0.78
Silver	iMET2SAMS	mg/kg	<0.10	<0.10		<0.10
Sodium	iMET2SAICP	mg/kg	170	290		<100
Strontium	iMET2SAICP	mg/kg	12	5.1		20
Sulfur	iMET2SAICP	mg/kg	72	230		240
Thallium	iMET2SAMS	mg/kg	<0.10	<0.10		0.33
Thorium	iMET2SAMS	mg/kg	<1.0	1.5		4.4
Tin	iMET2SAMS	mg/kg	<1.0	<1.0		<1.0
Titanium	iMET2SAICP	mg/kg	140	360		140
Uranium	iMET2SAMS	mg/kg	1.2	5.8		0.66
Vanadium	iMET2SAICP	mg/kg	12	55		84
Yttrium*	iMET2SAMS	mg/kg	2.1	3.5		6.7
Zinc	iMET2SAICP	mg/kg	<50	<50		64
pH	iPH1WASE		7.7	6.7	7.4	7.0
Electrical Conductivity	IEC1WZSE	mS/m	16.2	35.7	15.0	5.7

LAB ID Client ID			005 MDRC0740_04-1 0	006 MDRC0762_10- 16	007 MDRC0964_06- 12	008 MDRC0971_06- 12
Sampled						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	35	4	25	8
TDS (calculated)	iSOL1WDCA	mg/L	89	200	83	31
Aluminium	iMET1WCICP	mg/L	<0.005	<0.005	0.22	0.025
Antimony	iMET1WCMS	mg/L	0.0001	<0.0001	0.0003	0.0002
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	0.004	<0.001
Barium	iMET1WCICP	mg/L	0.010	0.024	0.004	0.010
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.07	0.10	0.10	0.05
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0003	<0.0001
Calcium	iMET1WCICP	mg/L	10.2	8.7	1.6	1.8
Chloride	iCO1WCDA	mg/L	21	43	11	5
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	0.11	<0.005
Copper	iMET1WCMS	mg/L	0.0001	<0.0001	0.016	0.0006
Fluoride	iF1WASE	mg/L	0.34	0.21	0.88	0.55
Iron	iMET1WCICP	mg/L	<0.005	<0.005	0.22	0.029
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	0.009	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	2.2	7.2	1.3	1.2
Manganese	iMET1WCICP	mg/L	<0.001	<0.001	0.021	0.003
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	0.02	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.31	0.49	1.5	1.3
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	4.6	5.4	6.5	5.0
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	6.7	6.7	13	9.2
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	14.5	39.5	22.9	3.3
Strontium	iMET1WCICP	mg/L	0.074	0.097	0.012	0.014
Sulphate (from S)	iMET1WCICP	mg/L	12.8	77.7	22.2	4.8
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	0.0056	0.0031
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	0.0026	<0.0002
Zinc	iMET1WCICP	mg/L	<0.005	<0.005	0.043	0.023
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)		2/6/2023	2/6/2023		2/6/2023
	ARD		1/6/2023	1/6/2023	1/6/2023	1/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		2/6/2023	2/6/2023	2/6/2023	2/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCICP		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCMS		7/6/2023	7/6/2023	7/6/2023	7/6/2023

LAB ID		005	006	008
Client ID				
Sampled				
Analyte	Method	Unit		
Date Analysed	iMET2SAICP	28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS	28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA	7/6/2023	7/6/2023	7/6/2023
	iPH1WASE	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)	7/6/2023	7/6/2023	7/6/2023
Sample Condition		Ambient	Ambient	Ambient

LAB ID			009	010	011	012
Client ID			MDRC0972_06-1 4	MDRC0972_34- 40	MDRC0973_04- 12	MDRC0973_20- 24
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	15	6	39	10
pH, 1:2 soil:water*	ARD		7.2	6.9	8.3	7.4
Acid Neutralising Capacity	ARD	kg H2SO4	2.9	0.9	4.9	2.6
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		6.3	5.9	7.1	6.3
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.02	<0.01	0.02	<0.01
Carbon	(combs)	%	<0.05	0.07	<0.05	0.14
Sulfur*	(combs)	%	0.13	0.02	0.13	0.06
Nitrogen	(total)	%		<0.005	0.006	<0.005
Aluminium	iMET2SAICP	mg/kg		2510	8830	19300
Antimony	iMET2SAMS	mg/kg		0.41	0.57	0.25
Arsenic	iMET2SAMS	mg/kg		14	23	7.6
Barium	iMET2SAICP	mg/kg		5.6	100	22
Beryllium	iMET2SAICP	mg/kg		0.55	0.69	0.65
Bismuth*	iMET2SAMS	mg/kg		<0.10	0.34	0.17
Cadmium	iMET2SAMS	mg/kg		<0.10	0.10	<0.10
Calcium	iMET2SAICP	mg/kg		100	1000	400
Chromium	iMET2SAICP	mg/kg		17	100	55
Cobalt	iMET2SAMS	mg/kg		5.7	13	9.3
Copper	iMET2SAMS	mg/kg		3.5	50	17
Iron	iMET2SAICP	mg/kg		210000	99000	250000
Lanthanum*	iMET2SAICP	mg/kg		1.8	5.9	1.4
Lead	iMET2SAMS	mg/kg		2.3	11	9.8
Lithium	iMET2SAICP	mg/kg		<2.0	2.7	<2.0
Magnesium	iMET2SAICP	mg/kg		160	1500	350
Manganese	iMET2SAICP	mg/kg		310	250	340
Mercury	iMET2SAMS	mg/kg		<0.04	<0.04	<0.04
Molybdenum	iMET2SAMS	mg/kg		1.8	1.1	1.1
Nickel	iMET2SAICP	mg/kg		11	38	15
Phosphorus	iMET2SAICP	mg/kg		330	140	99
Potassium	iMET2SAICP	mg/kg		58	1600	210
Selenium	iMET2SAMS	mg/kg		0.11	0.73	0.32
Silver	iMET2SAMS	mg/kg		<0.10	<0.10	<0.10
Sodium	iMET2SAICP	mg/kg		<100	280	130

LAB ID	009			010		011		012	
Client ID	MDRC0972_06-1			MDRC0972_34-		MDRC0973_04-		MDRC0973_20-	
	4			40		12		24	
Sampled									
Analyte	Method	Unit							
Strontium	iMET2SAICP	mg/kg		<2.0	19	6.3			
Sulfur	iMET2SAICP	mg/kg		<50	220	160			
Thallium	iMET2SAMS	mg/kg		<0.10	0.28	<0.10			
Thorium	iMET2SAMS	mg/kg		<1.0	4.4	4.2			
Tin	iMET2SAMS	mg/kg		<1.0	<1.0	1.2			
Titanium	iMET2SAICP	mg/kg		64	130	850			
Uranium	iMET2SAMS	mg/kg		0.87	0.66	1.3			
Vanadium	iMET2SAICP	mg/kg		6.9	79	52			
Yttrium*	iMET2SAMS	mg/kg		5.0	5.2	2.6			
Zinc	iMET2SAICP	mg/kg		<50	63	<50			
pH	iPH1WASE		6.8	6.5	7.7	6.9			
Electrical Conductivity	iEC1WZSE	mS/m	6.3	2.9	20.7	4.4			
Alkalinity as CaCO3	iALK1WATI	mg/L	6	4	42	8			
TDS (calculated)	iSOL1WDCA	mg/L	35	16	110	24			
Aluminium	iMET1WCICP	mg/L	0.025	0.015	0.012	0.54			
Antimony	iMET1WCMS	mg/L	0.0002	<0.0001	0.0002	<0.0001			
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	0.002	<0.001			
Barium	iMET1WCICP	mg/L	0.007	0.009	0.013	<0.002			
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001			
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Boron	iMET1WCICP	mg/L	0.04	<0.02	0.08	0.03			
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Calcium	iMET1WCICP	mg/L	1.4	0.9	5.3	0.2			
Chloride	iCO1WCDA	mg/L	6	<1	13	3			
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001			
Cobalt	iMET1WCICP	mg/L	<0.005	0.014	<0.005	<0.005			
Copper	iMET1WCMS	mg/L	0.0010	0.0014	0.0014	0.0011			
Fluoride	iF1WASE	mg/L	0.36	0.09	0.81	0.26			
Iron	iMET1WCICP	mg/L	0.020	0.023	0.007	0.23			
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005			
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Lithium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005			
Magnesium	iMET1WCICP	mg/L	1.0	0.6	3.4	0.1			
Manganese	iMET1WCICP	mg/L	0.005	0.005	<0.001	0.001			
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02			
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	<0.01	<0.01			
Nitrogen, total	iNP1WTFIA	mg/L	0.80	0.35	1.5	0.58			
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1			
Potassium	iMET1WCICP	mg/L	5.2	1.5	7.9	1.5			
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001			
Silicon	iMET1WCICP	mg/L	7.8	2.3	9.7	6.7			
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Sodium	iMET1WCICP	mg/L	5.2	2.9	24.5	7.8			
Strontium	iMET1WCICP	mg/L	0.009	0.005	0.039	<0.002			
Sulphate (from S)	iMET1WCICP	mg/L	8.6	5.6	28.3	5.2			
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			

LAB ID			009	010	011	012
Client ID			MDRC0972_06-1 4	MDRC0972_34- 40	MDRC0973_04- 12	MDRC0973_20- 24
Sampled						
Analyte	Method	Unit				
Titanium	iMET1WCMS	mg/L	0.0059	<0.0005	0.0005	0.0027
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	0.019	<0.005	<0.005	<0.005
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)			2/6/2023	2/6/2023	2/6/2023
	ARD		1/6/2023	1/6/2023	1/6/2023	1/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		2/6/2023	2/6/2023	2/6/2023	2/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCICP		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCMS		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET2SAICP			28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS			28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			013	014	015	016
Client ID			MDRC0973_34-4 6	MDRC0974_22- 38	MDRC0975_06- 12	MDRC0976_08- 14
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	14	13	66	31
pH, 1:2 soil:water*	ARD		7.1	7.1	7.8	7.6
Acid Neutralising Capacity	ARD	kg H2SO4	1.3	1.6	3.4	3.8
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		6.1	6.0	6.6	6.7
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	<0.01	0.02	0.02
Carbon	(combs)	%	0.14	0.20	<0.05	<0.05
Sulfur*	(combs)	%	0.03	0.02	0.06	0.10
Nitrogen	(total)	%		0.006		0.009
Aluminium	iMET2SAICP	mg/kg		12100		10900
Antimony	iMET2SAMS	mg/kg		0.52		0.67
Arsenic	iMET2SAMS	mg/kg		12		27
Barium	iMET2SAICP	mg/kg		17		68
Beryllium	iMET2SAICP	mg/kg		<0.50		0.66
Bismuth*	iMET2SAMS	mg/kg		0.18		0.42
Cadmium	iMET2SAMS	mg/kg		<0.10		<0.10
Calcium	iMET2SAICP	mg/kg		230		640
Chromium	iMET2SAICP	mg/kg		54		110
Cobalt	iMET2SAMS	mg/kg		5.2		12
Copper	iMET2SAMS	mg/kg		14		60
Iron	iMET2SAICP	mg/kg		320000		97000
Lanthanum*	iMET2SAICP	mg/kg		2.3		7.5

LAB ID	013			014			015			016		
Client ID	MDRC0973_34-4			MDRC0974_22-			MDRC0975_06-			MDRC0976_08-		
	6			38			12			14		
Sampled												
Analyte	Method	Unit										
Lead	iMET2SAMS	mg/kg				7.6			13			
Lithium	iMET2SAICP	mg/kg				<2.0			3.1			
Magnesium	iMET2SAICP	mg/kg				260			1400			
Manganese	iMET2SAICP	mg/kg				300			280			
Mercury	iMET2SAMS	mg/kg				0.04			<0.04			
Molybdenum	iMET2SAMS	mg/kg				0.90			1.6			
Nickel	iMET2SAICP	mg/kg				13			39			
Phosphorus	iMET2SAICP	mg/kg				170			170			
Potassium	iMET2SAICP	mg/kg				200			1500			
Selenium	iMET2SAMS	mg/kg				0.42			0.99			
Silver	iMET2SAMS	mg/kg				<0.10			<0.10			
Sodium	iMET2SAICP	mg/kg				<100			280			
Strontium	iMET2SAICP	mg/kg				3.1			19			
Sulfur	iMET2SAICP	mg/kg				130			260			
Thallium	iMET2SAMS	mg/kg				<0.10			0.32			
Thorium	iMET2SAMS	mg/kg				3.1			5.9			
Tin	iMET2SAMS	mg/kg				<1.0			1.2			
Titanium	iMET2SAICP	mg/kg				590			180			
Uranium	iMET2SAMS	mg/kg				1.2			0.75			
Vanadium	iMET2SAICP	mg/kg				57			94			
Yttrium*	iMET2SAMS	mg/kg				3.2			5.7			
Zinc	iMET2SAICP	mg/kg				<50			66			
pH	iPH1WASE		6.8				6.7	7.3			7.0	
Electrical Conductivity	iEC1WZSE	mS/m	6.3				6.1	27.7			14.6	
Alkalinity as CaCO3	iALK1WATI	mg/L	5				6	14			8	
TDS (calculated)	iSOL1WDCA	mg/L	34				33	150			80	
Aluminium	iMET1WCICP	mg/L	0.027				0.034	0.018			0.11	
Antimony	iMET1WCMS	mg/L	0.0001				0.0001	0.0002			0.0002	
Arsenic	iMET1WCMS	mg/L	<0.001				<0.001	<0.001			<0.001	
Barium	iMET1WCICP	mg/L	0.002				<0.002	0.004			0.002	
Beryllium	iMET1WCICP	mg/L	<0.001				<0.001	<0.001			<0.001	
Bismuth*	iMET1WCMS	mg/L	<0.0001				<0.0001	<0.0001			<0.0001	
Boron	iMET1WCICP	mg/L	0.03				0.03	0.16			0.08	
Cadmium	iMET1WCMS	mg/L	<0.0001				<0.0001	<0.0001			<0.0001	
Calcium	iMET1WCICP	mg/L	1.0				0.8	2.1			1.0	
Chloride	iCO1WCDA	mg/L	3				4	35			11	
Chromium	iMET1WCICP	mg/L	<0.001				<0.001	<0.001			<0.001	
Cobalt	iMET1WCICP	mg/L	0.066				0.007	<0.005			<0.005	
Copper	iMET1WCMS	mg/L	0.0056				0.0015	0.0010			0.0016	
Fluoride	iF1WASE	mg/L	0.25				0.26	0.99			0.74	
Iron	iMET1WCICP	mg/L	0.11				0.023	0.008			0.090	
Lanthanum	iMET1WCICP	mg/L	<0.005				<0.005	<0.005			<0.005	
Lead	iMET1WCMS	mg/L	0.0002				<0.0001	<0.0001			<0.0001	
Lithium	iMET1WCICP	mg/L	<0.005				<0.005	<0.005			<0.005	
Magnesium	iMET1WCICP	mg/L	0.6				0.6	2.2			0.8	
Manganese	iMET1WCICP	mg/L	0.023				0.003	<0.001			0.003	
Mercury	iMET1WCMS	mg/L	<0.0001				<0.0001	<0.0001			<0.0001	
Molybdenum	iMET1WCICP	mg/L	<0.02				<0.02	<0.02			<0.02	
Nickel	iMET1WCICP	mg/L	0.01				<0.01	<0.01			<0.01	

LAB ID			013	014	015	016
Client ID			MDRC0973_34-4	MDRC0974_22-	MDRC0975_06-	MDRC0976_08-
			6	38	12	14
Sampled						
Analyte	Method	Unit				
Nitrogen, total	iNP1WTFIA	mg/L	0.76	0.60	3.3	1.4
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	2.5	2.8	6.7	4.8
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	4.1	4.8	9.1	8.7
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	9.4	8.5	40.3	21.6
Strontium	iMET1WCICP	mg/L	0.007	0.005	0.016	0.007
Sulphate (from S)	iMET1WCICP	mg/L	17.2	10.0	37.1	29.9
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0020	0.0012	0.0012	0.0033
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	0.0004
Zinc	iMET1WCICP	mg/L	0.012	<0.005	0.019	<0.005
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)			2/6/2023		2/6/2023
	ARD		1/6/2023	1/6/2023	1/6/2023	1/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		2/6/2023	2/6/2023	2/6/2023	2/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCICP		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCMS		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET2SAICP			28/8/2023		28/8/2023
	iMET2SAMS			28/8/2023		28/8/2023
	iNP1WTFIA		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			017	018	019	020
Client ID			MDRC0976_26-3	MDRC0984_06-	MDRC0984_30-	MDRC1338_12-
			2	12	36	18
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	8	73	41	21
pH, 1:2 soil:water*	ARD		7.1	8.3	7.2	7.7
Acid Neutralising Capacity	ARD	kg H2SO4	1.6	5.3	2.1	2.8
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		5.8	7.4	6.0	6.7
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	0.02	<0.01	0.01
Carbon	(combs)	%	0.09	<0.05	0.17	0.08
Sulfur*	(combs)	%	0.03	0.10	0.03	0.06
Nitrogen	(total)	%		0.006	0.005	<0.005
Aluminium	iMET2SAICP	mg/kg		16400	22500	9210

LAB ID	017			018			019			020				
Client ID	MDRC0976_26-3			MDRC0984_06-			MDRC0984_30-			MDRC1338_12-				
	2			12			36			18				
Sampled														
Analyte	Method	Unit												
Antimony	iMET2SAMS	mg/kg				0.55			0.31			1.0		
Arsenic	iMET2SAMS	mg/kg				24			13			34		
Barium	iMET2SAICP	mg/kg				130			16			81		
Beryllium	iMET2SAICP	mg/kg				0.80			0.66			0.68		
Bismuth*	iMET2SAMS	mg/kg				0.38			0.20			0.36		
Cadmium	iMET2SAMS	mg/kg				0.15			<0.10			0.10		
Calcium	iMET2SAICP	mg/kg				1200			320			500		
Chromium	iMET2SAICP	mg/kg				110			45			120		
Cobalt	iMET2SAMS	mg/kg				14			3.3			14		
Copper	iMET2SAMS	mg/kg				54			18			48		
Iron	iMET2SAICP	mg/kg				90000			390000			130000		
Lanthanum*	iMET2SAICP	mg/kg				12			1.8			5.7		
Lead	iMET2SAMS	mg/kg				14			11			13		
Lithium	iMET2SAICP	mg/kg				6.7			<2.0			2.4		
Magnesium	iMET2SAICP	mg/kg				2000			310			850		
Manganese	iMET2SAICP	mg/kg				490			100			650		
Mercury	iMET2SAMS	mg/kg				<0.04			0.05			<0.04		
Molybdenum	iMET2SAMS	mg/kg				1.2			0.82			1.5		
Nickel	iMET2SAICP	mg/kg				41			<10			33		
Phosphorus	iMET2SAICP	mg/kg				160			210			170		
Potassium	iMET2SAICP	mg/kg				2100			210			1100		
Selenium	iMET2SAMS	mg/kg				0.77			0.96			1.1		
Silver	iMET2SAMS	mg/kg				<0.10			<0.10			0.12		
Sodium	iMET2SAICP	mg/kg				460			180			150		
Strontium	iMET2SAICP	mg/kg				26			4.3			13		
Sulfur	iMET2SAICP	mg/kg				310			210			230		
Thallium	iMET2SAMS	mg/kg				0.37			<0.10			0.31		
Thorium	iMET2SAMS	mg/kg				5.0			3.0			4.8		
Tin	iMET2SAMS	mg/kg				1.0			<1.0			<1.0		
Titanium	iMET2SAICP	mg/kg				190			440			250		
Uranium	iMET2SAMS	mg/kg				0.74			1.1			0.96		
Vanadium	iMET2SAICP	mg/kg				89			53			100		
Yttrium*	iMET2SAMS	mg/kg				5.8			2.6			5.1		
Zinc	iMET2SAICP	mg/kg				69			65			70		
pH	iPH1WASE		6.6				7.7				6.6			
Electrical Conductivity	iEC1WZSE	mS/m	3.7				34.1				17.5			
Alkalinity as CaCO3	iALK1WATI	mg/L	5				44				5			
TDS (calculated)	iSOL1WDCA	mg/L	20				190				96			
Aluminium	iMET1WCICP	mg/L	0.072				<0.005				<0.005			
Antimony	iMET1WCMS	mg/L	<0.0001				0.0002				<0.0001			
Arsenic	iMET1WCMS	mg/L	<0.001				0.002				<0.001			
Barium	iMET1WCICP	mg/L	<0.002				0.014				0.005			
Beryllium	iMET1WCICP	mg/L	<0.001				<0.001				<0.001			
Bismuth*	iMET1WCMS	mg/L	<0.0001				<0.0001				<0.0001			
Boron	iMET1WCICP	mg/L	<0.02				0.24				0.03			
Cadmium	iMET1WCMS	mg/L	<0.0001				<0.0001				<0.0001			
Calcium	iMET1WCICP	mg/L	0.7				8.0				4.6			
Chloride	iCO1WCDA	mg/L	2				32				24			
Chromium	iMET1WCICP	mg/L	<0.001				<0.001				<0.001			

LAB ID			017	018	019	020
Client ID			MDRC0976_26-3 2	MDRC0984_06- 12	MDRC0984_30- 36	MDRC1338_12- 18
Sampled						
Analyte	Method	Unit				
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Copper	iMET1WCMS	mg/L	0.0005	0.0012	0.0004	0.0010
Fluoride	iF1WASE	mg/L	0.19	0.80	0.47	0.64
Iron	iMET1WCICP	mg/L	0.031	<0.005	<0.005	0.017
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	0.4	4.8	3.1	1.0
Manganese	iMET1WCICP	mg/L	<0.001	<0.001	0.001	0.002
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.38	2.7	0.82	0.71
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	2.5	9.1	3.2	5.5
Selenium	iMET1WCMS	mg/L	<0.001	0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	4.2	8.2	4.9	7.0
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	4.0	43.6	19.1	12.1
Strontium	iMET1WCICP	mg/L	0.004	0.060	0.034	0.009
Sulphate (from S)	iMET1WCICP	mg/L	4.7	51.4	23.7	11.5
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0007	<0.0005	<0.0005	0.0018
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	0.0005
Zinc	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)			2/6/2023	2/6/2023	2/6/2023
	ARD		1/6/2023	1/6/2023	1/6/2023	1/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		2/6/2023	2/6/2023	2/6/2023	2/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCICP		7/6/2023	7/6/2023	7/6/2023	28/6/2023
	iMET1WCMS		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET2SAICP			28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS			28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		7/6/2023	7/6/2023	7/6/2023	8/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			021	022	023	024
Client ID			MDRC1338_24-3 0	MDRC1338_40- 46	MDRC1338_58- 64	MDRC1338_102 -108
Sampled						
Analyte	Method	Unit				

LAB ID			021	022	023	024
Client ID			MDRC1338_24-30	MDRC1338_40-46	MDRC1338_58-64	MDRC1338_102-108
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	54	61	36	63
pH, 1:2 soil:water*	ARD		7.0	7.2	7.5	7.9
Acid Neutralising Capacity	ARD	kg H2SO4	2.5	3.0	5.7	20
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	3.1
NAG pH*	ARD		5.4	5.7	7.1	4.2
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.02	0.04	<0.01	0.03
Carbon	(combs)	%	0.34	0.38	0.10	3.06
Sulfur*	(combs)	%	0.06	0.07	0.03	0.38
Nitrogen	(total)	%	0.013		<0.005	0.014
Aluminium	iMET2SAICP	mg/kg	12600		23900	31800
Antimony	iMET2SAMS	mg/kg	0.79		<0.10	0.21
Arsenic	iMET2SAMS	mg/kg	27		14	8.6
Barium	iMET2SAICP	mg/kg	93		59	2.9
Beryllium	iMET2SAICP	mg/kg	0.53		1.7	1.8
Bismuth*	iMET2SAMS	mg/kg	0.50		0.19	0.52
Cadmium	iMET2SAMS	mg/kg	<0.10		<0.10	<0.10
Calcium	iMET2SAICP	mg/kg	610		1900	3800
Chromium	iMET2SAICP	mg/kg	130		76	120
Cobalt	iMET2SAMS	mg/kg	8.5		16	25
Copper	iMET2SAMS	mg/kg	65		5.9	16
Iron	iMET2SAICP	mg/kg	94000		180000	86000
Lanthanum*	iMET2SAICP	mg/kg	7.2		18	2.7
Lead	iMET2SAMS	mg/kg	16		11	4.3
Lithium	iMET2SAICP	mg/kg	4.3		28	35
Magnesium	iMET2SAICP	mg/kg	940		4700	53000
Manganese	iMET2SAICP	mg/kg	680		1700	4000
Mercury	iMET2SAMS	mg/kg	<0.04		0.24	0.11
Molybdenum	iMET2SAMS	mg/kg	1.5		0.64	1.1
Nickel	iMET2SAICP	mg/kg	23		51	79
Phosphorus	iMET2SAICP	mg/kg	160		51	860
Potassium	iMET2SAICP	mg/kg	1000		460	290
Selenium	iMET2SAMS	mg/kg	0.81		0.25	0.96
Silver	iMET2SAMS	mg/kg	<0.10		<0.10	<0.10
Sodium	iMET2SAICP	mg/kg	360		390	250
Strontium	iMET2SAICP	mg/kg	11		15	7.6
Sulfur	iMET2SAICP	mg/kg	220		110	4300
Thallium	iMET2SAMS	mg/kg	0.41		<0.10	<0.10
Thorium	iMET2SAMS	mg/kg	8.7		5.2	2.1
Tin	iMET2SAMS	mg/kg	2.2		1.0	<1.0
Titanium	iMET2SAICP	mg/kg	330		200	73
Uranium	iMET2SAMS	mg/kg	1.2		1.6	0.71
Vanadium	iMET2SAICP	mg/kg	160		63	68
Yttrium*	iMET2SAMS	mg/kg	6.1		18	5.1
Zinc	iMET2SAICP	mg/kg	<50		98	220
pH	iPH1WASE		6.8	6.9	7.0	7.3
Electrical Conductivity	iEC1WZSE	mS/m	25.5	28.6	15.4	31.5
Alkalinity as CaCO3	iALK1WATI	mg/L	9	11	7	13

LAB ID			021	022	023	024
Client ID			MDRC1338_24-30	MDRC1338_40-46	MDRC1338_58-64	MDRC1338_102-108
Sampled						
Analyte	Method	Unit				
TDS (calculated)	iSOL1WDCA	mg/L	140	160	85	170
Aluminium	iMET1WCICP	mg/L	0.24	0.45	0.064	0.007
Antimony	iMET1WCMS	mg/L	0.0003	0.0003	0.0003	0.0002
Arsenic	iMET1WCMS	mg/L	<0.001	0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	0.004	0.005	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.05	0.05	0.04	0.03
Cadmium	iMET1WCMS	mg/L	0.0005	0.0003	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	3.2	3.7	1.3	11.0
Chloride	iCO1WCDA	mg/L	22	21	20	13
Chromium	iMET1WCICP	mg/L	<0.001	0.002	0.001	<0.001
Cobalt	iMET1WCICP	mg/L	0.089	0.11	0.014	<0.005
Copper	iMET1WCICP	mg/L	0.24	0.28		
Copper	iMET1WCMS	mg/L			0.0081	0.0034
Fluoride	iF1WASE	mg/L	0.55	0.65	1.1	0.80
Iron	iMET1WCICP	mg/L	0.24	0.75	0.065	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	0.0004	0.0026	0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	<0.005	0.012	0.006
Magnesium	iMET1WCICP	mg/L	2.4	2.1	0.9	6.6
Manganese	iMET1WCICP	mg/L	0.18	0.31	0.004	0.11
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	0.08	0.08	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	2.1	1.7	1.2	0.27
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	6.3	5.3	4.3	8.6
Selenium	iMET1WCMS	mg/L	<0.001	0.001	0.002	0.021
Silicon	iMET1WCICP	mg/L	7.1	6.9	9.8	2.3
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	38.7	49.6	22.8	30.7
Strontium	iMET1WCICP	mg/L	0.017	0.018	0.006	0.030
Sulphate (from S)	iMET1WCICP	mg/L	59.9	115	21.3	90.4
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0023	0.0067	0.0027	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.046	0.078	0.0009	<0.0002
Zinc	iMET1WCICP	mg/L	0.077	0.24	0.020	0.012
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)		2/6/2023		2/6/2023	2/6/2023
	ARD		1/6/2023	1/6/2023	1/6/2023	1/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		2/6/2023	2/6/2023	2/6/2023	2/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCICP		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCMS		7/6/2023	8/6/2023	7/6/2023	7/6/2023

LAB ID		021		023	024
Client ID					
Sampled					
Analyte	Method	Unit			
Date Analysed	iMET2SAICP	28/8/2023		28/8/2023	28/8/2023
	iMET2SAMS	28/8/2023		28/8/2023	28/8/2023
	iNP1WTFIA	7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iPH1WASE	13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA	28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)	7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition		Ambient	Ambient	Ambient	Ambient

LAB ID			025	026	027	028
Client ID			MDRC1339_32-38	MDRC1339_44-50	MDRC1339_88-112	MDRC1348_56-62
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	15	28	110	13
pH, 1:2 soil:water*	ARD		7.3	7.2	5.4	7.8
Acid Neutralising Capacity	ARD	kg H2SO4	3.0	2.5	11	2.2
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	33	<0.5
NAG pH*	ARD		6.1	6.2	2.5	7.3
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	20	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	0.01	0.07	<0.01
Carbon	(combs)	%	0.07	0.14	2.56	0.13
Sulfur*	(combs)	%	0.03	0.03	1.77	0.03
Nitrogen	(total)	%	0.007	0.010		0.006
Aluminium	iMET2SAICP	mg/kg	10800	13600		6080
Antimony	iMET2SAMS	mg/kg	1.2	0.63		0.26
Arsenic	iMET2SAMS	mg/kg	38	28		9.1
Barium	iMET2SAICP	mg/kg	38	35		25
Beryllium	iMET2SAICP	mg/kg	<0.50	0.60		1.4
Bismuth*	iMET2SAMS	mg/kg	0.59	0.63		<0.10
Cadmium	iMET2SAMS	mg/kg	<0.10	<0.10		0.15
Calcium	iMET2SAICP	mg/kg	430	480		250
Chromium	iMET2SAICP	mg/kg	190	190		24
Cobalt	iMET2SAMS	mg/kg	5.4	7.0		8.5
Copper	iMET2SAMS	mg/kg	61	54		7.5
Iron	iMET2SAICP	mg/kg	160000	150000		250000
Lanthanum*	iMET2SAICP	mg/kg	5.1	7.1		6.9
Lead	iMET2SAMS	mg/kg	19	23		2.3
Lithium	iMET2SAICP	mg/kg	<2.0	4.0		<2.0
Magnesium	iMET2SAICP	mg/kg	650	460		430
Manganese	iMET2SAICP	mg/kg	530	800		2000
Mercury	iMET2SAMS	mg/kg	<0.04	<0.04		0.14
Molybdenum	iMET2SAMS	mg/kg	2.0	1.4		0.60
Nickel	iMET2SAICP	mg/kg	24	24		44
Phosphorus	iMET2SAICP	mg/kg	110	120		630
Potassium	iMET2SAICP	mg/kg	670	580		95
Selenium	iMET2SAMS	mg/kg	0.83	0.63		0.11
Silver	iMET2SAMS	mg/kg	0.10	<0.10		<0.10
Sodium	iMET2SAICP	mg/kg	130	240		<100

LAB ID			025	026	027	028
Client ID			MDRC1339_32-3 8	MDRC1339_44- 50	MDRC1339_88- 112	MDRC1348_56- 62
Sampled						
Analyte	Method	Unit				
Strontium	iMET2SAICP	mg/kg	7.7	7.2		2.9
Sulfur	iMET2SAICP	mg/kg	150	160		61
Thallium	iMET2SAMS	mg/kg	0.25	0.26		0.11
Thorium	iMET2SAMS	mg/kg	8.7	12		<1.0
Tin	iMET2SAMS	mg/kg	2.2	2.9		<1.0
Titanium	iMET2SAICP	mg/kg	480	650		81
Uranium	iMET2SAMS	mg/kg	1.5	1.7		1.4
Vanadium	iMET2SAICP	mg/kg	210	190		16
Yttrium*	iMET2SAMS	mg/kg	2.5	5.7		17
Zinc	iMET2SAICP	mg/kg	<50	<50		140
pH	iPH1WASE		6.8	6.9	5.5	7.5
Electrical Conductivity	iEC1WZSE	mS/m	7.3	13.3	52.7	5.6
Alkalinity as CaCO3	iALK1WATI	mg/L	6	8	1	15
TDS (calculated)	iSOL1WDCA	mg/L	40	73	290	31
Aluminium	iMET1WCICP	mg/L	0.12	0.15	0.099	0.008
Antimony	iMET1WCMS	mg/L	<0.0001	0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	0.003	0.002	0.003	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.04	0.05	0.04	<0.02
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0003	0.0007	<0.0001
Calcium	iMET1WCICP	mg/L	1.1	1.6	26.4	2.6
Chloride	iCO1WCDA	mg/L	9	15	6	2
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	0.062	0.35	<0.005
Copper	iMET1WCMS	mg/L	0.012	0.042	0.027	0.0002
Fluoride	iF1WASE	mg/L	0.73	0.82	0.06	0.42
Iron	iMET1WCICP	mg/L	0.086	0.089	0.17	0.016
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	0.0002	0.0003	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	<0.005	0.008	<0.005
Magnesium	iMET1WCICP	mg/L	0.5	0.8	24.2	1.7
Manganese	iMET1WCICP	mg/L	0.007	0.13	21	0.052
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	0.04	0.40	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	1.2	1.8	0.21	0.35
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.4	3.8	4.7	2.0
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	0.004	<0.001
Silicon	iMET1WCICP	mg/L	4.5	7.8	2.5	2.1
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	10.9	22.6	13.6	3.9
Strontium	iMET1WCICP	mg/L	0.004	0.006	0.085	0.008
Sulphate (from S)	iMET1WCICP	mg/L	9.3	23.1	214	4.7
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0004	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001

LAB ID			025	026	027	028
Client ID			MDRC1339_32-3 8	MDRC1339_44- 50	MDRC1339_88- 112	MDRC1348_56- 62
Sampled						
Analyte	Method	Unit				
Titanium	iMET1WCMS	mg/L	0.0016	0.0022	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.0005	0.0086	0.0019	<0.0002
Zinc	iMET1WCICP	mg/L	0.015	0.052	0.65	<0.005
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)		2/6/2023	2/6/2023		2/6/2023
	ARD		1/6/2023	1/6/2023	22/8/2023	1/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		2/6/2023	2/6/2023	2/6/2023	2/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCICP		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCMS		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET2SAICP		28/8/2023	28/8/2023		28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023		28/8/2023
	iNP1WTFIA		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			029	030	031	032
Client ID			MDRC1348_80-8 6	MDRC1348_86- 92	MDRC1348_94- 100	MDRC1350_34- 42
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	18	49	50	18
pH, 1:2 soil:water*	ARD		7.4	7.0	7.1	7.1
Acid Neutralising Capacity	ARD	kg H2SO4	4.7	5.0	15	1.1
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	4.0	4.5	<0.5
NAG pH*	ARD		7.4	3.6	4.7	7.0
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	0.03	0.02	<0.01
Carbon	(combs)	%	0.06	1.32	4.99	0.08
Sulfur*	(combs)	%	0.03	0.28	0.82	0.05
Nitrogen	(total)	%	<0.005	0.008		0.006
Aluminium	iMET2SAICP	mg/kg	13200	20500		10500
Antimony	iMET2SAMS	mg/kg	0.29	0.47		0.49
Arsenic	iMET2SAMS	mg/kg	17	44		28
Barium	iMET2SAICP	mg/kg	67	21		94
Beryllium	iMET2SAICP	mg/kg	4.0	1.2		0.56
Bismuth*	iMET2SAMS	mg/kg	0.24	0.56		0.52
Cadmium	iMET2SAMS	mg/kg	0.27	<0.10		0.13
Calcium	iMET2SAICP	mg/kg	960	690		430
Chromium	iMET2SAICP	mg/kg	92	91		180
Cobalt	iMET2SAMS	mg/kg	50	32		17
Copper	iMET2SAICP	mg/kg		76		
Copper	iMET2SAMS	mg/kg	27			40
Iron	iMET2SAICP	mg/kg	200000	210000		210000

LAB ID			029	030	031	032
Client ID			MDRC1348_80-8 6	MDRC1348_86- 92	MDRC1348_94- 100	MDRC1350_34- 42
Sampled						
Analyte	Method	Unit				
Lanthanum*	iMET2SAICP	mg/kg	7.3	5.9		4.5
Lead	iMET2SAMS	mg/kg	2.6	6.8		17
Lithium	iMET2SAICP	mg/kg	14	12		3.9
Magnesium	iMET2SAICP	mg/kg	4600	9000		360
Manganese	iMET2SAICP	mg/kg	25000	3500		2300
Mercury	iMET2SAMS	mg/kg	0.17	0.14		<0.04
Molybdenum	iMET2SAMS	mg/kg	0.74	1.4		1.4
Nickel	iMET2SAICP	mg/kg	150	120		26
Phosphorus	iMET2SAICP	mg/kg	540	110		140
Potassium	iMET2SAICP	mg/kg	1700	450		400
Selenium	iMET2SAMS	mg/kg	0.20	0.79		0.41
Silver	iMET2SAMS	mg/kg	<0.10	<0.10		<0.10
Sodium	iMET2SAICP	mg/kg	240	190		130
Strontium	iMET2SAICP	mg/kg	50	12		7.3
Sulfur	iMET2SAICP	mg/kg	210	2700		100
Thallium	iMET2SAMS	mg/kg	1.5	0.59		0.44
Thorium	iMET2SAMS	mg/kg	1.8	1.9		11
Tin	iMET2SAMS	mg/kg	1.0	<1.0		2.1
Titanium	iMET2SAICP	mg/kg	56	80		540
Uranium	iMET2SAMS	mg/kg	1.0	0.64		2.1
Vanadium	iMET2SAICP	mg/kg	52	66		180
Yttrium*	iMET2SAMS	mg/kg	37	9.1		4.9
Zinc	iMET2SAICP	mg/kg	300	150		58
pH	iPH1WASE		7.1	6.9	7.3	6.8
Electrical Conductivity	iEC1WZSE	mS/m	6.7	21.7	22.8	8.4
Alkalinity as CaCO3	iALK1WATI	mg/L	9	7	11	7
TDS (calculated)	iSOL1WDCA	mg/L	37	120	130	46
Aluminium	iMET1WCICP	mg/L	0.010	<0.005	0.078	0.055
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0001	0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	0.004
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.03	0.07	<0.02	0.04
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	0.7	5.6	10.4	1.8
Chloride	iCO1WCDA	mg/L	6	7	3	10
Chromium	iMET1WCICP	mg/L	0.002	<0.001	<0.001	0.001
Cobalt	iMET1WCICP	mg/L	<0.005	0.022	0.011	<0.005
Copper	iMET1WCMS	mg/L	0.0004	0.015	0.0018	0.0080
Fluoride	iF1WASE	mg/L	0.66	0.69	0.22	0.36
Iron	iMET1WCICP	mg/L	0.010	0.018	0.39	0.060
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	0.007	0.012	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	0.4	4.1	12.8	1.0
Manganese	iMET1WCICP	mg/L	0.003	0.057	2.0	0.018
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02

LAB ID			029	030	031	032
Client ID			MDRC1348_80-86	MDRC1348_86-92	MDRC1348_94-100	MDRC1350_34-42
Sampled						
Analyte	Method	Unit				
Nickel	iMET1WCICP	mg/L	<0.01	0.03	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.49	0.55	0.33	1.2
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	2.5	7.0	2.9	3.5
Selenium	iMET1WCMS	mg/L	<0.001	0.002	0.002	<0.001
Silicon	iMET1WCICP	mg/L	3.6	3.7	1.0	5.7
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	11.1	22.9	4.9	11.0
Strontium	iMET1WCICP	mg/L	<0.002	0.015	0.016	0.008
Sulphate (from S)	iMET1WCICP	mg/L	5.8	66.3	77.7	7.7
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	0.0006	0.0014
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	0.0003	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	0.016	0.056	0.008	0.027
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)		2/6/2023	2/6/2023		2/6/2023
	ARD		1/6/2023	2/6/2023	1/6/2023	1/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		2/6/2023	2/6/2023	2/6/2023	2/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCICP		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCMS		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET2SAICP		28/8/2023	28/8/2023		28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023		28/8/2023
	iNP1WTFIA		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			033	034	035	036
Client ID			MDRC1357_04-10	MDRC1357_26-32	MDRC1357_34-40	MDRC1357_88-94
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	90	34	41	84
pH, 1:2 soil:water*	ARD		8.4	7.3	6.9	8.4
Acid Neutralising Capacity	ARD	kg H2SO4	11	1.3	1.8	260
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	1.1	<0.5	<0.5
NAG pH*	ARD		8.8	5.4	4.8	8.9
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.02	0.01	0.01	0.02
Carbon	(combs)	%	0.23	0.22	0.42	4.05
Sulfur*	(combs)	%	0.10	0.04	0.04	0.12
Nitrogen	(total)	%	0.007	0.005		<0.005

LAB ID			033	034	035	036
Client ID			MDRC1357_04-1	MDRC1357_26-	MDRC1357_34-	MDRC1357_88-
			0	32	40	94
Sampled						
Analyte	Method	Unit				
Aluminium	iMET2SAICP	mg/kg	15400	13300		11300
Antimony	iMET2SAMS	mg/kg	0.41	0.82		0.30
Arsenic	iMET2SAMS	mg/kg	16	48		6.1
Barium	iMET2SAICP	mg/kg	330	40		1.9
Beryllium	iMET2SAICP	mg/kg	0.89	<0.50		0.81
Bismuth*	iMET2SAMS	mg/kg	0.27	0.63		0.14
Cadmium	iMET2SAMS	mg/kg	0.11	<0.10		<0.10
Calcium	iMET2SAICP	mg/kg	3700	420		54000
Chromium	iMET2SAICP	mg/kg	97	200		31
Cobalt	iMET2SAMS	mg/kg	17	5.3		7.0
Copper	iMET2SAMS	mg/kg	42	57		9.9
Iron	iMET2SAICP	mg/kg	91000	160000		120000
Lanthanum*	iMET2SAICP	mg/kg	11	4.3		6.6
Lead	iMET2SAMS	mg/kg	12	21		2.5
Lithium	iMET2SAICP	mg/kg	4.9	<2.0		6.0
Magnesium	iMET2SAICP	mg/kg	3200	510		33000
Manganese	iMET2SAICP	mg/kg	1100	260		1800
Mercury	iMET2SAMS	mg/kg	<0.04	<0.04		0.28
Molybdenum	iMET2SAMS	mg/kg	0.97	1.5		0.87
Nickel	iMET2SAICP	mg/kg	44	19		19
Phosphorus	iMET2SAICP	mg/kg	130	140		200
Potassium	iMET2SAICP	mg/kg	2400	500		310
Selenium	iMET2SAMS	mg/kg	0.43	1.1		0.88
Silver	iMET2SAMS	mg/kg	<0.10	0.18		<0.10
Sodium	iMET2SAICP	mg/kg	840	310		340
Strontium	iMET2SAICP	mg/kg	28	6.6		14
Sulfur	iMET2SAICP	mg/kg	280	250		1700
Thallium	iMET2SAMS	mg/kg	0.44	0.17		<0.10
Thorium	iMET2SAMS	mg/kg	5.0	11		1.1
Tin	iMET2SAMS	mg/kg	1.0	2.4		<1.0
Titanium	iMET2SAICP	mg/kg	150	540		51
Uranium	iMET2SAMS	mg/kg	1.1	1.4		0.36
Vanadium	iMET2SAICP	mg/kg	81	190		22
Yttrium*	iMET2SAMS	mg/kg	9.2	6.0		5.0
Zinc	iMET2SAICP	mg/kg	57	<50		<50
pH	iPH1WASE		8.1	6.9	7.1	8.2
Electrical Conductivity	iEC1WZSE	mS/m	45.8	15.6	19.1	40.4
Alkalinity as CaCO3	iALK1WATI	mg/L	87	10	29	61
TDS (calculated)	iSOL1WDCA	mg/L	250	86	110	220
Aluminium	iMET1WCICP	mg/L	0.035	0.23	0.030	0.015
Antimony	iMET1WCMS	mg/L	0.0004	0.0002	0.0003	0.0004
Arsenic	iMET1WCMS	mg/L	0.004	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	0.015	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.12	0.04	0.05	0.02
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0004	0.0005	<0.0001
Calcium	iMET1WCICP	mg/L	5.6	0.8	1.6	12.9
Chloride	iCO1WCDA	mg/L	21	13	18	44

LAB ID Client ID			033 MDRC1357_04-1 0	034 MDRC1357_26- 32	035 MDRC1357_34- 40	036 MDRC1357_88- 94
Sampled						
Analyte	Method	Unit				
Chromium	iMET1WCICP	mg/L	<0.001	0.001	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	0.071	0.079	<0.005
Copper	iMET1WCICP	mg/L		0.12	0.11	
Copper	iMET1WCMS	mg/L	0.0042			0.0003
Fluoride	iF1WASE	mg/L	1.3	0.59	0.40	0.46
Iron	iMET1WCICP	mg/L	0.012	0.36	0.077	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	0.0020	0.0005	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	3.5	0.4	1.1	8.1
Manganese	iMET1WCICP	mg/L	0.003	0.058	0.041	0.004
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	0.04	0.04	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.49	2.0	1.8	0.23
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	8.4	3.5	4.6	8.8
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	0.012
Silicon	iMET1WCICP	mg/L	18	5.2	4.9	3.9
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	74.9	27.1	33.3	44.7
Strontium	iMET1WCICP	mg/L	0.043	0.003	0.009	0.053
Sulphate (from S)	iMET1WCICP	mg/L	79.6	42.2	31.7	53.9
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	0.0032	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	0.0003	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.0003	0.027	0.014	<0.0002
Zinc	iMET1WCICP	mg/L	0.011	0.10	0.099	0.013
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)		2/6/2023	2/6/2023		2/6/2023
	ARD		1/6/2023	1/6/2023	1/6/2023	1/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		2/6/2023	2/6/2023	2/6/2023	2/6/2023
	IEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCICP		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCMS		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET2SAICP		28/8/2023	28/8/2023		28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023		28/8/2023
	iNP1WTFIA		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			037	038	039	040
Client ID			MDRC1371_42-4	MDRC1371_60-	MDRC1371_10	MDRC1374_10-
			6	64	8-116	18
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	30	36	93	22
pH, 1:2 soil:water*	ARD		7.6	8.6	5.7	7.4
Acid Neutralising Capacity	ARD	kg H2SO4	2.4	100	7.8	2.8
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	26	<0.5
NAG pH*	ARD		6.6	9.0	2.5	6.7
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	11	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	<0.01	0.06	0.01
Carbon	(combs)	%	0.24	1.99	3.02	0.08
Sulfur*	(combs)	%	0.06	0.01	1.19	0.09
Nitrogen	(total)	%	<0.005	<0.005	0.006	0.006
Aluminium	iMET2SAICP	mg/kg	16600	21900	14800	11100
Antimony	iMET2SAMS	mg/kg	1.5	0.18	0.33	0.55
Arsenic	iMET2SAMS	mg/kg	39	19	11	30
Barium	iMET2SAICP	mg/kg	80	37	6.5	120
Beryllium	iMET2SAICP	mg/kg	0.51	1.6	0.75	0.72
Bismuth*	iMET2SAMS	mg/kg	0.67	0.24	0.21	0.34
Cadmium	iMET2SAMS	mg/kg	<0.10	0.18	0.16	0.15
Calcium	iMET2SAICP	mg/kg	730	55000	1900	690
Chromium	iMET2SAICP	mg/kg	240	68	45	100
Cobalt	iMET2SAMS	mg/kg	6.6	13	51	13
Copper	iMET2SAMS	mg/kg	46	8.8	110	52
Iron	iMET2SAICP	mg/kg	250000	210000	140000	100000
Lanthanum*	iMET2SAICP	mg/kg	4.6	26	3.8	7.6
Lead	iMET2SAMS	mg/kg	23	16	3.7	13
Lithium	iMET2SAICP	mg/kg	<2.0	21	20	3.9
Magnesium	iMET2SAICP	mg/kg	530	19000	21000	1700
Manganese	iMET2SAICP	mg/kg	1600	1500	10000	710
Mercury	iMET2SAMS	mg/kg	<0.04	0.21	0.24	<0.04
Molybdenum	iMET2SAMS	mg/kg	2.1	0.81	1.3	1.2
Nickel	iMET2SAICP	mg/kg	16	45	110	36
Phosphorus	iMET2SAICP	mg/kg	140	61	470	170
Potassium	iMET2SAICP	mg/kg	450	560	86	1300
Selenium	iMET2SAMS	mg/kg	0.93	0.21	0.64	0.63
Silver	iMET2SAMS	mg/kg	0.15	<0.10	<0.10	0.10
Sodium	iMET2SAICP	mg/kg	180	390	<100	240
Strontium	iMET2SAICP	mg/kg	7.6	27	3.3	16
Sulfur	iMET2SAICP	mg/kg	190	150	12000	300
Thallium	iMET2SAMS	mg/kg	0.20	<0.10	<0.10	0.38
Thorium	iMET2SAMS	mg/kg	14	5.9	1.1	5.1
Tin	iMET2SAMS	mg/kg	2.8	1.3	<1.0	1.0
Titanium	iMET2SAICP	mg/kg	1100	390	74	200
Uranium	iMET2SAMS	mg/kg	2.6	1.7	0.86	0.88
Vanadium	iMET2SAICP	mg/kg	220	95	30	95
Yttrium*	iMET2SAMS	mg/kg	6.7	26	8.8	7.0
Zinc	iMET2SAICP	mg/kg	<50	89	250	66
pH	iPH1WASE		7.6	8.1	6.3	7.1
Electrical Conductivity	iEC1WZSE	mS/m	15.7	20.6	46.1	10.1
Alkalinity as CaCO3	iALK1WATI	mg/L	40	65	2	8

LAB ID			037	038	039	040
Client ID			MDRC1371_42-4 6	MDRC1371_60- 64	MDRC1371_10 8-116	MDRC1374_10- 18
Sampled						
Analyte	Method	Unit				
TDS (calculated)	iSOL1WDCA	mg/L	86	110	250	56
Aluminium	iMET1WCICP	mg/L	0.062	0.015	0.021	0.091
Antimony	iMET1WCMS	mg/L	0.0001	0.0002	<0.0001	0.0002
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	0.011	0.002	0.019	0.005
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.04	0.03	0.02	0.03
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0003	0.0006	<0.0001
Calcium	iMET1WCICP	mg/L	6.4	6.7	21.6	1.3
Chloride	iCO1WCDA	mg/L	8	8	3	14
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	0.020	0.040	0.30	<0.005
Copper	iMET1WCICP	mg/L			0.11	
Copper	iMET1WCMS	mg/L	0.0095	0.0024		0.0030
Fluoride	iF1WASE	mg/L	0.73	1.1	<0.05	0.56
Iron	iMET1WCICP	mg/L	0.030	0.013	0.081	0.098
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	0.006	0.010	<0.005
Magnesium	iMET1WCICP	mg/L	3.4	3.8	19.3	0.6
Manganese	iMET1WCICP	mg/L	0.015	0.002	27	0.11
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	0.01	0.03	0.46	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.56	0.59	0.33	0.77
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	5.9	6.2	4.0	3.5
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	0.004	<0.001
Silicon	iMET1WCICP	mg/L	5.4	8.6	1.8	6.1
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	16.9	26.2	8.4	16.3
Strontium	iMET1WCICP	mg/L	0.026	0.024	0.081	0.005
Sulphate (from S)	iMET1WCICP	mg/L	17.2	19.4	187	11.2
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	0.0033
Uranium	iMET1WCMS	mg/L	<0.0001	0.0002	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.0034	0.0034	0.0012	<0.0002
Zinc	iMET1WCICP	mg/L	<0.005	<0.005	0.50	0.007
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	18/7/2023
	(total)		2/6/2023	2/6/2023	2/6/2023	2/6/2023
	ARD		8/6/2023	8/6/2023	9/6/2023	8/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		2/6/2023	2/6/2023	2/6/2023	2/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCICP		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCMS		7/6/2023	7/6/2023	7/6/2023	7/6/2023

LAB ID		037	038	039	040
Client ID					
Sampled					
Analyte	Method	Unit			
Date Analysed	iMET2SAICP	28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS	28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA	7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iPH1WASE	13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA	28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)	7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition		Ambient	Ambient	Ambient	Ambient

LAB ID			041	042	043	044
Client ID			MDRC1374_22-2 8	MDRC1374_66- 72	MDRC1374_94- 100	MDRC1382_48- 54
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	30	24	43	20
pH, 1:2 soil:water*	ARD		7.1	7.3	8.7	7.3
Acid Neutralising Capacity	ARD	kg H2SO4	2.3	2.4	190	2.9
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		5.6	6.7	9.2	7.8
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.01	<0.01	<0.01	<0.01
Carbon	(combs)	%	0.29	0.11	4.21	0.06
Sulfur*	(combs)	%	0.05	0.04	0.01	0.02
Nitrogen	(total)	%			<0.005	<0.005
Aluminium	iMET2SAICP	mg/kg			9640	12200
Antimony	iMET2SAMS	mg/kg			0.35	0.38
Arsenic	iMET2SAMS	mg/kg			4.7	5.8
Barium	iMET2SAICP	mg/kg			15	75
Beryllium	iMET2SAICP	mg/kg			<0.50	0.85
Bismuth*	iMET2SAMS	mg/kg			0.21	0.38
Cadmium	iMET2SAMS	mg/kg			<0.10	0.18
Calcium	iMET2SAICP	mg/kg			69000	1000
Chromium	iMET2SAICP	mg/kg			29	170
Cobalt	iMET2SAMS	mg/kg			11	14
Copper	iMET2SAMS	mg/kg			4.0	8.8
Iron	iMET2SAICP	mg/kg			90000	140000
Lanthanum*	iMET2SAICP	mg/kg			5.5	8.1
Lead	iMET2SAMS	mg/kg			2.5	7.7
Lithium	iMET2SAICP	mg/kg			6.1	2.7
Magnesium	iMET2SAICP	mg/kg			44000	1100
Manganese	iMET2SAICP	mg/kg			3000	2100
Mercury	iMET2SAMS	mg/kg			0.37	0.10
Molybdenum	iMET2SAMS	mg/kg			0.81	0.41
Nickel	iMET2SAICP	mg/kg			25	61
Phosphorus	iMET2SAICP	mg/kg			440	280
Potassium	iMET2SAICP	mg/kg			340	260
Selenium	iMET2SAMS	mg/kg			0.30	0.12
Silver	iMET2SAMS	mg/kg			<0.10	<0.10
Sodium	iMET2SAICP	mg/kg			240	150

LAB ID			041	042	043	044
Client ID			MDRC1374_22-2 8	MDRC1374_66- 72	MDRC1374_94- 100	MDRC1382_48- 54
Sampled						
Analyte	Method	Unit				
Strontium	iMET2SAICP	mg/kg			23	8.2
Sulfur	iMET2SAICP	mg/kg			77	73
Thallium	iMET2SAMS	mg/kg			<0.10	0.13
Thorium	iMET2SAMS	mg/kg			<1.0	7.1
Tin	iMET2SAMS	mg/kg			<1.0	2.3
Titanium	iMET2SAICP	mg/kg			81	690
Uranium	iMET2SAMS	mg/kg			4.0	2.5
Vanadium	iMET2SAICP	mg/kg			24	220
Yttrium*	iMET2SAMS	mg/kg			6.3	9.7
Zinc	iMET2SAICP	mg/kg			55	190
pH	iPH1WASE		6.9	6.7	8.4	7.0
Electrical Conductivity	iEC1WZSE	mS/m	13.3	11.9	21.5	8.7
Alkalinity as CaCO3	iALK1WATI	mg/L	8	6	49	6
TDS (calculated)	iSOL1WDCA	mg/L	73	66	120	48
Aluminium	iMET1WCICP	mg/L	0.056	0.019	<0.005	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	0.0001	0.0001	0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.03	0.03	<0.02	0.03
Cadmium	iMET1WCMS	mg/L	0.0002	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	1.7	0.6	6.6	1.2
Chloride	iCO1WCDA	mg/L	12	14	23	10
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	0.051	<0.005	<0.005	<0.005
Copper	iMET1WCMS	mg/L	0.11	0.0011	0.0002	<0.0001
Fluoride	iF1WASE	mg/L	0.58	0.79	0.42	0.80
Iron	iMET1WCICP	mg/L	0.089	0.019	<0.005	0.015
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	0.0005	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	0.006	<0.005	0.007
Magnesium	iMET1WCICP	mg/L	1.0	0.4	4.7	0.9
Manganese	iMET1WCICP	mg/L	0.047	0.004	<0.001	0.001
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	0.03	<0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	1.0	1.6	0.24	0.64
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.8	2.8	4.5	2.9
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	0.001	<0.001
Silicon	iMET1WCICP	mg/L	4.3	4.5	3.1	4.1
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	20.6	19.2	24.8	12.1
Strontium	iMET1WCICP	mg/L	0.007	0.003	0.025	0.005
Sulphate (from S)	iMET1WCICP	mg/L	23.2	15.0	9.5	10.7
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001

LAB ID			041	042	043	044
Client ID			MDRC1374_22-28	MDRC1374_66-72	MDRC1374_94-100	MDRC1382_48-54
Sampled						
Analyte	Method	Unit				
Titanium	iMET1WCMS	mg/L	0.0013	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0003	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.022	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	0.022	0.009	<0.005	<0.005
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)				2/6/2023	2/6/2023
	ARD		8/6/2023	8/6/2023	8/6/2023	8/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCICP		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iMET1WCMS		12/6/2023	8/6/2023	8/6/2023	8/6/2023
	iMET2SAICP				28/8/2023	28/8/2023
	iMET2SAMS				28/8/2023	28/8/2023
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			045	046	047	048
Client ID			MDRC1384_00-06	MDRC1384_06-10	MDRC1384_16-22	MDRC1384_50-56
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	33	18	9	12
pH, 1:2 soil:water*	ARD		6.3	7.6	7.3	6.9
Acid Neutralising Capacity	ARD	kg H2SO4	2.8	7.7	2.5	0.8
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		7.1	7.4	6.9	7.6
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	0.01	<0.01	<0.01
Carbon	(combs)	%	<0.05	<0.05	<0.05	0.08
Sulfur*	(combs)	%	0.05	0.09	0.02	0.02
Nitrogen	(total)	%	0.009	0.007	0.010	0.012
Aluminium	iMET2SAICP	mg/kg	29000	29600	8380	6710
Antimony	iMET2SAMS	mg/kg	0.26	0.32	0.59	0.27
Arsenic	iMET2SAMS	mg/kg	20	17	23	3.1
Barium	iMET2SAICP	mg/kg	150	400	120	37
Beryllium	iMET2SAICP	mg/kg	1.2	1.1	0.60	3.4
Bismuth*	iMET2SAMS	mg/kg	0.35	0.34	0.50	<0.10
Cadmium	iMET2SAMS	mg/kg	<0.10	0.11	<0.10	0.31
Calcium	iMET2SAICP	mg/kg	890	2100	730	120
Chromium	iMET2SAICP	mg/kg	110	85	110	25
Cobalt	iMET2SAMS	mg/kg	22	24	12	9.9
Copper	iMET2SAMS	mg/kg	53	57	65	2.1
Iron	iMET2SAICP	mg/kg	99000	72000	95000	210000
Lanthanum*	iMET2SAICP	mg/kg	19	19	4.8	5.4

LAB ID			045	046	047	048
Client ID			MDRC1384_00-06	MDRC1384_06-10	MDRC1384_16-22	MDRC1384_50-56
Sampled						
Analyte	Method	Unit				
Lead	iMET2SAMS	mg/kg	18	17	16	1.2
Lithium	iMET2SAICP	mg/kg	16	15	<2.0	<2.0
Magnesium	iMET2SAICP	mg/kg	2800	4400	870	280
Manganese	iMET2SAICP	mg/kg	810	810	1000	2800
Mercury	iMET2SAMS	mg/kg	<0.04	<0.04	<0.04	0.20
Molybdenum	iMET2SAMS	mg/kg	1.1	0.80	1.2	0.38
Nickel	iMET2SAICP	mg/kg	66	62	22	52
Phosphorus	iMET2SAICP	mg/kg	160	150	130	630
Potassium	iMET2SAICP	mg/kg	2900	3200	690	120
Selenium	iMET2SAMS	mg/kg	0.47	0.39	0.43	<0.10
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10	<0.10
Sodium	iMET2SAICP	mg/kg	220	370	160	<100
Strontium	iMET2SAICP	mg/kg	19	33	9.6	2.5
Sulfur	iMET2SAICP	mg/kg	200	310	62	79
Thallium	iMET2SAMS	mg/kg	0.54	0.50	0.43	<0.10
Thorium	iMET2SAMS	mg/kg	5.2	5.8	8.0	1.4
Tin	iMET2SAMS	mg/kg	1.3	1.6	2.4	<1.0
Titanium	iMET2SAICP	mg/kg	260	240	340	170
Uranium	iMET2SAMS	mg/kg	0.75	0.56	1.2	1.1
Vanadium	iMET2SAICP	mg/kg	96	82	140	20
Yttrium*	iMET2SAMS	mg/kg	9.4	12	8.0	26
Zinc	iMET2SAICP	mg/kg	71	74	<50	180
pH	iPH1WASE		5.8	6.9	7.0	6.7
Electrical Conductivity	iEC1WZSE	mS/m	14.5	8.7	4.0	5.7
Alkalinity as CaCO3	iALK1WATI	mg/L	2	5	5	4
TDS (calculated)	iSOL1WDCA	mg/L	80	48	22	31
Aluminium	iMET1WCICP	mg/L	<0.005	0.033	0.15	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	0.002	<0.001	<0.001
Barium	iMET1WCICP	mg/L	0.011	0.003	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.05	0.07	0.02	<0.02
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	2.9	0.9	0.3	1.4
Chloride	iCO1WCDA	mg/L	22	11	4	6
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	0.001	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Copper	iMET1WCMS	mg/L	0.0024	0.0006	0.0007	<0.0001
Fluoride	iF1WASE	mg/L	0.10	0.87	0.38	0.19
Iron	iMET1WCICP	mg/L	<0.005	0.040	0.096	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	0.0002	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	0.007
Magnesium	iMET1WCICP	mg/L	2.5	0.5	0.2	1.0
Manganese	iMET1WCICP	mg/L	0.026	0.001	0.002	0.002
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	<0.01	<0.01

LAB ID			045	046	047	048
Client ID			MDRC1384_00-06	MDRC1384_06-10	MDRC1384_16-22	MDRC1384_50-56
Sampled						
Analyte	Method	Unit				
Nitrogen, total	iNP1WTFIA	mg/L	0.84	1.3	0.86	0.22
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	6.2	2.9	1.6	2.0
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	6.1	13	4.8	2.1
Silver	iMET1WCMS	mg/L	<0.0001	0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	13.4	12.9	6.2	5.8
Strontium	iMET1WCICP	mg/L	0.018	0.005	<0.002	0.006
Sulphate (from S)	iMET1WCICP	mg/L	19.8	7.8	2.7	8.0
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	0.0006	0.0030	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	0.023	<0.005	0.005	<0.005
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)		2/6/2023	2/6/2023	2/6/2023	2/6/2023
	ARD		8/6/2023	8/6/2023	8/6/2023	8/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	7/6/2023	7/6/2023
	iMET1WCICP		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iMET1WCMS		8/6/2023	8/6/2023	8/6/2023	8/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			049	050	051	052
Client ID			MDRC1384_62-68	MDRC1391_44-50	MDRC1391_58-62	MDRC1391_64-70
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	20	9	24	17
pH, 1:2 soil:water*	ARD		6.9	7.2	6.9	7.0
Acid Neutralising Capacity	ARD	kg H2SO4	2.8	1.9	1.4	2.3
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		8.2	6.2	7.2	8.0
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.03	<0.01	0.02	0.02
Carbon	(combs)	%	0.10	0.14	0.18	0.05
Sulfur*	(combs)	%	0.05	0.03	0.03	0.05
Nitrogen	(total)	%		<0.005	<0.005	<0.005
Aluminium	iMET2SAICP	mg/kg		17900	12200	10900

LAB ID	049			050	051	052
Client ID	MDRC1384_62-6			MDRC1391_44-50	MDRC1391_58-62	MDRC1391_64-70
Sampled						
Analyte	Method	Unit				
Antimony	iMET2SAMS	mg/kg		0.41	0.40	0.52
Arsenic	iMET2SAMS	mg/kg		12	8.4	36
Barium	iMET2SAICP	mg/kg		9.4	53	40
Beryllium	iMET2SAICP	mg/kg		1.2	1.1	3.4
Bismuth*	iMET2SAMS	mg/kg		0.15	0.23	0.45
Cadmium	iMET2SAMS	mg/kg		0.33	0.13	0.32
Calcium	iMET2SAICP	mg/kg		290	320	660
Chromium	iMET2SAICP	mg/kg		54	80	76
Cobalt	iMET2SAMS	mg/kg		5.5	21	71
Copper	iMET2SAMS	mg/kg		16	15	28
Iron	iMET2SAICP	mg/kg		240000	220000	290000
Lanthanum*	iMET2SAICP	mg/kg		2.9	8.1	13
Lead	iMET2SAMS	mg/kg		11	11	5.9
Lithium	iMET2SAICP	mg/kg		2.9	3.6	5.9
Magnesium	iMET2SAICP	mg/kg		360	380	510
Manganese	iMET2SAICP	mg/kg		390	3800	21000
Mercury	iMET2SAMS	mg/kg		0.28	0.14	0.23
Molybdenum	iMET2SAMS	mg/kg		0.72	0.32	0.29
Nickel	iMET2SAICP	mg/kg		54	40	160
Phosphorus	iMET2SAICP	mg/kg		110	150	380
Potassium	iMET2SAICP	mg/kg		86	290	1400
Selenium	iMET2SAMS	mg/kg		0.31	0.22	0.75
Silver	iMET2SAMS	mg/kg		<0.10	<0.10	<0.10
Sodium	iMET2SAICP	mg/kg		<100	190	220
Strontium	iMET2SAICP	mg/kg		2.5	9.4	62
Sulfur	iMET2SAICP	mg/kg		120	210	420
Thallium	iMET2SAMS	mg/kg		<0.10	<0.10	1.1
Thorium	iMET2SAMS	mg/kg		3.0	5.7	3.9
Tin	iMET2SAMS	mg/kg		<1.0	1.3	1.1
Titanium	iMET2SAICP	mg/kg		460	720	280
Uranium	iMET2SAMS	mg/kg		2.3	1.5	2.0
Vanadium	iMET2SAICP	mg/kg		52	61	62
Yttrium*	iMET2SAMS	mg/kg		8.9	19	61
Zinc	iMET2SAICP	mg/kg		260	110	310
pH	iPH1WASE		6.7	6.8	6.8	6.8
Electrical Conductivity	iEC1WZSE	mS/m	10.4	4.3	12.6	8.7
Alkalinity as CaCO3	iALK1WATI	mg/L	22	4	6	5
TDS (calculated)	iSOL1WDCA	mg/L	57	23	69	48
Aluminium	iMET1WCICP	mg/L	<0.005	0.069	0.006	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.03	0.02	0.02	0.03
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	<0.0001
Calcium	iMET1WCICP	mg/L	3.5	0.4	1.3	1.0
Chloride	iCO1WCDA	mg/L	7	4	6	13
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	0.001

LAB ID			049	050	051	052
Client ID			MDRC1384_62-6 8	MDRC1391_44- 50	MDRC1391_58- 62	MDRC1391_64- 70
Sampled						
Analyte	Method	Unit				
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	0.042	<0.005
Copper	iMET1WCMS	mg/L	<0.0001	0.0001	0.0031	<0.0001
Fluoride	iF1WASE	mg/L	0.21	0.54	0.30	0.33
Iron	iMET1WCICP	mg/L	<0.005	0.065	0.037	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	0.011	0.006	0.013	0.005
Magnesium	iMET1WCICP	mg/L	2.4	0.3	0.9	0.8
Manganese	iMET1WCICP	mg/L	0.009	0.002	0.030	<0.001
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	0.06	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.18	0.40	0.97	0.39
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	4.9	1.8	2.8	3.3
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	2.9	3.1	2.6	3.1
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	10.8	5.8	20.7	11.7
Strontium	iMET1WCICP	mg/L	0.011	<0.002	0.005	0.004
Sulphate (from S)	iMET1WCICP	mg/L	7.7	5.0	36.4	9.5
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	0.0017	<0.0002
Zinc	iMET1WCICP	mg/L	0.008	<0.005	0.068	<0.005
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)			16/6/2023	16/6/2023	16/6/2023
	ARD		8/6/2023	8/6/2023	8/6/2023	8/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		7/6/2023	7/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iMET1WCMS		8/6/2023	8/6/2023	8/6/2023	8/6/2023
	iMET2SAICP			28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS			28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			053	054	055	056
Client ID			MDRC1391_76-8 2	MDRC1397_58- 66	MDRC1397_82- 88	MDRC1403_38- 44
Sampled						
Analyte	Method	Unit				

LAB ID			053	054	055	056
Client ID			MDRC1391_76-8	MDRC1397_58-	MDRC1397_82-	MDRC1403_38-
			2	66	88	44
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	39	23	130	14
pH, 1:2 soil:water*	ARD		6.8	6.9	4.4	6.9
Acid Neutralising Capacity	ARD	kg H2SO4	5.1	1.3	2.8	2.7
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	33	<0.5
NAG pH*	ARD		8.0	5.6	2.4	7.1
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	24	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.10	<0.01	0.14	<0.01
Carbon	(combs)	%	0.37	<0.05	2.45	0.07
Sulfur*	(combs)	%	0.15	0.03	0.90	0.06
Nitrogen	(total)	%	<0.005	<0.005		<0.005
Aluminium	iMET2SAICP	mg/kg	25300	2780		22000
Antimony	iMET2SAMS	mg/kg	0.26	0.48		0.10
Arsenic	iMET2SAMS	mg/kg	30	0.8		13
Barium	iMET2SAICP	mg/kg	50	2.5		210
Beryllium	iMET2SAICP	mg/kg	2.4	<0.50		0.74
Bismuth*	iMET2SAMS	mg/kg	0.44	0.47		0.27
Cadmium	iMET2SAMS	mg/kg	0.53	<0.10		0.53
Calcium	iMET2SAICP	mg/kg	1200	220		500
Chromium	iMET2SAICP	mg/kg	110	56		79
Cobalt	iMET2SAMS	mg/kg	83	2.2		29
Copper	iMET2SAMS	mg/kg	18	14		11
Iron	iMET2SAICP	mg/kg	240000	16000		220000
Lanthanum*	iMET2SAICP	mg/kg	7.3	5.6		11
Lead	iMET2SAMS	mg/kg	7.2	6.4		18
Lithium	iMET2SAICP	mg/kg	31	4.0		18
Magnesium	iMET2SAICP	mg/kg	13000	180		360
Manganese	iMET2SAICP	mg/kg	19000	91		9300
Mercury	iMET2SAMS	mg/kg	0.12	0.07		0.13
Molybdenum	iMET2SAMS	mg/kg	1.3	<0.10		0.84
Nickel	iMET2SAICP	mg/kg	200	<10		50
Phosphorus	iMET2SAICP	mg/kg	200	<50		88
Potassium	iMET2SAICP	mg/kg	1200	70		390
Selenium	iMET2SAMS	mg/kg	0.57	<0.10		0.24
Silver	iMET2SAMS	mg/kg	<0.10	<0.10		<0.10
Sodium	iMET2SAICP	mg/kg	270	<100		190
Strontium	iMET2SAICP	mg/kg	43	4.2		18
Sulfur	iMET2SAICP	mg/kg	1300	<50		150
Thallium	iMET2SAMS	mg/kg	1.3	<0.10		0.23
Thorium	iMET2SAMS	mg/kg	3.1	7.7		7.8
Tin	iMET2SAMS	mg/kg	1.7	2.0		1.6
Titanium	iMET2SAICP	mg/kg	130	130		770
Uranium	iMET2SAMS	mg/kg	0.91	0.51		3.0
Vanadium	iMET2SAICP	mg/kg	74	59		76
Yttrium*	iMET2SAMS	mg/kg	25	5.5		8.2
Zinc	iMET2SAICP	mg/kg	450	<50		170
pH	iPH1WASE		6.7	6.7	4.4	6.8
Electrical Conductivity	iEC1WZSE	mS/m	18.5	11.3	78.4	7.2
Alkalinity as CaCO3	iALK1WATI	mg/L	4	5	<1	8

LAB ID			053	054	055	056
Client ID			MDRC1391_76-8 2	MDRC1397_58- 66	MDRC1397_82- 88	MDRC1403_38- 44
Sampled						
Analyte	Method	Unit				
TDS (calculated)	iSOL1WDCA	mg/L	100	62	430	39
Aluminium	iMET1WCICP	mg/L	<0.005	<0.005	0.71	0.10
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	0.007	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	0.003	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.04	<0.02	0.07	0.04
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	0.0001
Calcium	iMET1WCICP	mg/L	4.4	1.6	55.9	0.8
Chloride	iCO1WCDA	mg/L	12	15	3	5
Chromium	iMET1WCICP	mg/L	<0.001	0.001	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	0.13	0.006
Copper	iMET1WCMS	mg/L	0.0001	0.0091	0.049	0.0006
Fluoride	iF1WASE	mg/L	0.40	0.39	0.40	0.61
Iron	iMET1WCICP	mg/L	<0.005	0.021	0.019	0.031
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	0.0005	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	0.008	0.010	0.023	0.010
Magnesium	iMET1WCICP	mg/L	3.2	1.2	39.3	0.6
Manganese	iMET1WCICP	mg/L	0.043	0.003	4.5	0.004
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	0.48	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.27	0.67	0.23	0.72
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	5.4	3.3	11.9	2.9
Selenium	iMET1WCMS	mg/L	0.002	<0.001	0.017	<0.001
Silicon	iMET1WCICP	mg/L	3.1	1.5	2.8	4.5
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	18.9	15.5	19.3	11.1
Strontium	iMET1WCICP	mg/L	0.010	0.007	0.15	0.004
Sulphate (from S)	iMET1WCICP	mg/L	51.1	17.0	337	7.7
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	0.0018	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	0.0040	0.0035	0.0005
Zinc	iMET1WCICP	mg/L	0.005	0.027	1.5	0.012
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)		16/6/2023	16/6/2023		16/6/2023
	ARD		8/6/2023	8/6/2023	9/6/2023	8/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iMET1WCMS		8/6/2023	8/6/2023	8/6/2023	8/6/2023
	iMET2SAICP		28/8/2023	28/8/2023		28/8/2023

LAB ID		053	054		056
Client ID					
Sampled					
Analyte	Method	Unit			
Date Analysed	iMET2SAMS	28/8/2023	28/8/2023		28/8/2023
	iNP1WTFIA	15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE	13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA	28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)	7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition		Ambient	Ambient	Ambient	Ambient

LAB ID			057	058	059	060
Client ID			MDRC1409_06-1 2	MDRC1409_34- 40	MDRC1409_48- 52	MDRC1412_10- 16
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	22	16	10	18
pH, 1:2 soil:water*	ARD		8.4	7.1	7.2	7.4
Acid Neutralising Capacity	ARD	kg H2SO4	6.1	2.4	1.7	2.7
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		7.5	6.2	6.6	6.0
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	<0.01	<0.01	0.01
Carbon	(combs)	%	<0.05	0.08	0.14	<0.05
Sulfur*	(combs)	%	0.25	0.05	0.03	0.08
Nitrogen	(total)	%		0.007	<0.005	<0.005
Aluminium	iMET2SAICP	mg/kg		12400	17900	11200
Antimony	iMET2SAMS	mg/kg		0.62	0.26	0.53
Arsenic	iMET2SAMS	mg/kg		33	17	26
Barium	iMET2SAICP	mg/kg		50	26	110
Beryllium	iMET2SAICP	mg/kg		<0.50	0.84	0.66
Bismuth*	iMET2SAMS	mg/kg		0.62	0.14	0.30
Cadmium	iMET2SAMS	mg/kg		<0.10	0.14	<0.10
Calcium	iMET2SAICP	mg/kg		510	350	620
Chromium	iMET2SAICP	mg/kg		190	49	94
Cobalt	iMET2SAMS	mg/kg		11	6.8	13
Copper	iMET2SAMS	mg/kg		60	16	44
Iron	iMET2SAICP	mg/kg		130000	270000	100000
Lanthanum*	iMET2SAICP	mg/kg		7.2	4.2	6.3
Lead	iMET2SAMS	mg/kg		20	16	12
Lithium	iMET2SAICP	mg/kg		2.5	6.4	3.9
Magnesium	iMET2SAICP	mg/kg		640	330	1200
Manganese	iMET2SAICP	mg/kg		770	1200	450
Mercury	iMET2SAMS	mg/kg		<0.04	0.24	<0.04
Molybdenum	iMET2SAMS	mg/kg		1.4	0.67	1.3
Nickel	iMET2SAICP	mg/kg		29	33	33
Phosphorus	iMET2SAICP	mg/kg		100	84	150
Potassium	iMET2SAICP	mg/kg		600	140	1300
Selenium	iMET2SAMS	mg/kg		0.52	0.27	0.58
Silver	iMET2SAMS	mg/kg		0.12	<0.10	0.10
Sodium	iMET2SAICP	mg/kg		180	<100	180
Strontium	iMET2SAICP	mg/kg		7.9	5.0	15

LAB ID Client ID	057			058		059		060	
	MDRC1409_06-1			MDRC1409_34-		MDRC1409_48-		MDRC1412_10-	
Sampled			2	40		52		16	
Analyte	Method	Unit							
Sulfur	iMET2SAICP	mg/kg			130		120		250
Thallium	iMET2SAMS	mg/kg			0.20		<0.10		0.26
Thorium	iMET2SAMS	mg/kg			9.8		3.3		4.3
Tin	iMET2SAMS	mg/kg			2.5		<1.0		<1.0
Titanium	iMET2SAICP	mg/kg			440		500		200
Uranium	iMET2SAMS	mg/kg			1.8		2.4		0.80
Vanadium	iMET2SAICP	mg/kg			190		40		83
Yttrium*	iMET2SAMS	mg/kg			4.4		6.5		7.2
Zinc	iMET2SAICP	mg/kg			<50		180		60
pH	iPH1WASE		8.0		7.0		6.8		7.1
Electrical Conductivity	iEC1WZSE	mS/m	12.6		8.9		4.8		8.7
Alkalinity as CaCO3	iALK1WATI	mg/L	44		8		5		8
TDS (calculated)	iSOL1WDCA	mg/L	70		49		26		48
Aluminium	iMET1WCICP	mg/L	0.021		0.021		0.12		0.11
Antimony	iMET1WCMS	mg/L	0.0001		0.0002		<0.0001		0.0001
Arsenic	iMET1WCMS	mg/L	0.003		<0.001		<0.001		<0.001
Barium	iMET1WCICP	mg/L	0.005		<0.002		<0.002		0.007
Beryllium	iMET1WCICP	mg/L	<0.001		<0.001		<0.001		<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001		<0.0001		<0.0001		<0.0001
Boron	iMET1WCICP	mg/L	0.05		0.04		0.02		0.03
Cadmium	iMET1WCMS	mg/L	<0.0001		0.0003		<0.0001		<0.0001
Calcium	iMET1WCICP	mg/L	2.6		1.2		0.4		1.2
Chloride	iCO1WCDA	mg/L	7		7		4		7
Chromium	iMET1WCICP	mg/L	<0.001		0.001		<0.001		<0.001
Cobalt	iMET1WCICP	mg/L	<0.005		0.042		<0.005		0.007
Copper	iMET1WCMS	mg/L	0.0011		0.021		<0.0001		0.0010
Fluoride	iF1WASE	mg/L	0.74		0.50		0.48		0.42
Iron	iMET1WCICP	mg/L	0.007		0.059		0.077		0.11
Lanthanum	iMET1WCICP	mg/L	<0.005		<0.005		<0.005		<0.005
Lead	iMET1WCMS	mg/L	<0.0001		0.0003		<0.0001		<0.0001
Lithium	iMET1WCICP	mg/L	<0.005		<0.005		<0.005		<0.005
Magnesium	iMET1WCICP	mg/L	1.8		0.6		0.2		0.8
Manganese	iMET1WCICP	mg/L	0.003		0.016		0.001		0.004
Mercury	iMET1WCMS	mg/L	<0.0001		<0.0001		<0.0001		<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02		<0.02		<0.02		<0.02
Nickel	iMET1WCICP	mg/L	<0.01		0.02		<0.01		<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.26		0.63		0.29		0.39
Phosphorus	iMET1WCICP	mg/L	<0.1		<0.1		<0.1		<0.1
Potassium	iMET1WCICP	mg/L	4.5		3.4		2.0		4.3
Selenium	iMET1WCMS	mg/L	<0.001		<0.001		<0.001		0.002
Silicon	iMET1WCICP	mg/L	12		4.5		2.9		4.9
Silver	iMET1WCMS	mg/L	<0.0001		<0.0001		<0.0001		<0.0001
Sodium	iMET1WCICP	mg/L	17.4		14.7		7.3		11.6
Strontium	iMET1WCICP	mg/L	0.018		0.005		<0.002		0.007
Sulphate (from S)	iMET1WCICP	mg/L	5.5		12.7		4.6		14.9
Thallium	iMET1WCMS	mg/L	<0.0001		<0.0001		<0.0001		<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001		0.0001		<0.0001		<0.0001
Tin	iMET1WCMS	mg/L	<0.0001		<0.0001		<0.0001		<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005		0.0086		0.0009		0.0021

LAB ID			057	058	059	060
Client ID			MDRC1409_06-1 2	MDRC1409_34- 40	MDRC1409_48- 52	MDRC1412_10- 16
Sampled						
Analyte	Method	Unit				
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	0.0055	<0.0002	0.0003
Zinc	iMET1WCICP	mg/L	<0.005	0.021	<0.005	<0.005
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)			16/6/2023	16/6/2023	16/6/2023
	ARD		8/6/2023	8/6/2023	8/6/2023	8/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iMET1WCMS		8/6/2023	8/6/2023	8/6/2023	8/6/2023
	iMET2SAICP			28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS			28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		7/6/2023	7/6/2023	7/6/2023	7/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			061	062	063	064
Client ID			MDRC1412_72-8 4	MDRC1412_10 6-112	MDRC1413_26- 38	MDRC1414_06- 12
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	14	80	32	17
pH, 1:2 soil:water*	ARD		7.0	6.4	7.2	8.1
Acid Neutralising Capacity	ARD	kg H2SO4	1.6	6.3	2.7	4.4
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	28	<0.5	<0.5
NAG pH*	ARD		7.5	2.6	5.8	6.4
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	6.4	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	0.05	0.01	0.01
Carbon	(combs)	%	0.09	4.44	0.23	<0.05
Sulfur*	(combs)	%	0.03	1.36	0.09	0.15
Nitrogen	(total)	%	<0.005	0.009		<0.005
Aluminium	iMET2SAICP	mg/kg	11000	19400		14700
Antimony	iMET2SAMS	mg/kg	0.20	0.30		0.31
Arsenic	iMET2SAMS	mg/kg	12	10		21
Barium	iMET2SAICP	mg/kg	35	7.3		210
Beryllium	iMET2SAICP	mg/kg	3.8	1.5		0.80
Bismuth*	iMET2SAMS	mg/kg	0.20	0.95		0.30
Cadmium	iMET2SAMS	mg/kg	0.19	0.12		0.12
Calcium	iMET2SAICP	mg/kg	260	2100		1100
Chromium	iMET2SAICP	mg/kg	42	68		88
Cobalt	iMET2SAMS	mg/kg	13	41		16
Copper	iMET2SAMS	mg/kg	16	29		47
Iron	iMET2SAICP	mg/kg	240000	210000		82000
Lanthanum*	iMET2SAICP	mg/kg	21	4.5		10
Lead	iMET2SAMS	mg/kg	3.5	5.0		13

LAB ID			061	062	063	064
Client ID			MDRC1412_72-8 4	MDRC1412_10 6-112	MDRC1413_26- 38	MDRC1414_06- 12
Sampled						
Analyte	Method	Unit				
Lithium	iMET2SAICP	mg/kg	6.7	19		7.2
Magnesium	iMET2SAICP	mg/kg	510	21000		2300
Manganese	iMET2SAICP	mg/kg	4500	17000		630
Mercury	iMET2SAMS	mg/kg	0.11	0.55		<0.04
Molybdenum	iMET2SAMS	mg/kg	0.61	0.87		0.88
Nickel	iMET2SAICP	mg/kg	56	92		44
Phosphorus	iMET2SAICP	mg/kg	1100	530		170
Potassium	iMET2SAICP	mg/kg	290	170		1800
Selenium	iMET2SAMS	mg/kg	0.46	2.2		0.61
Silver	iMET2SAMS	mg/kg	<0.10	<0.10		0.11
Sodium	iMET2SAICP	mg/kg	<100	110		410
Strontium	iMET2SAICP	mg/kg	12	5.7		28
Sulfur	iMET2SAICP	mg/kg	130	13000		320
Thallium	iMET2SAMS	mg/kg	0.10	<0.10		0.32
Thorium	iMET2SAMS	mg/kg	2.9	2.1		4.5
Tin	iMET2SAMS	mg/kg	<1.0	<1.0		1.0
Titanium	iMET2SAICP	mg/kg	220	200		180
Uranium	iMET2SAMS	mg/kg	2.2	1.8		0.75
Vanadium	iMET2SAICP	mg/kg	36	57		77
Yttrium*	iMET2SAMS	mg/kg	45	12		8.6
Zinc	iMET2SAICP	mg/kg	230	170		64
pH	iPH1WASE		6.8	6.7	7.1	7.2
Electrical Conductivity	iEC1WZSE	mS/m	6.8	42.7	15.7	8.1
Alkalinity as CaCO3	iALK1WATI	mg/L	5	5	9	10
TDS (calculated)	iSOL1WDCA	mg/L	37	240	86	44
Aluminium	iMET1WCICP	mg/L	<0.005	<0.005	0.013	0.056
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0002
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	0.002
Barium	iMET1WCICP	mg/L	<0.002	0.003	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	<0.02	0.03	0.03	0.04
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0003	<0.0001
Calcium	iMET1WCICP	mg/L	1.4	21.9	1.2	0.2
Chloride	iCO1WCDA	mg/L	5	5	12	7
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	0.028	0.077	0.006
Copper	iMET1WCMS	mg/L	0.0006	0.0028	0.083	0.0021
Fluoride	iF1WASE	mg/L	0.27	0.11	0.53	0.64
Iron	iMET1WCICP	mg/L	<0.005	<0.005	0.26	0.041
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0007	0.0004
Lithium	iMET1WCICP	mg/L	0.011	0.005	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	0.9	17.1	0.8	0.1
Manganese	iMET1WCICP	mg/L	0.009	11	0.094	0.011
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	0.04	0.04	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.22	0.19	1.6	0.33

LAB ID			061	062	063	064
Client ID			MDRC1412_72-8 4	MDRC1412_10 6-112	MDRC1413_26- 38	MDRC1414_06- 12
Sampled						
Analyte	Method	Unit				
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	2.6	6.5	4.0	1.2
Selenium	iMET1WCMS	mg/L	<0.001	0.025	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	1.7	1.3	4.6	9.2
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	8.0	17.3	26.5	15.5
Strontium	iMET1WCICP	mg/L	0.006	0.078	0.006	<0.002
Sulphate (from S)	iMET1WCICP	mg/L	12.8	170	53.4	11.1
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	0.0020	0.0031
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	0.025	<0.0002
Zinc	iMET1WCICP	mg/L	0.009	0.016	0.048	<0.005
Date Analysed	(combs)		13/7/2023	13/7/2023	13/7/2023	13/7/2023
	(total)		16/6/2023	16/6/2023		16/6/2023
	ARD		8/6/2023	9/6/2023	8/6/2023	8/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		12/6/2023	12/6/2023	14/6/2023	12/6/2023
	iMET2SAICP		28/8/2023	28/8/2023		28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023		28/8/2023
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			065	066	067	068
Client ID			MDRC1414_32-3 8	MDRC1414_62- 68	MDRC1415_10- 16	MDRC1415_44- 50
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	21	15	9	19
pH, 1:2 soil:water*	ARD		7.3	7.1	7.5	7.2
Acid Neutralising Capacity	ARD	kg H2SO4	2.4	1.6	2.7	2.5
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		6.3	7.3	6.1	6.5
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	<0.01	0.01	<0.01
Carbon	(combs)	%	<0.05	0.07	<0.05	<0.05
Sulfur*	(combs)	%	0.03	0.02	0.09	0.03
Nitrogen	(total)	%	0.007	<0.005	0.005	
Aluminium	iMET2SAICP	mg/kg	13400	9800	9100	
Antimony	iMET2SAMS	mg/kg	0.73	0.26	0.29	

LAB ID			065	066	067	068
Client ID			MDRC1414_32-3 8	MDRC1414_62- 68	MDRC1415_10- 16	MDRC1415_44- 50
Sampled						
Analyte	Method	Unit				
Arsenic	iMET2SAMS	mg/kg	41	9.2	22	
Barium	iMET2SAICP	mg/kg	85	58	120	
Beryllium	iMET2SAICP	mg/kg	0.55	1.4	0.59	
Bismuth*	iMET2SAMS	mg/kg	0.82	0.23	0.31	
Cadmium	iMET2SAMS	mg/kg	<0.10	0.21	0.12	
Calcium	iMET2SAICP	mg/kg	560	390	630	
Chromium	iMET2SAICP	mg/kg	240	89	85	
Cobalt	iMET2SAMS	mg/kg	17	9.4	18	
Copper	iMET2SAMS	mg/kg	59	15	49	
Iron	iMET2SAICP	mg/kg	100000	190000	79000	
Lanthanum*	iMET2SAICP	mg/kg	10	13	6.1	
Lead	iMET2SAMS	mg/kg	27	8.6	13	
Lithium	iMET2SAICP	mg/kg	9.4	6.4	3.2	
Magnesium	iMET2SAICP	mg/kg	680	500	1300	
Manganese	iMET2SAICP	mg/kg	1200	2600	770	
Mercury	iMET2SAMS	mg/kg	0.10	0.15	<0.04	
Molybdenum	iMET2SAMS	mg/kg	1.6	0.45	1.0	
Nickel	iMET2SAICP	mg/kg	34	44	37	
Phosphorus	iMET2SAICP	mg/kg	130	280	130	
Potassium	iMET2SAICP	mg/kg	800	260	1300	
Selenium	iMET2SAMS	mg/kg	0.55	0.17	0.43	
Silver	iMET2SAMS	mg/kg	0.15	<0.10	<0.10	
Sodium	iMET2SAICP	mg/kg	210	120	160	
Strontium	iMET2SAICP	mg/kg	11	9.4	17	
Sulfur	iMET2SAICP	mg/kg	130	75	190	
Thallium	iMET2SAMS	mg/kg	0.45	<0.10	0.57	
Thorium	iMET2SAMS	mg/kg	12	4.6	4.0	
Tin	iMET2SAMS	mg/kg	3.3	<1.0	<1.0	
Titanium	iMET2SAICP	mg/kg	560	260	150	
Uranium	iMET2SAMS	mg/kg	2.0	2.0	0.67	
Vanadium	iMET2SAICP	mg/kg	240	56	76	
Yttrium*	iMET2SAMS	mg/kg	6.6	15	6.2	
Zinc	iMET2SAICP	mg/kg	<50	210	61	
pH	iPH1WASE		6.9	6.8	7.1	7.0
Electrical Conductivity	iEC1WZSE	mS/m	9.6	7.4	4.8	8.9
Alkalinity as CaCO3	iALK1WATI	mg/L	6	5	7	6
TDS (calculated)	iSOL1WDCA	mg/L	53	41	27	49
Aluminium	iMET1WCICP	mg/L	0.091	0.026	0.030	0.13
Antimony	iMET1WCMS	mg/L	0.0001	<0.0001	0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.04	<0.02	0.03	0.04
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Calcium	iMET1WCICP	mg/L	1.2	1.0	0.3	0.7
Chloride	iCO1WCDA	mg/L	13	7	4	10
Chromium	iMET1WCICP	mg/L	<0.001	0.001	<0.001	0.001
Cobalt	iMET1WCICP	mg/L	<0.005	0.008	<0.005	0.021

LAB ID			065	066	067	068
Client ID			MDRC1414_32-38	MDRC1414_62-68	MDRC1415_10-16	MDRC1415_44-50
Sampled						
Analyte	Method	Unit				
Copper	iMET1WCMS	mg/L	0.0016	0.0005	0.0010	0.0047
Fluoride	iF1WASE	mg/L	0.65	0.42	0.44	0.68
Iron	iMET1WCICP	mg/L	0.055	0.013	0.021	0.074
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	0.010	<0.0001	0.0001
Lithium	iMET1WCICP	mg/L	<0.005	0.008	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	0.8	0.6	0.2	0.5
Manganese	iMET1WCICP	mg/L	0.004	0.005	0.002	0.010
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.33	0.36	0.30	0.64
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.6	2.6	2.2	3.1
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	4.4	2.4	5.2	5.0
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	13.9	10.9	7.4	14.2
Strontium	iMET1WCICP	mg/L	0.006	0.004	<0.002	0.003
Sulphate (from S)	iMET1WCICP	mg/L	10.3	11.5	5.6	12.5
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0018	0.0009	0.0037	0.0029
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.0005	0.0002	<0.0002	0.0020
Zinc	iMET1WCICP	mg/L	<0.005	0.016	<0.005	0.009
Date Analysed	(combs)		13/7/2023	13/7/2023	17/7/2023	17/7/2023
	(total)		16/6/2023	16/6/2023	16/6/2023	
	ARD		8/6/2023	8/6/2023	8/6/2023	8/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		12/6/2023	12/6/2023	12/6/2023	12/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			069	070	071	072
Client ID			MDRC1415_92-98	MDRC1415_98-104	MDRC1424_22-26	MDRC1424_48-54
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	44	110	15	8

LAB ID			069	070	071	072
Client ID			MDRC1415_92-9	MDRC1415_98-	MDRC1424_22-	MDRC1424_48-
			8	104	26	54
Sampled						
Analyte	Method	Unit				
pH, 1:2 soil:water*	ARD		7.3	5.1	7.2	7.0
Acid Neutralising Capacity	ARD	kg H2SO4	9.3	5.7	3.3	1.7
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	60	<0.5	<0.5
NAG pH*	ARD		7.2	2.2	7.5	7.0
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	40	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.04	0.07	0.02	<0.01
Carbon	(combs)	%	1.24	2.05	<0.05	<0.05
Sulfur*	(combs)	%	0.20	2.31	0.06	0.03
Nitrogen	(total)	%	0.010	0.009	<0.005	<0.005
Aluminium	iMET2SAICP	mg/kg	31300	37300	20900	3220
Antimony	iMET2SAMS	mg/kg	0.41	0.17	0.11	0.30
Arsenic	iMET2SAMS	mg/kg	37	12	9.8	6.7
Barium	iMET2SAICP	mg/kg	87	5.7	710	29
Beryllium	iMET2SAICP	mg/kg	4.4	1.0	1.3	1.0
Bismuth*	iMET2SAMS	mg/kg	0.34	0.29	0.24	0.16
Cadmium	iMET2SAMS	mg/kg	0.18	<0.10	0.51	0.22
Calcium	iMET2SAICP	mg/kg	3000	2400	970	140
Chromium	iMET2SAICP	mg/kg	100	98	41	25
Cobalt	iMET2SAMS	mg/kg	29	25	57	8.9
Copper	iMET2SAMS	mg/kg	20	21	29	4.0
Iron	iMET2SAICP	mg/kg	230000	110000	150000	150000
Lanthanum*	iMET2SAICP	mg/kg	8.5	3.5	20	5.9
Lead	iMET2SAMS	mg/kg	12	4.5	30	2.6
Lithium	iMET2SAICP	mg/kg	32	36	160	<2.0
Magnesium	iMET2SAICP	mg/kg	42000	56000	1600	390
Manganese	iMET2SAICP	mg/kg	17000	3700	75000	2100
Mercury	iMET2SAMS	mg/kg	0.24	0.18	0.26	0.12
Molybdenum	iMET2SAMS	mg/kg	0.87	0.83	0.91	1.2
Nickel	iMET2SAICP	mg/kg	61	99	120	18
Phosphorus	iMET2SAICP	mg/kg	1800	800	160	70
Potassium	iMET2SAICP	mg/kg	1300	110	3000	520
Selenium	iMET2SAMS	mg/kg	1.4	1.1	0.29	0.13
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10	<0.10
Sodium	iMET2SAICP	mg/kg	200	110	760	<100
Strontium	iMET2SAICP	mg/kg	47	4.7	180	2.9
Sulfur	iMET2SAICP	mg/kg	1700	20000	510	210
Thallium	iMET2SAMS	mg/kg	1.4	<0.10	0.65	<0.10
Thorium	iMET2SAMS	mg/kg	3.3	1.9	5.7	1.3
Tin	iMET2SAMS	mg/kg	1.1	<1.0	1.1	<1.0
Titanium	iMET2SAICP	mg/kg	310	82	460	52
Uranium	iMET2SAMS	mg/kg	4.8	1.1	2.2	0.60
Vanadium	iMET2SAICP	mg/kg	80	75	54	18
Yttrium*	iMET2SAMS	mg/kg	29	8.5	13	11
Zinc	iMET2SAICP	mg/kg	200	95	94	94
pH	iPH1WASE		6.9	5.0	7.2	6.7
Electrical Conductivity	iEC1WZSE	mS/m	24.4	61.5	8.0	3.8
Alkalinity as CaCO3	iALK1WATI	mg/L	6	<1	13	3
TDS (calculated)	iSOL1WDCA	mg/L	130	340	44	21

LAB ID			069	070	071	072
Client ID			MDRC1415_92-98	MDRC1415_98-104	MDRC1424_22-26	MDRC1424_48-54
Sampled						
Analyte	Method	Unit				
Aluminium	iMET1WCICP	mg/L	0.008	0.25	<0.005	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	0.008	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.03	0.03	0.03	<0.02
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0003	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	7.4	30.7	2.1	0.4
Chloride	iCO1WCDA	mg/L	22	7	5	3
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	0.002	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	0.20	<0.005	<0.005
Copper	iMET1WCMS	mg/L	0.0005	0.0053	0.0003	0.0001
Fluoride	iF1WASE	mg/L	0.81	0.20	0.59	0.19
Iron	iMET1WCICP	mg/L	<0.005	0.030	<0.005	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0029
Lithium	iMET1WCICP	mg/L	<0.005	0.007	0.008	<0.005
Magnesium	iMET1WCICP	mg/L	5.6	32.5	1.3	0.3
Manganese	iMET1WCICP	mg/L	0.059	15	0.005	0.005
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	0.43	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.19	0.17	0.59	0.30
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	6.2	5.6	4.4	3.1
Selenium	iMET1WCMS	mg/L	0.042	0.016	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	1.8	1.7	4.3	1.5
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	21.4	18.0	8.8	4.2
Strontium	iMET1WCICP	mg/L	0.022	0.11	0.006	<0.002
Sulphate (from S)	iMET1WCICP	mg/L	54.2	263	7.9	4.6
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	0.0015	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	<0.005	0.32	0.005	<0.005
Date Analysed	(combs)		17/7/2023	17/7/2023	17/7/2023	17/7/2023
	(total)		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	ARD		8/6/2023	9/6/2023	8/6/2023	8/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		9/6/2023	9/6/2023	13/6/2023	13/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		12/6/2023	12/6/2023	12/6/2023	12/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023

LAB ID		069	070	071	072
Client ID					
Sampled					
Analyte	Method	Unit			
Date Analysed	iPH1WASE	13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA	28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)	13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition		Ambient	Ambient	Ambient	Ambient

LAB ID			073	074	075	076
Client ID			MDRC1438_04-1	MDRC1438_20-	MDRC1440_28-	MDRC1440_60-
			0	26	34	66
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	130	20	12	13
pH, 1:2 soil:water*	ARD		7.9	7.4	7.3	7.0
Acid Neutralising Capacity	ARD	kg H2SO4	9.8	2.8	2.6	1.8
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	0.7	<0.5	<0.5
NAG pH*	ARD		8.3	5.9	6.1	7.6
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.04	<0.01	<0.01	0.01
Carbon	(combs)	%	0.11	<0.05	0.05	0.09
Sulfur*	(combs)	%	0.12	0.03	0.02	0.04
Nitrogen	(total)	%		0.006	0.007	
Aluminium	iMET2SAICP	mg/kg		15900	18000	
Antimony	iMET2SAMS	mg/kg		1.0	0.67	
Arsenic	iMET2SAMS	mg/kg		55	41	
Barium	iMET2SAICP	mg/kg		100	60	
Beryllium	iMET2SAICP	mg/kg		0.57	0.52	
Bismuth*	iMET2SAMS	mg/kg		0.58	0.72	
Cadmium	iMET2SAMS	mg/kg		<0.10	0.20	
Calcium	iMET2SAICP	mg/kg		680	590	
Chromium	iMET2SAICP	mg/kg		180	230	
Cobalt	iMET2SAMS	mg/kg		7.1	15	
Copper	iMET2SAMS	mg/kg		63	65	
Iron	iMET2SAICP	mg/kg		150000	160000	
Lanthanum*	iMET2SAICP	mg/kg		5.9	9.9	
Lead	iMET2SAMS	mg/kg		20	22	
Lithium	iMET2SAICP	mg/kg		5.0	11	
Magnesium	iMET2SAICP	mg/kg		720	790	
Manganese	iMET2SAICP	mg/kg		330	970	
Mercury	iMET2SAMS	mg/kg		<0.04	0.13	
Molybdenum	iMET2SAMS	mg/kg		2.2	1.8	
Nickel	iMET2SAICP	mg/kg		23	42	
Phosphorus	iMET2SAICP	mg/kg		160	140	
Potassium	iMET2SAICP	mg/kg		770	730	
Selenium	iMET2SAMS	mg/kg		1.4	1.1	
Silver	iMET2SAMS	mg/kg		0.14	0.10	
Sodium	iMET2SAICP	mg/kg		250	180	
Strontium	iMET2SAICP	mg/kg		9.1	10	
Sulfur	iMET2SAICP	mg/kg		150	120	
Thallium	iMET2SAMS	mg/kg		0.25	0.26	

LAB ID	073			074		075		076	
Client ID	MDRC1438_04-1			MDRC1438_20-		MDRC1440_28-		MDRC1440_60-	
	0			26		34		66	
Sampled									
Analyte	Method	Unit							
Thorium	iMET2SAMS	mg/kg	9.3		11				
Tin	iMET2SAMS	mg/kg	2.7		3.2				
Titanium	iMET2SAICP	mg/kg	520		620				
Uranium	iMET2SAMS	mg/kg	1.1		1.6				
Vanadium	iMET2SAICP	mg/kg	190		250				
Yttrium*	iMET2SAMS	mg/kg	5.7		8.2				
Zinc	iMET2SAICP	mg/kg	<50		120				
pH	iPH1WASE		7.8	7.3	7.0	6.9			
Electrical Conductivity	iEC1WZSE	mS/m	66.0	10.6	6.5	6.5			
Alkalinity as CaCO3	iALK1WATI	mg/L	46	12	7	6			
TDS (calculated)	iSOL1WDCA	mg/L	360	59	36	36			
Aluminium	iMET1WCICP	mg/L	<0.005	0.015	1.1	0.011			
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0001	<0.0001			
Arsenic	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001			
Barium	iMET1WCICP	mg/L	0.015	0.005	<0.002	<0.002			
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001			
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Boron	iMET1WCICP	mg/L	0.11	0.03	0.04	<0.02			
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Calcium	iMET1WCICP	mg/L	49.3	2.0	0.6	0.5			
Chloride	iCO1WCDA	mg/L	37	10	7	6			
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	0.002	0.002			
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005			
Copper	iMET1WCMS	mg/L	0.0048	0.0003	0.0021	<0.0001			
Fluoride	iF1WASE	mg/L	0.79	0.53	0.96	0.59			
Iron	iMET1WCICP	mg/L	<0.005	<0.005	0.57	<0.005			
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005			
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0001	<0.0001			
Lithium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005			
Magnesium	iMET1WCICP	mg/L	14.2	1.1	0.4	0.4			
Manganese	iMET1WCICP	mg/L	0.003	<0.001	0.005	0.001			
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02			
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	<0.01	<0.01			
Nitrogen, total	iNP1WTFIA	mg/L	6.2	1.2	0.63	0.55			
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1			
Potassium	iMET1WCICP	mg/L	8.3	4.1	2.6	3.2			
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001			
Silicon	iMET1WCICP	mg/L	14	5.1	6.5	3.0			
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Sodium	iMET1WCICP	mg/L	45.4	14.0	10.1	9.0			
Strontium	iMET1WCICP	mg/L	0.23	0.011	0.003	<0.002			
Sulphate (from S)	iMET1WCICP	mg/L	180	13.2	6.0	8.8			
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001			
Titanium	iMET1WCMS	mg/L	<0.0005	0.0014	0.0089	<0.0005			
Uranium	iMET1WCMS	mg/L	0.0002	<0.0001	<0.0001	<0.0001			
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005			

LAB ID			073	074	075	076
Client ID			MDRC1438_04-10	MDRC1438_20-26	MDRC1440_28-34	MDRC1440_60-66
Sampled						
Analyte	Method	Unit				
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	0.006	<0.005	0.006	<0.005
Date Analysed	(combs)		17/7/2023	17/7/2023	17/7/2023	17/7/2023
	(total)			16/6/2023	16/6/2023	
	ARD		8/6/2023	8/6/2023	8/6/2023	8/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		12/6/2023	12/6/2023	12/6/2023	12/6/2023
	iMET2SAICP			28/8/2023	28/8/2023	
	iMET2SAMS			28/8/2023	28/8/2023	
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			077	078	079	080
Client ID			MDRC1440_66-72	MDRC1440_72-78	MDRC1440_78-88	MDRC1441_28-34
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	10	17	23	24
pH, 1:2 soil:water*	ARD		7.2	7.2	7.2	7.3
Acid Neutralising Capacity	ARD	kg H2SO4	2.4	1.6	2.7	2.0
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		7.7	7.8	7.9	5.8
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	0.02	0.03	0.01
Carbon	(combs)	%	0.09	<0.05	<0.05	0.13
Sulfur*	(combs)	%	0.02	0.10	0.09	0.03
Nitrogen	(total)	%	<0.005	<0.005	<0.005	
Aluminium	iMET2SAICP	mg/kg	12200	8410	17900	
Antimony	iMET2SAMS	mg/kg	0.69	0.34	0.16	
Arsenic	iMET2SAMS	mg/kg	41	39	44	
Barium	iMET2SAICP	mg/kg	300	120	140	
Beryllium	iMET2SAICP	mg/kg	6.3	4.3	3.6	
Bismuth*	iMET2SAMS	mg/kg	0.27	0.38	0.59	
Cadmium	iMET2SAMS	mg/kg	1.0	0.81	0.83	
Calcium	iMET2SAICP	mg/kg	420	460	920	
Chromium	iMET2SAICP	mg/kg	58	75	110	
Cobalt	iMET2SAMS	mg/kg	52	31	57	
Copper	iMET2SAMS	mg/kg	100	71	25	
Iron	iMET2SAICP	mg/kg	300000	310000	300000	
Lanthanum*	iMET2SAICP	mg/kg	15	12	12	
Lead	iMET2SAMS	mg/kg	4.0	2.9	6.3	
Lithium	iMET2SAICP	mg/kg	2.3	5.0	30	
Magnesium	iMET2SAICP	mg/kg	580	460	1700	

LAB ID			077	078	079	080
Client ID			MDRC1440_66-7	MDRC1440_72-78	MDRC1440_78-88	MDRC1441_28-34
Sampled						
Analyte	Method	Unit				
Manganese	iMET2SAICP	mg/kg	20000	7100	10000	
Mercury	iMET2SAMS	mg/kg	0.41	0.20	0.26	
Molybdenum	iMET2SAMS	mg/kg	0.91	0.89	1.5	
Nickel	iMET2SAICP	mg/kg	210	150	200	
Phosphorus	iMET2SAICP	mg/kg	710	560	370	
Potassium	iMET2SAICP	mg/kg	1500	560	840	
Selenium	iMET2SAMS	mg/kg	0.89	0.41	0.77	
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10	
Sodium	iMET2SAICP	mg/kg	230	200	270	
Strontium	iMET2SAICP	mg/kg	29	14	26	
Sulfur	iMET2SAICP	mg/kg	200	610	710	
Thallium	iMET2SAMS	mg/kg	1.6	1.2	0.64	
Thorium	iMET2SAMS	mg/kg	2.6	2.7	3.3	
Tin	iMET2SAMS	mg/kg	<1.0	<1.0	1.3	
Titanium	iMET2SAICP	mg/kg	210	140	99	
Uranium	iMET2SAMS	mg/kg	3.6	2.1	1.8	
Vanadium	iMET2SAICP	mg/kg	41	44	80	
Yttrium*	iMET2SAMS	mg/kg	58	35	31	
Zinc	iMET2SAICP	mg/kg	900	500	690	
pH	iPH1WASE		6.8	6.8	6.7	7.1
Electrical Conductivity	iEC1WZSE	mS/m	5.3	9.6	11.2	12.1
Alkalinity as CaCO3	iALK1WATI	mg/L	5	4	4	7
TDS (calculated)	iSOL1WDCA	mg/L	29	53	62	67
Aluminium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	0.022
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.02	0.02	0.03	0.04
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0012
Calcium	iMET1WCICP	mg/L	0.5	1.2	1.2	0.7
Chloride	iCO1WCDA	mg/L	5	16	21	8
Chromium	iMET1WCICP	mg/L	0.006	<0.001	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	0.10
Copper	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.057
Fluoride	iF1WASE	mg/L	0.50	0.30	0.35	0.83
Iron	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	0.14
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0008
Lithium	iMET1WCICP	mg/L	0.007	<0.005	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	0.4	0.8	0.9	0.4
Manganese	iMET1WCICP	mg/L	<0.001	<0.001	0.005	0.050
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	<0.01	0.03
Nitrogen, total	iNP1WTFIA	mg/L	0.43	0.44	0.41	1.6
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	2.4	3.3	3.3	3.1

LAB ID			077	078	079	080
Client ID			MDRC1440_66-7 2	MDRC1440_72- 78	MDRC1440_78- 88	MDRC1441_28- 34
Sampled						
Analyte	Method	Unit				
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	3.4	2.3	3.5	5.6
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	7.7	12.8	16.0	22.1
Strontium	iMET1WCICP	mg/L	<0.002	0.004	0.004	0.003
Sulphate (from S)	iMET1WCICP	mg/L	4.7	7.9	6.1	44.0
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	0.0024
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	0.013
Zinc	iMET1WCICP	mg/L	<0.005	<0.005	0.005	0.11
Date Analysed	(combs)		17/7/2023	17/7/2023	17/7/2023	17/7/2023
	(total)		16/6/2023	4/7/2023	4/7/2023	
	ARD		8/6/2023	8/6/2023	8/6/2023	13/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		12/6/2023	12/6/2023	12/6/2023	14/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			081	082	083	084
Client ID			MDRC1441_100- 106	MDRC1459_18- 24	MDRC1459_52- 58	MDRC1460_06- 12
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	43	13	15	15
pH, 1:2 soil:water*	ARD		6.0	7.1	7.0	8.0
Acid Neutralising Capacity	ARD	kg H2SO4	8.2	3.2	1.9	5.1
NAG (Net Acid Generation)*	ARD	kgH2SO4	2.5	<0.5	<0.5	<0.5
NAG pH*	ARD		3.9	6.0	6.7	7.1
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.04	<0.01	<0.01	0.01
Carbon	(combs)	%	1.99	<0.05	0.27	<0.05
Sulfur*	(combs)	%	0.47	0.04	0.04	0.12
Nitrogen	(total)	%		0.008		<0.005
Aluminium	iMET2SAICP	mg/kg		16800		11300
Antimony	iMET2SAMS	mg/kg		0.72		0.51
Arsenic	iMET2SAMS	mg/kg		44		23
Barium	iMET2SAICP	mg/kg		77		150

LAB ID			081	082	083	084
Client ID			MDRC1441_100-106	MDRC1459_18-24	MDRC1459_52-58	MDRC1460_06-12
Sampled						
Analyte	Method	Unit				
Beryllium	iMET2SAICP	mg/kg		0.73		0.71
Bismuth*	iMET2SAMS	mg/kg		0.58		0.27
Cadmium	iMET2SAMS	mg/kg		<0.10		0.12
Calcium	iMET2SAICP	mg/kg		610		1000
Chromium	iMET2SAICP	mg/kg		190		92
Cobalt	iMET2SAMS	mg/kg		8.4		16
Copper	iMET2SAMS	mg/kg		63		45
Iron	iMET2SAICP	mg/kg		160000		83000
Lanthanum*	iMET2SAICP	mg/kg		5.9		9.2
Lead	iMET2SAMS	mg/kg		20		11
Lithium	iMET2SAICP	mg/kg		4.8		4.2
Magnesium	iMET2SAICP	mg/kg		750		1800
Manganese	iMET2SAICP	mg/kg		550		550
Mercury	iMET2SAMS	mg/kg		<0.04		<0.04
Molybdenum	iMET2SAMS	mg/kg		1.7		0.94
Nickel	iMET2SAICP	mg/kg		22		38
Phosphorus	iMET2SAICP	mg/kg		160		150
Potassium	iMET2SAICP	mg/kg		860		1500
Selenium	iMET2SAMS	mg/kg		1.5		0.79
Silver	iMET2SAMS	mg/kg		0.16		<0.10
Sodium	iMET2SAICP	mg/kg		240		210
Strontium	iMET2SAICP	mg/kg		10		22
Sulfur	iMET2SAICP	mg/kg		130		250
Thallium	iMET2SAMS	mg/kg		0.45		0.26
Thorium	iMET2SAMS	mg/kg		9.8		3.6
Tin	iMET2SAMS	mg/kg		2.8		<1.0
Titanium	iMET2SAICP	mg/kg		590		160
Uranium	iMET2SAMS	mg/kg		1.2		0.54
Vanadium	iMET2SAICP	mg/kg		190		78
Yttrium*	iMET2SAMS	mg/kg		5.0		6.6
Zinc	iMET2SAICP	mg/kg		<50		67
pH	iPH1WASE		6.1	6.9	6.8	7.8
Electrical Conductivity	iEC1WZSE	mS/m	26.7	6.6	7.4	8.5
Alkalinity as CaCO3	iALK1WATI	mg/L	2	5	6	23
TDS (calculated)	iSOL1WDCA	mg/L	150	36	41	47
Aluminium	iMET1WCICP	mg/L	<0.005	0.76	<0.005	0.072
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	0.005
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.05	0.04	<0.02	0.06
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	<0.0001
Calcium	iMET1WCICP	mg/L	11.3	0.3	0.8	1.5
Chloride	iCO1WCDA	mg/L	9	8	3	5
Chromium	iMET1WCICP	mg/L	<0.001	0.002	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	0.054	<0.005	0.013	<0.005
Copper	iMET1WCMS	mg/L	0.0004	0.0018	0.0016	0.0008
Fluoride	iF1WASE	mg/L	0.23	0.43	0.29	0.55

LAB ID			081	082	083	084
Client ID			MDRC1441_100-106	MDRC1459_18-24	MDRC1459_52-58	MDRC1460_06-12
Sampled						
Analyte	Method	Unit				
Iron	iMET1WCICP	mg/L	<0.005	0.41	0.017	0.077
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	0.006	<0.005	0.009	<0.005
Magnesium	iMET1WCICP	mg/L	11.8	0.2	0.6	0.9
Manganese	iMET1WCICP	mg/L	2.2	0.005	0.011	0.004
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	0.02	<0.01	0.02	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.34	0.91	0.69	0.45
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	5.8	2.7	2.3	3.5
Selenium	iMET1WCMS	mg/L	0.002	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	1.4	5.6	2.5	9.7
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	10.5	10.3	11.9	13.3
Strontium	iMET1WCICP	mg/L	0.037	<0.002	0.004	0.012
Sulphate (from S)	iMET1WCICP	mg/L	95.2	6.3	17.2	7.1
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	0.0054	<0.0005	0.0016
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	0.0003	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	0.009	<0.005	0.030	<0.005
Date Analysed	(combs)		17/7/2023	17/7/2023	17/7/2023	17/7/2023
	(total)			4/7/2023		4/7/2023
	ARD		8/6/2023	8/6/2023	8/6/2023	8/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		14/6/2023	14/6/2023	14/6/2023	14/6/2023
	iMET2SAICP			28/8/2023		28/8/2023
	iMET2SAMS			28/8/2023		28/8/2023
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			085	086	087	088
Client ID			MDRC1460_30-36	MDRC1460_60-64	MDRC1460_64-74	MDRC1460_74-78
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	11	14	12	20
pH, 1:2 soil:water*	ARD		7.0	7.0	6.7	6.5

LAB ID			085	086	087	088
Client ID			MDRC1460_30-3	MDRC1460_60-	MDRC1460_64-	MDRC1460_74-
			6	64	74	78
Sampled						
Analyte	Method	Unit				
Acid Neutralising Capacity	ARD	kg H2SO4	2.6	3.6	1.8	2.0
NAG (Net Acid Generation)*	ARD	kgH2SO4	0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		5.4	7.9	7.5	7.3
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	<0.01	<0.01	<0.01
Carbon	(combs)	%	0.14	0.08	0.10	0.11
Sulfur*	(combs)	%	0.02	0.02	0.01	0.01
Nitrogen	(total)	%	0.010	<0.005	<0.005	
Aluminium	iMET2SAICP	mg/kg	17100	15200	7180	
Antimony	iMET2SAMS	mg/kg	0.54	<0.10	0.26	
Arsenic	iMET2SAMS	mg/kg	41	14	10	
Barium	iMET2SAICP	mg/kg	32	840	200	
Beryllium	iMET2SAICP	mg/kg	<0.50	2.1	2.4	
Bismuth*	iMET2SAMS	mg/kg	0.66	0.19	0.11	
Cadmium	iMET2SAMS	mg/kg	<0.10	1.5	0.49	
Calcium	iMET2SAICP	mg/kg	520	860	250	
Chromium	iMET2SAICP	mg/kg	200	39	25	
Cobalt	iMET2SAMS	mg/kg	5.8	58	29	
Copper	iMET2SAMS	mg/kg	65	12	9.8	
Iron	iMET2SAICP	mg/kg	150000	310000	280000	
Lanthanum*	iMET2SAICP	mg/kg	10	22	9.2	
Lead	iMET2SAMS	mg/kg	22	6.3	2.3	
Lithium	iMET2SAICP	mg/kg	4.2	6.7	<2.0	
Magnesium	iMET2SAICP	mg/kg	520	1200	350	
Manganese	iMET2SAICP	mg/kg	620	49000	14000	
Mercury	iMET2SAMS	mg/kg	<0.04	0.50	0.15	
Molybdenum	iMET2SAMS	mg/kg	1.8	0.70	0.75	
Nickel	iMET2SAICP	mg/kg	19	120	67	
Phosphorus	iMET2SAICP	mg/kg	120	240	530	
Potassium	iMET2SAICP	mg/kg	810	2600	870	
Selenium	iMET2SAMS	mg/kg	1.0	0.34	0.30	
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10	
Sodium	iMET2SAICP	mg/kg	170	500	150	
Strontium	iMET2SAICP	mg/kg	10	82	15	
Sulfur	iMET2SAICP	mg/kg	110	330	130	
Thallium	iMET2SAMS	mg/kg	0.21	0.82	0.56	
Thorium	iMET2SAMS	mg/kg	9.8	3.6	1.4	
Tin	iMET2SAMS	mg/kg	2.9	<1.0	<1.0	
Titanium	iMET2SAICP	mg/kg	580	340	170	
Uranium	iMET2SAMS	mg/kg	1.4	2.2	1.3	
Vanadium	iMET2SAICP	mg/kg	230	47	35	
Yttrium*	iMET2SAMS	mg/kg	3.6	36	30	
Zinc	iMET2SAICP	mg/kg	<50	520	280	
pH	iPH1WASE		6.9	6.8	6.6	6.4
Electrical Conductivity	iEC1WZSE	mS/m	5.9	7.0	5.7	10.4
Alkalinity as CaCO3	iALK1WATI	mg/L	9	12	8	20
TDS (calculated)	iSOL1WDCA	mg/L	32	39	31	57
Aluminium	iMET1WCICP	mg/L	1.2	0.006	<0.005	<0.005

LAB ID			085	086	087	088
Client ID			MDRC1460_30-3 6	MDRC1460_60- 64	MDRC1460_64- 74	MDRC1460_74- 78
Sampled						
Analyte	Method	Unit				
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.03	<0.02	<0.02	0.02
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	0.6	1.0	1.8	5.0
Chloride	iCO1WCDA	mg/L	4	2	3	5
Chromium	iMET1WCICP	mg/L	0.001	0.001	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Copper	iMET1WCMS	mg/L	0.0035	0.0001	0.0004	0.0004
Fluoride	iF1WASE	mg/L	0.38	0.36	0.12	0.11
Iron	iMET1WCICP	mg/L	0.51	<0.005	<0.005	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	0.009	0.011	0.006
Magnesium	iMET1WCICP	mg/L	0.4	0.7	1.2	3.1
Manganese	iMET1WCICP	mg/L	0.004	0.003	0.019	0.18
Mercury	iMET1WCMS	mg/L	<0.0001	0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.44	0.31	0.19	0.28
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	2.6	3.2	2.8	4.3
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	5.6	3.3	2.3	1.6
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	9.8	10.9	5.8	7.9
Strontium	iMET1WCICP	mg/L	0.004	0.004	0.007	0.015
Sulphate (from S)	iMET1WCICP	mg/L	4.7	6.4	6.1	8.5
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0036	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.0005	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	<0.005	<0.005	0.006	0.018
Date Analysed	(combs)		17/7/2023	17/7/2023	17/7/2023	17/7/2023
	(total)		4/7/2023	4/7/2023	4/7/2023	
	ARD		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iALK1WATI		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iCO1WCDA		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		14/6/2023	14/6/2023	14/6/2023	14/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		13/6/2023	13/6/2023	13/6/2023	13/6/2023

LAB ID			085	086	087	088
Client ID						
Sampled						
Analyte	Method	Unit				
Date Analysed	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient
LAB ID			089	090	091	092
Client ID			MDRC1460_78-8	MDRC1460_84-88	MDRC1460_90-94	MDRC1475_06-12
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	30	16	15	14
pH, 1:2 soil:water*	ARD		6.8	7.1	7.4	7.8
Acid Neutralising Capacity	ARD	kg H2SO4	3.3	1.7	2.8	4.8
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		7.3	7.6	7.5	6.4
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.02	0.02	0.02	0.01
Carbon	(combs)	%	0.07	<0.05	0.34	0.06
Sulfur*	(combs)	%	0.05	0.05	0.08	0.11
Nitrogen	(total)	%	<0.005	<0.005	<0.005	<0.005
Aluminium	iMET2SAICP	mg/kg	11300	7190	7140	12300
Antimony	iMET2SAMS	mg/kg	0.27	0.54	0.60	0.35
Arsenic	iMET2SAMS	mg/kg	53	93	54	19
Barium	iMET2SAICP	mg/kg	96	250	200	220
Beryllium	iMET2SAICP	mg/kg	4.9	4.4	2.1	0.78
Bismuth*	iMET2SAMS	mg/kg	0.47	0.18	0.13	0.25
Cadmium	iMET2SAMS	mg/kg	0.74	0.52	0.34	<0.10
Calcium	iMET2SAICP	mg/kg	690	530	470	1000
Chromium	iMET2SAICP	mg/kg	99	47	41	90
Cobalt	iMET2SAMS	mg/kg	82	64	78	14
Copper	iMET2SAMS	mg/kg	44	7.9	4.1	46
Iron	iMET2SAICP	mg/kg	310000	300000	220000	78000
Lanthanum*	iMET2SAICP	mg/kg	6.0	5.0	8.0	9.6
Lead	iMET2SAMS	mg/kg	5.9	2.3	2.8	11
Lithium	iMET2SAICP	mg/kg	52	23	47	4.3
Magnesium	iMET2SAICP	mg/kg	610	390	2500	2200
Manganese	iMET2SAICP	mg/kg	23000	21000	21000	610
Mercury	iMET2SAMS	mg/kg	<0.04	<0.04	<0.04	<0.04
Molybdenum	iMET2SAMS	mg/kg	1.9	1.7	2.1	1.1
Nickel	iMET2SAICP	mg/kg	200	92	150	42
Phosphorus	iMET2SAICP	mg/kg	690	670	200	150
Potassium	iMET2SAICP	mg/kg	1500	1500	1000	1800
Selenium	iMET2SAMS	mg/kg	0.79	0.31	0.29	0.71
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10	<0.10
Sodium	iMET2SAICP	mg/kg	230	220	210	280
Strontium	iMET2SAICP	mg/kg	65	54	71	21
Sulfur	iMET2SAICP	mg/kg	540	480	540	250
Thallium	iMET2SAMS	mg/kg	1.1	1.8	2.3	0.28
Thorium	iMET2SAMS	mg/kg	3.4	1.3	1.1	4.0

LAB ID			089	090	091	092
Client ID			MDRC1460_78-8 4	MDRC1460_84- 88	MDRC1460_90- 94	MDRC1475_06- 12
Sampled						
Analyte	Method	Unit				
Tin	iMET2SAMS	mg/kg	1.4	<1.0	<1.0	<1.0
Titanium	iMET2SAICP	mg/kg	260	82	110	170
Uranium	iMET2SAMS	mg/kg	3.0	2.4	1.7	0.50
Vanadium	iMET2SAICP	mg/kg	85	31	28	78
Yttrium*	iMET2SAMS	mg/kg	24	20	16	7.2
Zinc	iMET2SAICP	mg/kg	780	580	800	69
pH	iPH1WASE		6.6	6.8	6.8	6.9
Electrical Conductivity	iEC1WZSE	mS/m	15.1	7.8	7.0	6.3
Alkalinity as CaCO3	iALK1WATI	mg/L	21	8	7	8
TDS (calculated)	iSOL1WDCA	mg/L	83	43	39	35
Aluminium	iMET1WCICP	mg/L	<0.005	0.005	<0.005	0.72
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	0.006
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.05	0.04	0.04	0.04
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	5.1	2.0	1.6	0.3
Chloride	iCO1WCDA	mg/L	15	7	6	13
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Copper	iMET1WCMS	mg/L	0.0005	0.0001	<0.0001	0.0023
Fluoride	iF1WASE	mg/L	0.33	0.38	0.45	0.54
Iron	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	0.51
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0002
Lithium	iMET1WCICP	mg/L	0.014	0.009	0.010	<0.005
Magnesium	iMET1WCICP	mg/L	3.3	1.3	1.1	0.3
Manganese	iMET1WCICP	mg/L	0.13	0.021	0.013	0.008
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.34	0.16	0.20	0.62
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	6.2	4.0	4.0	2.2
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	1.9	1.7	1.6	9.2
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	14.8	8.5	7.4	11.8
Strontium	iMET1WCICP	mg/L	0.015	0.005	0.004	0.003
Sulphate (from S)	iMET1WCICP	mg/L	13.8	7.8	8.5	8.5
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	0.0078
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002

LAB ID			089	090	091	092
Client ID			MDRC1460_78-84	MDRC1460_84-88	MDRC1460_90-94	MDRC1475_06-12
Sampled						
Analyte	Method	Unit				
Zinc	iMET1WCICP	mg/L	0.019	<0.005	0.010	0.006
Date Analysed	(combs)		17/7/2023	17/7/2023	17/7/2023	17/7/2023
	(total)		4/7/2023	4/7/2023	4/7/2023	4/7/2023
	ARD		9/6/2023	14/6/2023	9/6/2023	9/6/2023
	iALK1WATI		13/6/2023	13/6/2023	16/6/2023	24/8/2023
	iCO1WCDA		13/6/2023	13/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		13/6/2023	13/6/2023	15/6/2023	24/8/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		14/6/2023	14/6/2023	14/6/2023	14/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		13/6/2023	13/6/2023	16/6/2023	24/8/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			093	094	095	096
Client ID			MDRC1478_38-44	MDRC1486_18-24	MDRC1486_46-52	MDRC1486_80-86
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	33	20	9	15
pH, 1:2 soil:water*	ARD		7.3	7.0	6.9	7.1
Acid Neutralising Capacity	ARD	kg H2SO4	2.5	3.1	1.3	2.1
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		6.2	7.2	7.1	7.4
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.01	<0.01	<0.01	<0.01
Carbon	(combs)	%	0.16	0.06	0.09	0.07
Sulfur*	(combs)	%	0.03	0.02	0.02	0.01
Nitrogen	(total)	%	0.007		<0.005	<0.005
Aluminium	iMET2SAICP	mg/kg	17200		18900	7110
Antimony	iMET2SAMS	mg/kg	0.32		0.32	0.66
Arsenic	iMET2SAMS	mg/kg	34		24	11
Barium	iMET2SAICP	mg/kg	55		33	60
Beryllium	iMET2SAICP	mg/kg	0.71		1.5	7.4
Bismuth*	iMET2SAMS	mg/kg	0.51		0.29	0.70
Cadmium	iMET2SAMS	mg/kg	<0.10		0.32	0.56
Calcium	iMET2SAICP	mg/kg	500		240	430
Chromium	iMET2SAICP	mg/kg	190		97	39
Cobalt	iMET2SAMS	mg/kg	11		6.4	59
Copper	iMET2SAMS	mg/kg	48		26	22
Iron	iMET2SAICP	mg/kg	160000		320000	260000
Lanthanum*	iMET2SAICP	mg/kg	6.8		6.2	9.2
Lead	iMET2SAMS	mg/kg	18		10	2.3
Lithium	iMET2SAICP	mg/kg	5.0		6.8	7.3
Magnesium	iMET2SAICP	mg/kg	570		250	640
Manganese	iMET2SAICP	mg/kg	870		1900	24000

LAB ID			093	094	095	096
Client ID			MDRC1478_38-4	MDRC1486_18-24	MDRC1486_46-52	MDRC1486_80-86
Sampled						
Analyte	Method	Unit				
Mercury	iMET2SAMS	mg/kg	<0.04		0.27	0.08
Molybdenum	iMET2SAMS	mg/kg	1.3		1.0	0.74
Nickel	iMET2SAICP	mg/kg	26		55	100
Phosphorus	iMET2SAICP	mg/kg	150		200	1000
Potassium	iMET2SAICP	mg/kg	590		120	1600
Selenium	iMET2SAMS	mg/kg	0.82		1.3	0.79
Silver	iMET2SAMS	mg/kg	<0.10		<0.10	<0.10
Sodium	iMET2SAICP	mg/kg	340		<100	140
Strontium	iMET2SAICP	mg/kg	8.7		4.2	37
Sulfur	iMET2SAICP	mg/kg	230		190	200
Thallium	iMET2SAMS	mg/kg	0.24		<0.10	1.9
Thorium	iMET2SAMS	mg/kg	10		6.7	1.4
Tin	iMET2SAMS	mg/kg	2.4		1.0	<1.0
Titanium	iMET2SAICP	mg/kg	650		760	170
Uranium	iMET2SAMS	mg/kg	1.5		2.5	1.9
Vanadium	iMET2SAICP	mg/kg	190		110	38
Yttrium*	iMET2SAMS	mg/kg	10		14	61
Zinc	iMET2SAICP	mg/kg	<50		270	480
pH	iPH1WASE		6.8	6.8	6.6	6.6
Electrical Conductivity	iEC1WZSE	mS/m	16.6	9.0	4.5	7.3
Alkalinity as CaCO3	iALK1WATI	mg/L	5	6	4	4
TDS (calculated)	iSOL1WDCA	mg/L	91	50	25	40
Aluminium	iMET1WCICP	mg/L	0.18	0.098	<0.005	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	0.004	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.04	0.03	0.03	0.02
Cadmium	iMET1WCMS	mg/L	0.0005	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	1.0	1.1	0.4	2.0
Chloride	iCO1WCDA	mg/L	13	13	5	7
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	0.002	0.002
Cobalt	iMET1WCICP	mg/L	0.073	<0.005	<0.005	<0.005
Copper	iMET1WCMS	mg/L	0.10	0.0006	<0.0001	<0.0001
Fluoride	iF1WASE	mg/L	0.69	0.43	0.31	0.46
Iron	iMET1WCICP	mg/L	0.27	0.11	<0.005	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	0.0008	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	<0.005	0.011	0.006
Magnesium	iMET1WCICP	mg/L	0.7	0.8	0.3	1.3
Manganese	iMET1WCICP	mg/L	0.091	0.003	<0.001	0.002
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	0.05	<0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	1.5	1.2	0.45	0.25
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.7	3.5	2.0	3.2
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001

LAB ID			093	094	095	096
Client ID			MDRC1478_38-4	MDRC1486_18-24	MDRC1486_46-52	MDRC1486_80-86
Sampled						
Analyte	Method	Unit				
Silicon	iMET1WCICP	mg/L	5.2	5.0	3.7	1.9
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	28.6	12.6	6.0	6.8
Strontium	iMET1WCICP	mg/L	0.005	0.006	<0.002	0.003
Sulphate (from S)	iMET1WCICP	mg/L	57.4	7.9	4.2	11.0
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0057	0.0018	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.055	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	0.057	<0.005	<0.005	<0.005
Date Analysed	(combs)		17/7/2023	17/7/2023	17/7/2023	17/7/2023
	(total)		4/7/2023		4/7/2023	4/7/2023
	ARD		9/6/2023	9/6/2023	15/6/2023	9/6/2023
	iALK1WATI		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		16/6/2023	14/6/2023	14/6/2023	14/6/2023
	iMET2SAICP		28/8/2023		28/8/2023	28/8/2023
	iMET2SAMS		28/8/2023		28/8/2023	28/8/2023
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			097	098	099	100
Client ID			MDRC1486_86-94	MDRC1490_44-52	MDRC1490_84-88	MDRC1490_88-92
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	77	20	12	10
pH, 1:2 soil:water*	ARD		5.4	6.5	7.0	7.2
Acid Neutralising Capacity	ARD	kg H2SO4	5.8	1.7	2.0	2.1
NAG (Net Acid Generation)*	ARD	kgH2SO4	16	<0.5	<0.5	<0.5
NAG pH*	ARD		2.8	6.4	7.4	7.7
NAG to pH <4.5*	ARD	kgH2SO4	6.7	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.14	0.01	0.02	0.02
Carbon	(combs)	%	1.61	0.18	<0.05	0.16
Sulfur*	(combs)	%	1.27	0.03	0.05	0.06
Nitrogen	(total)	%		<0.005	<0.005	
Aluminium	iMET2SAICP	mg/kg		12900	8230	
Antimony	iMET2SAMS	mg/kg		0.35	0.52	
Arsenic	iMET2SAMS	mg/kg		14	49	
Barium	iMET2SAICP	mg/kg		250	28	
Beryllium	iMET2SAICP	mg/kg		1.4	4.4	

LAB ID	097			098		099		100	
Client ID	MDRC1486_86-9			MDRC1490_44-		MDRC1490_84-		MDRC1490_88-	
	4			52		88		92	
Sampled									
Analyte	Method	Unit							
Bismuth*	iMET2SAMS	mg/kg			0.13	0.21			
Cadmium	iMET2SAMS	mg/kg			0.76	0.22			
Calcium	iMET2SAICP	mg/kg			210	460			
Chromium	iMET2SAICP	mg/kg			39	67			
Cobalt	iMET2SAMS	mg/kg			33	32			
Copper	iMET2SAMS	mg/kg			15	5.2			
Iron	iMET2SAICP	mg/kg			320000	270000			
Lanthanum*	iMET2SAICP	mg/kg			13	4.2			
Lead	iMET2SAMS	mg/kg			7.2	2.7			
Lithium	iMET2SAICP	mg/kg			7.2	9.8			
Magnesium	iMET2SAICP	mg/kg			310	540			
Manganese	iMET2SAICP	mg/kg			24000	6500			
Mercury	iMET2SAMS	mg/kg			0.52	0.08			
Molybdenum	iMET2SAMS	mg/kg			0.77	1.9			
Nickel	iMET2SAICP	mg/kg			67	93			
Phosphorus	iMET2SAICP	mg/kg			420	610			
Potassium	iMET2SAICP	mg/kg			570	490			
Selenium	iMET2SAMS	mg/kg			0.40	0.17			
Silver	iMET2SAMS	mg/kg			<0.10	<0.10			
Sodium	iMET2SAICP	mg/kg			220	<100			
Strontium	iMET2SAICP	mg/kg			15	10			
Sulfur	iMET2SAICP	mg/kg			370	720			
Thallium	iMET2SAMS	mg/kg			0.46	0.39			
Thorium	iMET2SAMS	mg/kg			2.1	1.1			
Tin	iMET2SAMS	mg/kg			<1.0	<1.0			
Titanium	iMET2SAICP	mg/kg			240	77			
Uranium	iMET2SAMS	mg/kg			1.9	1.2			
Vanadium	iMET2SAICP	mg/kg			36	38			
Yttrium*	iMET2SAMS	mg/kg			23	15			
Zinc	iMET2SAICP	mg/kg			290	410			
pH	iPH1WASE		4.3		6.3	6.6		6.6	
Electrical Conductivity	iEC1WZSE	mS/m	47.7		9.4	6.0		5.2	
Alkalinity as CaCO3	iALK1WATI	mg/L	<1		10	4		4	
TDS (calculated)	iSOL1WDCA	mg/L	260		52	33		28	
Aluminium	iMET1WCICP	mg/L	0.017		<0.005	<0.005		<0.005	
Antimony	iMET1WCMS	mg/L	<0.0001		<0.0001	<0.0001		0.0001	
Arsenic	iMET1WCMS	mg/L	<0.001		<0.001	<0.001		<0.001	
Barium	iMET1WCICP	mg/L	<0.002		<0.002	<0.002		<0.002	
Beryllium	iMET1WCICP	mg/L	<0.001		<0.001	<0.001		<0.001	
Bismuth*	iMET1WCMS	mg/L	<0.0001		<0.0001	<0.0001		<0.0001	
Boron	iMET1WCICP	mg/L	0.06		<0.02	0.03		0.04	
Cadmium	iMET1WCMS	mg/L	<0.0001		<0.0001	<0.0001		<0.0001	
Calcium	iMET1WCICP	mg/L	27.3		2.8	1.7		1.4	
Chloride	iCO1WCDA	mg/L	7		2	5		3	
Chromium	iMET1WCICP	mg/L	<0.001		<0.001	0.001		<0.001	
Cobalt	iMET1WCICP	mg/L	0.041		0.044	<0.005		<0.005	
Copper	iMET1WCMS	mg/L	0.0014		0.0005	<0.0001		0.0003	
Fluoride	iF1WASE	mg/L	<0.05		0.09	0.44		0.64	
Iron	iMET1WCICP	mg/L	0.026		0.012	<0.005		<0.005	

LAB ID			097	098	099	100
Client ID			MDRC1486_86-94	MDRC1490_44-52	MDRC1490_84-88	MDRC1490_88-92
Sampled						
Analyte	Method	Unit				
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	0.024	0.010	0.009	0.007
Magnesium	iMET1WCICP	mg/L	18.2	1.7	1.0	0.8
Manganese	iMET1WCICP	mg/L	4.7	0.27	0.007	0.011
Mercury	iMET1WCMS	mg/L	<0.0001	0.0002	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	0.15	0.04	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.21	0.88	0.28	0.13
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	11.6	2.8	3.0	3.5
Selenium	iMET1WCMS	mg/L	0.003	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	2.3	1.8	2.3	1.7
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	13.8	12.0	5.8	4.4
Strontium	iMET1WCICP	mg/L	0.071	0.014	0.004	0.003
Sulphate (from S)	iMET1WCICP	mg/L	183	23.6	8.8	8.4
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0006
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	0.31	0.022	0.011	<0.005
Date Analysed	(combs)		17/7/2023	17/7/2023	17/7/2023	18/7/2023
	(total)			4/7/2023	4/7/2023	
	ARD		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iALK1WATI		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		14/6/2023	14/6/2023	14/6/2023	14/6/2023
	iMET2SAICP			28/8/2023	28/8/2023	
	iMET2SAMS			28/8/2023	28/8/2023	
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			101	102	103	104
Client ID			MDRC1498_46-52	MDRC1507_70-76	MDRC1513_14-20	MDRC1513_20-24
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	8	34	13	11
pH, 1:2 soil:water*	ARD		7.2	7.2	7.3	7.1
Acid Neutralising Capacity	ARD	kg H2SO4	2.3	1.6	3.4	2.9

LAB ID			101	102	103	104
Client ID			MDRC1498_46-5	MDRC1507_70-	MDRC1513_14-	MDRC1513_20-
			2	76	20	24
Sampled						
Analyte	Method	Unit				
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		6.1	6.5	6.2	6.6
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	0.01	<0.01	<0.01
Carbon	(combs)	%	0.27	0.23	<0.05	<0.05
Sulfur*	(combs)	%	0.01	<0.01	<0.01	<0.01
Nitrogen	(total)	%	0.007	<0.005	0.007	0.007
Aluminium	iMET2SAICP	mg/kg	11700	5170	11600	12500
Antimony	iMET2SAMS	mg/kg	0.43	0.63	0.60	1.1
Arsenic	iMET2SAMS	mg/kg	19	4.8	22	47
Barium	iMET2SAICP	mg/kg	10	13	62	57
Beryllium	iMET2SAICP	mg/kg	1.3	1.4	0.85	0.85
Bismuth*	iMET2SAMS	mg/kg	<0.10	0.29	0.37	0.66
Cadmium	iMET2SAMS	mg/kg	0.45	<0.10	<0.10	0.14
Calcium	iMET2SAICP	mg/kg	240	400	730	460
Chromium	iMET2SAICP	mg/kg	74	220	93	210
Cobalt	iMET2SAMS	mg/kg	6.8	8.2	8.7	9.6
Copper	iMET2SAMS	mg/kg	13	46	58	60
Iron	iMET2SAICP	mg/kg	320000	200000	76000	180000
Lanthanum*	iMET2SAICP	mg/kg	4.1	15	6.4	3.1
Lead	iMET2SAMS	mg/kg	8.0	15	13	21
Lithium	iMET2SAICP	mg/kg	2.6	<2.0	4.5	2.7
Magnesium	iMET2SAICP	mg/kg	340	540	1100	570
Manganese	iMET2SAICP	mg/kg	270	1100	340	460
Mercury	iMET2SAMS	mg/kg	0.42	0.09	<0.04	<0.04
Molybdenum	iMET2SAMS	mg/kg	0.86	0.63	1.1	1.9
Nickel	iMET2SAICP	mg/kg	62	21	30	25
Phosphorus	iMET2SAICP	mg/kg	110	230	130	150
Potassium	iMET2SAICP	mg/kg	72	240	1100	460
Selenium	iMET2SAMS	mg/kg	0.36	0.19	0.80	1.1
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10	0.25
Sodium	iMET2SAICP	mg/kg	<100	210	190	130
Strontium	iMET2SAICP	mg/kg	2.2	4.8	10	5.5
Sulfur	iMET2SAICP	mg/kg	100	150	110	130
Thallium	iMET2SAMS	mg/kg	<0.10	<0.10	0.23	0.50
Thorium	iMET2SAMS	mg/kg	2.0	6.2	5.5	10
Tin	iMET2SAMS	mg/kg	<1.0	1.5	1.8	2.7
Titanium	iMET2SAICP	mg/kg	380	600	240	670
Uranium	iMET2SAMS	mg/kg	2.2	1.0	0.71	1.3
Vanadium	iMET2SAICP	mg/kg	58	77	110	210
Yttrium*	iMET2SAMS	mg/kg	11	65	6.5	6.6
Zinc	iMET2SAICP	mg/kg	300	61	<50	50
pH	iPH1WASE		6.8	6.6	6.9	6.8
Electrical Conductivity	iEC1WZSE	mS/m	3.9	17.3	6.7	5.2
Alkalinity as CaCO3	iALK1WATI	mg/L	4	5	5	4
TDS (calculated)	iSOL1WDCA	mg/L	22	95	37	28
Aluminium	iMET1WCICP	mg/L	0.11	0.008	0.61	0.36
Antimony	iMET1WCMS	mg/L	<0.0001	0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001

LAB ID			101	102	103	104
Client ID			MDRC1498_46-5	MDRC1507_70-	MDRC1513_14-	MDRC1513_20-
			2	76	20	24
Sampled						
Analyte	Method	Unit				
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.02	0.02	0.04	0.03
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0002	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	0.5	1.6	0.4	0.3
Chloride	iCO1WCDA	mg/L	2	19	8	6
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	0.001
Cobalt	iMET1WCICP	mg/L	<0.005	0.020	<0.005	<0.005
Copper	iMET1WCMS	mg/L	<0.0001	0.044	0.0012	0.0005
Fluoride	iF1WASE	mg/L	0.46	0.52	0.62	0.58
Iron	iMET1WCICP	mg/L	0.078	0.10	0.34	0.22
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	0.0010	0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	0.009	<0.005	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	0.3	1.1	0.3	0.2
Manganese	iMET1WCICP	mg/L	<0.001	0.040	0.003	0.002
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.28	2.1	0.76	0.52
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	1.7	3.6	2.9	2.2
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	3.8	3.4	6.9	5.3
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	5.4	28.2	10.4	7.7
Strontium	iMET1WCICP	mg/L	0.002	0.007	0.002	<0.002
Sulphate (from S)	iMET1WCICP	mg/L	6.2	54.1	6.7	4.6
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	0.0086	0.0043
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	0.0034	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	<0.005	0.042	<0.005	<0.005
Date Analysed	(combs)		17/7/2023	17/7/2023	17/7/2023	17/7/2023
	(total)		4/7/2023	4/7/2023	4/7/2023	4/7/2023
	ARD		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iALK1WATI		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		14/6/2023	14/6/2023	14/6/2023	14/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iPH1WASE		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023

LAB ID			101	102	103	104
Client ID						
Sampled						
Analyte	Method	Unit				
Sample Condition			Ambient	Ambient	Ambient	Ambient
LAB ID			105	106	107	108
Client ID			MDRC1513_52-5	MDRC1513_60-	MDRC1521_08-	MDRC1521_14-
			8	64	14	18
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	8	23	13	15
pH, 1:2 soil:water*	ARD		7.3	7.3	7.5	7.3
Acid Neutralising Capacity	ARD	kg H2SO4	3.2	4.1	3.4	2.5
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		6.1	7.8	6.8	6.6
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	0.01	<0.01	<0.01
Carbon	(combs)	%	0.08	0.08	<0.05	0.07
Sulfur*	(combs)	%	0.02	<0.01	0.03	0.03
Nitrogen	(total)	%	<0.005	<0.005	0.007	
Aluminium	iMET2SAICP	mg/kg	20800	16900	14100	
Antimony	iMET2SAMS	mg/kg	0.24	0.37	0.39	
Arsenic	iMET2SAMS	mg/kg	11	5.3	25	
Barium	iMET2SAICP	mg/kg	4.8	73	130	
Beryllium	iMET2SAICP	mg/kg	0.69	1.2	0.73	
Bismuth*	iMET2SAMS	mg/kg	0.31	0.39	0.34	
Cadmium	iMET2SAMS	mg/kg	0.28	0.11	0.14	
Calcium	iMET2SAICP	mg/kg	620	1400	790	
Chromium	iMET2SAICP	mg/kg	130	110	100	
Cobalt	iMET2SAMS	mg/kg	3.8	15	14	
Copper	iMET2SAMS	mg/kg	9.7	11	58	
Iron	iMET2SAICP	mg/kg	210000	91000	89000	
Lanthanum*	iMET2SAICP	mg/kg	3.9	15	9.7	
Lead	iMET2SAMS	mg/kg	11	14	14	
Lithium	iMET2SAICP	mg/kg	11	22	5.2	
Magnesium	iMET2SAICP	mg/kg	970	2600	1800	
Manganese	iMET2SAICP	mg/kg	250	2900	620	
Mercury	iMET2SAMS	mg/kg	0.26	0.15	<0.04	
Molybdenum	iMET2SAMS	mg/kg	0.46	0.25	1.1	
Nickel	iMET2SAICP	mg/kg	54	32	40	
Phosphorus	iMET2SAICP	mg/kg	88	61	170	
Potassium	iMET2SAICP	mg/kg	170	460	1700	
Selenium	iMET2SAMS	mg/kg	0.56	0.44	0.96	
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10	
Sodium	iMET2SAICP	mg/kg	110	310	250	
Strontium	iMET2SAICP	mg/kg	4.7	15	19	
Sulfur	iMET2SAICP	mg/kg	140	130	210	
Thallium	iMET2SAMS	mg/kg	<0.10	0.16	0.40	
Thorium	iMET2SAMS	mg/kg	6.3	6.7	5.1	
Tin	iMET2SAMS	mg/kg	1.4	2.0	1.2	

LAB ID			105	106	107	108
Client ID			MDRC1513_52-5 8	MDRC1513_60- 64	MDRC1521_08- 14	MDRC1521_14- 18
Sampled						
Analyte	Method	Unit				
Titanium	iMET2SAICP	mg/kg	590	230	210	
Uranium	iMET2SAMS	mg/kg	1.7	0.79	0.75	
Vanadium	iMET2SAICP	mg/kg	74	100	88	
Yttrium*	iMET2SAMS	mg/kg	5.8	14	8.4	
Zinc	iMET2SAICP	mg/kg	250	95	66	
pH	iPH1WASE		6.8	6.8	7.0	6.9
Electrical Conductivity	iEC1WZSE	mS/m	4.5	9.8	6.0	7.0
Alkalinity as CaCO3	iALK1WATI	mg/L	4	5	7	5
TDS (calculated)	iSOL1WDCA	mg/L	25	54	33	38
Aluminium	iMET1WCICP	mg/L	0.18	0.069	0.17	0.23
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	0.0002
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.04	0.03	0.04	0.03
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0004	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	0.2	0.7	0.2	0.4
Chloride	iCO1WCDA	mg/L	6	7	5	7
Chromium	iMET1WCICP	mg/L	<0.001	0.001	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	0.041	0.011	0.016
Copper	iMET1WCMS	mg/L	0.0006	0.0037	0.0008	0.0018
Fluoride	iF1WASE	mg/L	0.77	1.1	0.59	0.46
Iron	iMET1WCICP	mg/L	0.16	0.078	0.14	0.21
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	0.011	<0.005	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	0.2	0.5	0.2	0.3
Manganese	iMET1WCICP	mg/L	<0.001	0.019	0.003	0.004
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	0.04	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.62	0.98	0.43	0.40
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	1.7	2.9	2.3	3.3
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	6.4	5.6	7.0	4.6
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	7.2	17.7	10.3	10.7
Strontium	iMET1WCICP	mg/L	<0.002	0.003	<0.002	0.002
Sulphate (from S)	iMET1WCICP	mg/L	2.5	30.0	6.8	9.5
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0019	0.0010	0.0020	0.0029
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	0.010	<0.0002	0.0009
Zinc	iMET1WCICP	mg/L	<0.005	0.085	<0.005	<0.005

LAB ID		105	106	107	108
Client ID					
Sampled					
Analyte	Method	Unit			
Date Analysed	(combs)	17/7/2023	17/7/2023	17/7/2023	17/7/2023
	(total)	4/7/2023	4/7/2023	4/7/2023	
	ARD	9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iALK1WATI	16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA	19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE	15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iF1WASE	15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP	16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS	14/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET2SAICP	28/8/2023	28/8/2023	28/8/2023	
	iMET2SAMS	28/8/2023	28/8/2023	28/8/2023	
	iNP1WTFIA	15/6/2023	19/6/2023	19/6/2023	19/6/2023
	iPH1WASE	16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA	28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)	13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition		Ambient	Ambient	Ambient	Ambient

LAB ID			109	110	111	112
Client ID			MDRC1521_36-4	MDRC1521_90-96	MDRC1521_96-102	MDRC1523_24-32
			2			
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	17	23	32	18
pH, 1:2 soil:water*	ARD		7.2	8.0	8.2	7.2
Acid Neutralising Capacity	ARD	kg H2SO4	2.5	6.7	9.6	2.7
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	0.6
NAG pH*	ARD		6.7	8.4	8.7	5.9
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	<0.01	<0.01	<0.01
Carbon	(combs)	%	0.07	0.06	0.17	0.05
Sulfur*	(combs)	%	0.03	0.03	0.02	0.03
Nitrogen	(total)	%	0.006	0.006	<0.005	0.005
Aluminium	iMET2SAICP	mg/kg	13400	3410	4150	9910
Antimony	iMET2SAMS	mg/kg	1.0	0.35	0.22	0.99
Arsenic	iMET2SAMS	mg/kg	39	20	29	35
Barium	iMET2SAICP	mg/kg	32	130	99	86
Beryllium	iMET2SAICP	mg/kg	<0.50	1.8	2.1	0.55
Bismuth*	iMET2SAMS	mg/kg	0.60	<0.10	<0.10	0.51
Cadmium	iMET2SAMS	mg/kg	<0.10	0.47	0.23	<0.10
Calcium	iMET2SAICP	mg/kg	380	1500	1900	470
Chromium	iMET2SAICP	mg/kg	220	33	27	150
Cobalt	iMET2SAMS	mg/kg	7.6	16	27	6.1
Copper	iMET2SAMS	mg/kg	44	12	8.5	56
Iron	iMET2SAICP	mg/kg	220000	240000	170000	130000
Lanthanum*	iMET2SAICP	mg/kg	3.1	5.1	4.7	3.2
Lead	iMET2SAMS	mg/kg	20	4.1	3.7	17
Lithium	iMET2SAICP	mg/kg	<2.0	4.8	10	<2.0
Magnesium	iMET2SAICP	mg/kg	360	1100	1900	460
Manganese	iMET2SAICP	mg/kg	1500	24000	13000	350
Mercury	iMET2SAMS	mg/kg	<0.04	0.14	0.46	<0.04

LAB ID			109	110	111	112
Client ID			MDRC1521_36-4	MDRC1521_90-	MDRC1521_96-	MDRC1523_24-
			2	96	102	32
Sampled						
Analyte	Method	Unit				
Molybdenum	iMET2SAMS	mg/kg	2.1	0.64	1.3	1.6
Nickel	iMET2SAICP	mg/kg	15	48	41	17
Phosphorus	iMET2SAICP	mg/kg	140	220	190	120
Potassium	iMET2SAICP	mg/kg	400	960	870	500
Selenium	iMET2SAMS	mg/kg	0.68	0.12	1.6	0.77
Silver	iMET2SAMS	mg/kg	0.14	<0.10	<0.10	0.15
Sodium	iMET2SAICP	mg/kg	180	240	160	210
Strontium	iMET2SAICP	mg/kg	5.8	62	49	5.9
Sulfur	iMET2SAICP	mg/kg	160	160	130	120
Thallium	iMET2SAMS	mg/kg	0.20	0.52	1.7	0.27
Thorium	iMET2SAMS	mg/kg	12	<1.0	<1.0	8.8
Tin	iMET2SAMS	mg/kg	2.6	<1.0	<1.0	2.3
Titanium	iMET2SAICP	mg/kg	950	170	80	510
Uranium	iMET2SAMS	mg/kg	2.0	3.9	8.0	1.2
Vanadium	iMET2SAICP	mg/kg	200	120	170	160
Yttrium*	iMET2SAMS	mg/kg	5.7	17	15	4.7
Zinc	iMET2SAICP	mg/kg	<50	190	210	<50
pH	iPH1WASE		6.8	7.5	7.8	6.8
Electrical Conductivity	iEC1WZSE	mS/m	7.8	11.0	16.0	8.8
Alkalinity as CaCO3	iALK1WATI	mg/L	5	20	29	5
TDS (calculated)	iSOL1WDCA	mg/L	43	60	88	49
Aluminium	iMET1WCICP	mg/L	0.99	0.007	0.006	0.78
Antimony	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	0.003
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.03	0.03	0.03	0.04
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	0.2	4.0	8.2	0.5
Chloride	iCO1WCDA	mg/L	7	7	12	10
Chromium	iMET1WCICP	mg/L	0.002	0.004	0.001	0.002
Cobalt	iMET1WCICP	mg/L	0.010	<0.005	0.006	0.016
Copper	iMET1WCMS	mg/L	0.0070	0.0003	0.0006	0.014
Fluoride	iF1WASE	mg/L	0.56	0.59	0.84	0.52
Iron	iMET1WCICP	mg/L	0.61	<0.005	<0.005	0.47
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	0.0002	<0.0001	<0.0001	0.0002
Lithium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	0.2	2.5	3.9	0.4
Manganese	iMET1WCICP	mg/L	0.011	0.001	<0.001	0.005
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	0.02	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.61	0.31	0.26	0.74
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	2.2	3.9	4.8	3.3
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	0.003	<0.001
Silicon	iMET1WCICP	mg/L	5.5	2.3	1.6	5.3

LAB ID			109	110	111	112
Client ID			MDRC1521_36-4 2	MDRC1521_90- 96	MDRC1521_96- 102	MDRC1523_24- 32
Sampled						
Analyte	Method	Unit				
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	14.1	11.4	12.9	14.4
Strontium	iMET1WCICP	mg/L	<0.002	0.008	0.011	0.003
Sulphate (from S)	iMET1WCICP	mg/L	14.4	15.8	21.3	14.4
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0034	<0.0005	<0.0005	0.0047
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.0025	<0.0002	<0.0002	0.0039
Zinc	iMET1WCICP	mg/L	0.014	0.007	0.008	0.009
Date Analysed	(combs)		17/7/2023	17/7/2023	18/7/2023	18/7/2023
	(total)		4/7/2023	4/7/2023	4/7/2023	4/7/2023
	ARD		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iALK1WATI		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iPH1WASE		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			113	114	115	116
Client ID			MDRC1523_32-3 6	MDRC1526_70- 74	MDRC1526_92- 98	MDRC1528_32- 38
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	20	13	40	26
pH, 1:2 soil:water*	ARD		7.2	7.5	7.5	7.2
Acid Neutralising Capacity	ARD	kg H2SO4	1.8	2.2	11	3.3
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		6.4	6.5	7.9	6.1
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	<0.01	0.01	<0.01
Carbon	(combs)	%	<0.05	0.05	0.07	<0.05
Sulfur*	(combs)	%	0.02	0.02	0.02	0.02
Nitrogen	(total)	%			<0.005	0.007
Aluminium	iMET2SAICP	mg/kg			5910	13400
Antimony	iMET2SAMS	mg/kg			0.30	0.69
Arsenic	iMET2SAMS	mg/kg			3.2	35
Barium	iMET2SAICP	mg/kg			28	51
Beryllium	iMET2SAICP	mg/kg			1.1	<0.50
Bismuth*	iMET2SAMS	mg/kg			<0.10	0.61

LAB ID			113	114	115	116
Client ID			MDRC1523_32-3	MDRC1526_70-	MDRC1526_92-	MDRC1528_32-
			6	74	98	38
Sampled						
Analyte	Method	Unit				
Cadmium	iMET2SAMS	mg/kg			0.15	<0.10
Calcium	iMET2SAICP	mg/kg			4600	720
Chromium	iMET2SAICP	mg/kg			31	190
Cobalt	iMET2SAMS	mg/kg			12	8.9
Copper	iMET2SAMS	mg/kg			9.3	60
Iron	iMET2SAICP	mg/kg			170000	150000
Lanthanum*	iMET2SAICP	mg/kg			6.1	6.6
Lead	iMET2SAMS	mg/kg			2.9	21
Lithium	iMET2SAICP	mg/kg			5.0	2.2
Magnesium	iMET2SAICP	mg/kg			1600	820
Manganese	iMET2SAICP	mg/kg			11000	500
Mercury	iMET2SAMS	mg/kg			0.05	<0.04
Molybdenum	iMET2SAMS	mg/kg			0.32	1.5
Nickel	iMET2SAICP	mg/kg			36	27
Phosphorus	iMET2SAICP	mg/kg			1900	150
Potassium	iMET2SAICP	mg/kg			480	640
Selenium	iMET2SAMS	mg/kg			<0.10	0.92
Silver	iMET2SAMS	mg/kg			<0.10	<0.10
Sodium	iMET2SAICP	mg/kg			270	210
Strontium	iMET2SAICP	mg/kg			32	8.6
Sulfur	iMET2SAICP	mg/kg			150	94
Thallium	iMET2SAMS	mg/kg			<0.10	0.23
Thorium	iMET2SAMS	mg/kg			1.2	10
Tin	iMET2SAMS	mg/kg			<1.0	2.8
Titanium	iMET2SAICP	mg/kg			190	600
Uranium	iMET2SAMS	mg/kg			1.8	1.5
Vanadium	iMET2SAICP	mg/kg			18	190
Yttrium*	iMET2SAMS	mg/kg			13	7.9
Zinc	iMET2SAICP	mg/kg			82	<50
pH	iPH1WASE		6.8	6.9	7.0	6.9
Electrical Conductivity	iEC1WZSE	mS/m	9.3	6.3	18.0	13.1
Alkalinity as CaCO3	iALK1WATI	mg/L	5	4	9	6
TDS (calculated)	iSOL1WDCA	mg/L	51	34	99	72
Aluminium	iMET1WCICP	mg/L	0.80	0.11	0.011	0.48
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.04	0.02	0.04	0.05
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0005	<0.0001
Calcium	iMET1WCICP	mg/L	0.7	0.2	2.4	1.1
Chloride	iCO1WCDA	mg/L	12	8	17	20
Chromium	iMET1WCICP	mg/L	0.002	0.005	<0.001	0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	0.026	<0.005
Copper	iMET1WCMS	mg/L	0.0032	0.0005	0.0079	0.0027
Fluoride	iF1WASE	mg/L	0.66	0.85	0.63	0.71
Iron	iMET1WCICP	mg/L	0.56	0.079	0.017	0.38
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005

LAB ID			113	114	115	116
Client ID			MDRC1523_32-36	MDRC1526_70-74	MDRC1526_92-98	MDRC1528_32-38
Sampled						
Analyte	Method	Unit				
Lead	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	0.015	0.006	<0.005
Magnesium	iMET1WCICP	mg/L	0.5	0.2	1.7	0.9
Manganese	iMET1WCICP	mg/L	0.005	<0.001	0.14	0.004
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	0.03	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.68	0.38	1.1	1.1
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.0	1.6	3.9	4.2
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	5.9	4.9	3.1	7.0
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	14.9	10.5	27.4	18.3
Strontium	iMET1WCICP	mg/L	0.004	<0.002	0.008	0.006
Sulphate (from S)	iMET1WCICP	mg/L	10.9	6.2	41.5	11.3
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0079	0.0010	<0.0005	0.0047
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.0018	<0.0002	0.0004	0.0011
Zinc	iMET1WCICP	mg/L	<0.005	<0.005	0.067	<0.005
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)				4/7/2023	4/7/2023
	ARD		9/6/2023	9/6/2023	9/6/2023	9/6/2023
	iALK1WATI		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET2SAICP				28/8/2023	28/8/2023
	iMET2SAMS				28/8/2023	28/8/2023
	iNP1WTFIA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iPH1WASE		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			117	118	119	120
Client ID			MDRC1528_60-68	MDRC1528_68-74	MDRC1534_06-12	MDRC1534_16-20
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	23	14	14	13
pH, 1:2 soil:water*	ARD		8.7	8.1	8.1	7.5
Acid Neutralising Capacity	ARD	kg H2SO4	210	4.8	5.0	3.5
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5

LAB ID			117	118	119	120
Client ID			MDRC1528_60-6	MDRC1528_68-	MDRC1534_06-	MDRC1534_16-
			8	74	12	20
Sampled						
Analyte	Method	Unit				
NAG pH*	ARD		7.7	7.1	6.8	6.5
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	<0.01	<0.01	<0.01
Carbon	(combs)	%	3.07	0.09	<0.05	<0.05
Sulfur*	(combs)	%	<0.01	0.02	0.05	0.01
Nitrogen	(total)	%	<0.005	<0.005	0.007	
Aluminium	iMET2SAICP	mg/kg	11100	6630	15400	
Antimony	iMET2SAMS	mg/kg	0.19	0.43	0.45	
Arsenic	iMET2SAMS	mg/kg	6.5	6.8	21	
Barium	iMET2SAICP	mg/kg	44	19	130	
Beryllium	iMET2SAICP	mg/kg	2.0	3.8	0.90	
Bismuth*	iMET2SAMS	mg/kg	0.10	<0.10	0.33	
Cadmium	iMET2SAMS	mg/kg	0.13	0.35	<0.10	
Calcium	iMET2SAICP	mg/kg	45000	740	1400	
Chromium	iMET2SAICP	mg/kg	32	33	95	
Cobalt	iMET2SAMS	mg/kg	11	11	16	
Copper	iMET2SAMS	mg/kg	9.6	22	51	
Iron	iMET2SAICP	mg/kg	180000	250000	84000	
Lanthanum*	iMET2SAICP	mg/kg	18	7.5	10	
Lead	iMET2SAMS	mg/kg	7.4	4.6	12	
Lithium	iMET2SAICP	mg/kg	12	<2.0	5.6	
Magnesium	iMET2SAICP	mg/kg	27000	870	2200	
Manganese	iMET2SAICP	mg/kg	3000	2900	1000	
Mercury	iMET2SAMS	mg/kg	0.16	0.11	<0.04	
Molybdenum	iMET2SAMS	mg/kg	0.69	0.83	0.98	
Nickel	iMET2SAICP	mg/kg	37	52	41	
Phosphorus	iMET2SAICP	mg/kg	340	1100	160	
Potassium	iMET2SAICP	mg/kg	280	120	1700	
Selenium	iMET2SAMS	mg/kg	0.23	0.54	0.75	
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10	
Sodium	iMET2SAICP	mg/kg	230	110	170	
Strontium	iMET2SAICP	mg/kg	48	4.7	24	
Sulfur	iMET2SAICP	mg/kg	88	87	160	
Thallium	iMET2SAMS	mg/kg	<0.10	<0.10	0.29	
Thorium	iMET2SAMS	mg/kg	2.2	1.5	5.8	
Tin	iMET2SAMS	mg/kg	<1.0	<1.0	1.4	
Titanium	iMET2SAICP	mg/kg	200	150	240	
Uranium	iMET2SAMS	mg/kg	2.8	3.4	0.62	
Vanadium	iMET2SAICP	mg/kg	120	100	100	
Yttrium*	iMET2SAMS	mg/kg	24	28	8.5	
Zinc	iMET2SAICP	mg/kg	120	320	74	
pH	iPH1WASE		8.2	7.6	7.9	7.1
Electrical Conductivity	iEC1WZSE	mS/m	17.4	11.6	8.9	6.6
Alkalinity as CaCO3	iALK1WATI	mg/L	45	24	31	8
TDS (calculated)	iSOL1WDCA	mg/L	96	64	49	36
Aluminium	iMET1WCICP	mg/L	0.008	0.005	0.077	0.35
Antimony	iMET1WCMS	mg/L	0.0001	<0.0001	0.0001	0.0003
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	0.002	0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	0.014	<0.002

LAB ID			117	118	119	120
Client ID			MDRC1528_60-68	MDRC1528_68-74	MDRC1534_06-12	MDRC1534_16-20
Sampled						
Analyte	Method	Unit				
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.02	<0.02	0.03	0.04
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0003	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	5.2	3.9	3.3	0.7
Chloride	iCO1WCDA	mg/L	13	7	2	6
Chromium	iMET1WCICP	mg/L	0.001	0.003	<0.001	0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Copper	iMET1WCMS	mg/L	0.0003	0.0009	0.0017	0.0021
Fluoride	iF1WASE	mg/L	1.0	0.68	0.60	0.75
Iron	iMET1WCICP	mg/L	<0.005	<0.005	0.074	0.34
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	iMET1WCICP	mg/L	<0.005	0.007	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	3.6	2.7	2.4	0.5
Manganese	iMET1WCICP	mg/L	<0.001	<0.001	0.001	0.004
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.27	0.39	0.47	0.55
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	5.6	3.1	4.8	2.9
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	5.6	2.5	13	9.3
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	19.3	12.5	7.8	9.7
Strontium	iMET1WCICP	mg/L	0.021	0.013	0.025	0.004
Sulphate (from S)	iMET1WCICP	mg/L	11.5	13.8	4.7	5.1
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	0.0015	0.0037
Uranium	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	<0.005	0.016	<0.005	<0.005
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)		4/7/2023	4/7/2023	4/7/2023	
	ARD		13/6/2023	9/6/2023	12/6/2023	12/6/2023
	iALK1WATI		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iF1WASE		15/6/2023	15/6/2023	15/6/2023	15/6/2023
	iMET1WCICP		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET1WCMS		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	
	iNP1WTFIA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iPH1WASE		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		13/6/2023	13/6/2023	13/6/2023	13/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			121	122	123	124
Client ID			MDRC1534_20-3	MDRC1535_40-	MDRC1535_46-	MDRC1536_00-
			0	46	72	04
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	13	16	16	40
pH, 1:2 soil:water*	ARD		7.2	6.9	7.1	8.0
Acid Neutralising Capacity	ARD	kg H2SO4	3.9	3.4	2.9	6.0
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		7.8	7.5	7.3	7.5
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.02	0.03	<0.01	0.01
Carbon	(combs)	%	<0.05	<0.05	<0.05	<0.05
Sulfur*	(combs)	%	0.03	0.04	0.03	0.07
Nitrogen	(total)	%	0.005	<0.005	<0.005	0.008
Aluminium	iMET2SAICP	mg/kg	17400	16100	15100	19500
Antimony	iMET2SAMS	mg/kg	0.16	0.17	0.20	0.55
Arsenic	iMET2SAMS	mg/kg	12	15	16	18
Barium	iMET2SAICP	mg/kg	350	1600	580	82
Beryllium	iMET2SAICP	mg/kg	1.4	2.9	3.3	1.0
Bismuth*	iMET2SAMS	mg/kg	0.28	0.19	0.49	0.31
Cadmium	iMET2SAMS	mg/kg	0.38	4.3	1.5	<0.10
Calcium	iMET2SAICP	mg/kg	970	710	840	2000
Chromium	iMET2SAICP	mg/kg	58	37	80	89
Cobalt	iMET2SAMS	mg/kg	36	260	71	17
Copper	iMET2SAMS	mg/kg	34	24	20	47
Iron	iMET2SAICP	mg/kg	190000	290000	240000	84000
Lanthanum*	iMET2SAICP	mg/kg	25	51	31	14
Lead	iMET2SAMS	mg/kg	14	7.6	6.7	13
Lithium	iMET2SAICP	mg/kg	25	13	11	9.5
Magnesium	iMET2SAICP	mg/kg	1200	1400	3300	2400
Manganese	iMET2SAICP	mg/kg	81000	92000	41000	490
Mercury	iMET2SAMS	mg/kg	0.34	0.75	0.55	<0.04
Molybdenum	iMET2SAMS	mg/kg	0.59	1.5	1.0	0.90
Nickel	iMET2SAICP	mg/kg	58	180	170	52
Phosphorus	iMET2SAICP	mg/kg	160	94	330	150
Potassium	iMET2SAICP	mg/kg	3500	3800	2000	2400
Selenium	iMET2SAMS	mg/kg	0.48	0.55	0.55	0.47
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10	<0.10
Sodium	iMET2SAICP	mg/kg	980	1200	410	200
Strontium	iMET2SAICP	mg/kg	240	270	87	23
Sulfur	iMET2SAICP	mg/kg	520	610	260	240
Thallium	iMET2SAMS	mg/kg	0.52	1.4	0.40	0.37
Thorium	iMET2SAMS	mg/kg	5.6	4.7	3.5	3.9
Tin	iMET2SAMS	mg/kg	1.4	<1.0	1.2	<1.0
Titanium	iMET2SAICP	mg/kg	500	540	280	190
Uranium	iMET2SAMS	mg/kg	2.2	3.5	2.4	0.61
Vanadium	iMET2SAICP	mg/kg	62	56	69	78
Yttrium*	iMET2SAMS	mg/kg	19	54	59	7.0
Zinc	iMET2SAICP	mg/kg	100	740	490	63
pH	iPH1WASE		7.0	6.7	6.8	8.2
Electrical Conductivity	IEC1WZSE	mS/m	6.7	7.8	7.5	22.7

LAB ID			121	122	123	124
Client ID			MDRC1534_20-30	MDRC1535_40-46	MDRC1535_46-72	MDRC1536_00-04
Sampled						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	7	7	5	49
TDS (calculated)	iSOL1WDCA	mg/L	37	43	41	120
Aluminium	iMET1WCICP	mg/L	0.014	<0.005	<0.005	0.005
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	0.002
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	0.020
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.04	0.02	0.03	0.08
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	1.2	2.0	1.4	16.4
Chloride	iCO1WCDA	mg/L	5	7	8	11
Chromium	iMET1WCICP	mg/L	0.006	0.002	0.003	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Copper	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	0.0010
Fluoride	iF1WASE	mg/L	0.69	0.38	0.52	1.0
Iron	iMET1WCICP	mg/L	0.008	<0.005	<0.005	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	0.006	0.009	<0.005
Magnesium	iMET1WCICP	mg/L	0.8	1.3	0.9	4.1
Manganese	iMET1WCICP	mg/L	0.002	0.001	<0.001	<0.001
Mercury	iMET1WCMS	mg/L	0.0004	0.0015	0.0002	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.45	0.35	0.15	0.94
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.8	4.8	3.5	9.1
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	6.5	4.7	4.3	12
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	8.2	7.4	9.0	15.0
Strontium	iMET1WCICP	mg/L	0.003	0.008	0.004	0.092
Sulphate (from S)	iMET1WCICP	mg/L	8.7	10.3	10.2	33.7
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	<0.005	0.006	<0.005	<0.005
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)		4/7/2023	4/7/2023	4/7/2023	4/7/2023
	ARD		12/6/2023	12/6/2023	12/6/2023	12/6/2023
	iALK1WATI		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iF1WASE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iMET1WCICP		21/6/2023	21/6/2023	21/6/2023	21/6/2023
	iMET1WCMS		16/6/2023	16/6/2023	16/6/2023	16/6/2023

LAB ID		121	122	123	124
Client ID					
Sampled					
Analyte	Method	Unit			
Date Analysed	iMET2SAICP	28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS	28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA	19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iPH1WASE	16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA	28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)	20/6/2023	20/6/2023	20/6/2023	20/6/2023
Sample Condition		Ambient	Ambient	Ambient	Ambient

LAB ID			125	126	127	128
Client ID			MDRC1536_04-08	MDRC1536_12-18	MDRC1536_30-36	MDRC1536_36-44
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	33	10	12	15
pH, 1:2 soil:water*	ARD		8.2	7.4	7.1	7.2
Acid Neutralising Capacity	ARD	kg H2SO4	4.6	3.0	3.3	3.6
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	0.8	<0.5	<0.5
NAG pH*	ARD		7.2	5.9	7.3	7.4
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.02	<0.01	0.02	0.03
Carbon	(combs)	%	<0.05	<0.05	0.09	0.07
Sulfur*	(combs)	%	0.12	0.02	0.02	0.02
Nitrogen	(total)	%		0.010		0.006
Aluminium	iMET2SAICP	mg/kg		12100		16200
Antimony	iMET2SAMS	mg/kg		0.68		0.11
Arsenic	iMET2SAMS	mg/kg		26		5.4
Barium	iMET2SAICP	mg/kg		63		1200
Beryllium	iMET2SAICP	mg/kg		0.73		3.1
Bismuth*	iMET2SAMS	mg/kg		0.45		0.29
Cadmium	iMET2SAMS	mg/kg		<0.10		2.6
Calcium	iMET2SAICP	mg/kg		850		840
Chromium	iMET2SAICP	mg/kg		110		33
Cobalt	iMET2SAMS	mg/kg		6.2		45
Copper	iMET2SAMS	mg/kg		72		16
Iron	iMET2SAICP	mg/kg		82000		210000
Lanthanum*	iMET2SAICP	mg/kg		7.4		45
Lead	iMET2SAMS	mg/kg		17		5.0
Lithium	iMET2SAICP	mg/kg		3.6		120
Magnesium	iMET2SAICP	mg/kg		1100		1200
Manganese	iMET2SAICP	mg/kg		720		97000
Mercury	iMET2SAMS	mg/kg		<0.04		0.65
Molybdenum	iMET2SAMS	mg/kg		1.4		0.75
Nickel	iMET2SAICP	mg/kg		23		190
Phosphorus	iMET2SAICP	mg/kg		150		210
Potassium	iMET2SAICP	mg/kg		1200		3000
Selenium	iMET2SAMS	mg/kg		0.91		0.23
Silver	iMET2SAMS	mg/kg		<0.10		<0.10
Sodium	iMET2SAICP	mg/kg		180		920

LAB ID Client ID	125			126		127		128	
	MDRC1536_04-0			MDRC1536_12-		MDRC1536_30-		MDRC1536_36-	
Sampled			8	18		36		44	
Analyte	Method	Unit							
Strontium	iMET2SAICP	mg/kg		15				130	
Sulfur	iMET2SAICP	mg/kg		96				540	
Thallium	iMET2SAMS	mg/kg		0.24				0.33	
Thorium	iMET2SAMS	mg/kg		6.5				4.5	
Tin	iMET2SAMS	mg/kg		2.2				<1.0	
Titanium	iMET2SAICP	mg/kg		240				530	
Uranium	iMET2SAMS	mg/kg		0.95				2.8	
Vanadium	iMET2SAICP	mg/kg		130				32	
Yttrium*	iMET2SAMS	mg/kg		5.0				61	
Zinc	iMET2SAICP	mg/kg		<50				470	
pH	iPH1WASE		8.2	7.0		6.8		6.9	
Electrical Conductivity	iEC1WZSE	mS/m	18.4	4.8		6.3		7.4	
Alkalinity as CaCO3	iALK1WATI	mg/L	46	5		6		6	
TDS (calculated)	iSOL1WDCA	mg/L	100	26		35		41	
Aluminium	iMET1WCICP	mg/L	0.006	0.067		<0.005		<0.005	
Antimony	iMET1WCMS	mg/L	0.0001	0.0001		<0.0001		<0.0001	
Arsenic	iMET1WCMS	mg/L	0.002	<0.001		<0.001		<0.001	
Barium	iMET1WCICP	mg/L	0.016	<0.002		<0.002		<0.002	
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001		<0.001		<0.001	
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001		<0.0001		<0.0001	
Boron	iMET1WCICP	mg/L	0.09	0.03		0.02		0.02	
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001		<0.0001		<0.0001	
Calcium	iMET1WCICP	mg/L	7.2	0.5		1.5		1.6	
Chloride	iCO1WCDA	mg/L	12	4		6		7	
Chromium	iMET1WCICP	mg/L	<0.001	0.001		0.003		0.003	
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005		<0.005		<0.005	
Copper	iMET1WCMS	mg/L	0.0008	0.0006		<0.0001		0.0002	
Fluoride	iF1WASE	mg/L	0.93	0.35		0.55		0.53	
Iron	iMET1WCICP	mg/L	<0.005	0.033		<0.005		<0.005	
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005		<0.005		<0.005	
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001		0.0002		<0.0001	
Lithium	iMET1WCICP	mg/L	<0.005	<0.005		0.012		0.012	
Magnesium	iMET1WCICP	mg/L	2.3	0.3		0.9		1.0	
Manganese	iMET1WCICP	mg/L	0.008	<0.001		<0.001		<0.001	
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001		0.0005		0.0003	
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02		<0.02		<0.02	
Nickel	iMET1WCICP	mg/L	<0.01	<0.01		<0.01		<0.01	
Nitrogen, total	iNP1WTFIA	mg/L	0.79	0.69		0.41		0.25	
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1		<0.1		<0.1	
Potassium	iMET1WCICP	mg/L	6.3	2.6		3.5		4.4	
Selenium	iMET1WCMS	mg/L	<0.001	<0.001		<0.001		<0.001	
Silicon	iMET1WCICP	mg/L	14	6.8		5.2		4.7	
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001		<0.0001		<0.0001	
Sodium	iMET1WCICP	mg/L	21.4	6.8		6.6		7.7	
Strontium	iMET1WCICP	mg/L	0.038	0.003		0.005		0.005	
Sulphate (from S)	iMET1WCICP	mg/L	19.8	4.9		8.8		10.4	
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001		<0.0001		<0.0001	
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001		<0.0001		<0.0001	
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001		<0.0001		<0.0001	

LAB ID			125	126	127	128
Client ID			MDRC1536_04-08	MDRC1536_12-18	MDRC1536_30-36	MDRC1536_36-44
Sampled						
Analyte	Method	Unit				
Titanium	iMET1WCMS	mg/L	<0.0005	0.0011	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)			4/7/2023		4/7/2023
	ARD		12/6/2023	12/6/2023	12/6/2023	12/6/2023
	iALK1WATI		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iF1WASE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iMET1WCICP		21/6/2023	21/6/2023	21/6/2023	21/6/2023
	iMET1WCMS		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET2SAICP			28/8/2023		28/8/2023
	iMET2SAMS			28/8/2023		28/8/2023
	iNP1WTFIA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iPH1WASE		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		20/6/2023	20/6/2023	20/6/2023	20/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			129	130	131	132
Client ID			MDRC1536_82-88	MDRC1542_76-82	MDRC1549_28-34	MDRC1549_56-62
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	30	20	13	45
pH, 1:2 soil:water*	ARD		6.6	7.2	7.1	7.2
Acid Neutralising Capacity	ARD	kg H2SO4	6.7	3.0	2.2	4.1
NAG (Net Acid Generation)*	ARD	kgH2SO4	2.5	<0.5	<0.5	<0.5
NAG pH*	ARD		5.6	7.9	6.3	6.8
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.04	0.02	<0.01	0.01
Carbon	(combs)	%	0.85	0.09	0.06	0.35
Sulfur*	(combs)	%	0.43	0.03	0.06	0.04
Nitrogen	(total)	%	<0.005		<0.005	
Aluminium	iMET2SAICP	mg/kg	4760		14700	
Antimony	iMET2SAMS	mg/kg	0.64		0.82	
Arsenic	iMET2SAMS	mg/kg	12		31	
Barium	iMET2SAICP	mg/kg	22		32	
Beryllium	iMET2SAICP	mg/kg	0.79		<0.50	
Bismuth*	iMET2SAMS	mg/kg	0.21		0.55	
Cadmium	iMET2SAMS	mg/kg	0.17		<0.10	
Calcium	iMET2SAICP	mg/kg	260		420	
Chromium	iMET2SAICP	mg/kg	38		200	
Cobalt	iMET2SAMS	mg/kg	20		6.9	
Copper	iMET2SAMS	mg/kg	19		29	
Iron	iMET2SAICP	mg/kg	120000		210000	
Lanthanum*	iMET2SAICP	mg/kg	11		4.8	

LAB ID			129	130	131	132
Client ID			MDRC1536_82-8	MDRC1542_76-82	MDRC1549_28-34	MDRC1549_56-62
Sampled						
Analyte	Method	Unit				
Lead	iMET2SAMS	mg/kg	4.0		19	
Lithium	iMET2SAICP	mg/kg	6.9		<2.0	
Magnesium	iMET2SAICP	mg/kg	400		380	
Manganese	iMET2SAICP	mg/kg	6800		450	
Mercury	iMET2SAMS	mg/kg	0.09		<0.04	
Molybdenum	iMET2SAMS	mg/kg	1.5		1.7	
Nickel	iMET2SAICP	mg/kg	39		13	
Phosphorus	iMET2SAICP	mg/kg	<50		120	
Potassium	iMET2SAICP	mg/kg	220		310	
Selenium	iMET2SAMS	mg/kg	0.61		0.53	
Silver	iMET2SAMS	mg/kg	<0.10		0.12	
Sodium	iMET2SAICP	mg/kg	<100		120	
Strontium	iMET2SAICP	mg/kg	5.6		5.0	
Sulfur	iMET2SAICP	mg/kg	3400		100	
Thallium	iMET2SAMS	mg/kg	0.39		0.12	
Thorium	iMET2SAMS	mg/kg	1.4		12	
Tin	iMET2SAMS	mg/kg	<1.0		2.5	
Titanium	iMET2SAICP	mg/kg	60		930	
Uranium	iMET2SAMS	mg/kg	0.52		1.6	
Vanadium	iMET2SAICP	mg/kg	33		180	
Yttrium*	iMET2SAMS	mg/kg	6.9		6.1	
Zinc	iMET2SAICP	mg/kg	110		<50	
pH	iPH1WASE		6.9	6.8	6.8	6.9
Electrical Conductivity	iEC1WZSE	mS/m	15.1	9.4	6.1	18.0
Alkalinity as CaCO3	iALK1WATI	mg/L	5	7	5	9
TDS (calculated)	iSOL1WDCA	mg/L	83	52	33	99
Aluminium	iMET1WCICP	mg/L	<0.005	<0.005	0.20	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.06	<0.02	0.04	0.03
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0009
Calcium	iMET1WCICP	mg/L	7.5	1.2	0.6	2.3
Chloride	iCO1WCDA	mg/L	3	9	8	14
Chromium	iMET1WCICP	mg/L	<0.001	0.004	0.001	<0.001
Cobalt	iMET1WCICP	mg/L	0.057	<0.005	<0.005	0.055
Copper	iMET1WCMS	mg/L	0.0008	0.0003	0.0009	0.0044
Fluoride	iF1WASE	mg/L	0.20	0.39	0.60	0.74
Iron	iMET1WCICP	mg/L	<0.005	<0.005	0.11	0.036
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	iMET1WCICP	mg/L	0.015	0.008	<0.005	0.010
Magnesium	iMET1WCICP	mg/L	4.5	0.9	0.4	1.8
Manganese	iMET1WCICP	mg/L	1.7	0.003	0.003	0.018
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	0.02	<0.01	<0.01	0.07

LAB ID			129	130	131	132
Client ID			MDRC1536_82-8	MDRC1542_76-82	MDRC1549_28-34	MDRC1549_56-62
Sampled						
Analyte	Method	Unit				
Nitrogen, total	iNP1WTFIA	mg/L	0.23	0.17	0.36	0.88
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	5.7	4.0	2.6	4.4
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	2.2	3.5	6.0	7.0
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	6.9	13.3	9.2	28.0
Strontium	iMET1WCICP	mg/L	0.022	0.004	0.003	0.011
Sulphate (from S)	iMET1WCICP	mg/L	51.9	14.3	5.0	40.9
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	0.0033	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	0.0004	0.0013
Zinc	iMET1WCICP	mg/L	0.011	<0.005	<0.005	0.25
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)		4/7/2023		4/7/2023	
	ARD		12/6/2023	12/6/2023	12/6/2023	12/6/2023
	iALK1WATI		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iF1WASE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iMET1WCICP		21/6/2023	21/6/2023	21/6/2023	21/6/2023
	iMET1WCMS		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET2SAICP		28/8/2023		28/8/2023	
	iMET2SAMS		28/8/2023		28/8/2023	
	iNP1WTFIA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iPH1WASE		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		20/6/2023	20/6/2023	20/6/2023	20/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			133	134	135	136
Client ID			MDRC1549_68-74	MDRC1549_74-90	MDRC1549_90-96	MDRC1551_08-14
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	41	35	27	11
pH, 1:2 soil:water*	ARD		7.0	7.0	7.3	7.7
Acid Neutralising Capacity	ARD	kg H2SO4	5.0	4.3	2.6	3.0
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		7.7	7.8	7.6	6.4
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.02	0.02	0.01	0.01
Carbon	(combs)	%	0.10	0.08	0.08	0.08
Sulfur*	(combs)	%	0.03	0.02	0.02	0.11
Nitrogen	(total)	%	0.013	0.007	0.007	0.005
Aluminium	iMET2SAICP	mg/kg	4930	3810	4830	10900

LAB ID Client ID	133			134			135			136		
	MDRC1549_68-7			MDRC1549_74-			MDRC1549_90-			MDRC1551_08-		
Sampled			4	90			96			14		
Analyte	Method	Unit										
Antimony	iMET2SAMS	mg/kg	<0.10		0.14		0.15		0.78			
Arsenic	iMET2SAMS	mg/kg	4.3		2.6		2.0		29			
Barium	iMET2SAICP	mg/kg	480		260		120		120			
Beryllium	iMET2SAICP	mg/kg	3.1		1.7		1.2		0.78			
Bismuth*	iMET2SAMS	mg/kg	0.18		0.15		0.13		0.31			
Cadmium	iMET2SAMS	mg/kg	1.1		0.95		0.45		0.11			
Calcium	iMET2SAICP	mg/kg	810		900		710		650			
Chromium	iMET2SAICP	mg/kg	29		26		40		110			
Cobalt	iMET2SAMS	mg/kg	17		16		19		16			
Copper	iMET2SAMS	mg/kg	16		19		11		53			
Iron	iMET2SAICP	mg/kg	400000		380000		310000		110000			
Lanthanum*	iMET2SAICP	mg/kg	27		10		6.0		7.1			
Lead	iMET2SAMS	mg/kg	4.2		6.4		4.8		13			
Lithium	iMET2SAICP	mg/kg	2.9		<2.0		5.4		3.8			
Magnesium	iMET2SAICP	mg/kg	930		1400		1000		1200			
Manganese	iMET2SAICP	mg/kg	70000		54000		39000		770			
Mercury	iMET2SAMS	mg/kg	0.52		0.40		0.19		0.04			
Molybdenum	iMET2SAMS	mg/kg	0.47		0.60		0.47		1.4			
Nickel	iMET2SAICP	mg/kg	130		140		83		38			
Phosphorus	iMET2SAICP	mg/kg	310		250		130		180			
Potassium	iMET2SAICP	mg/kg	2100		1500		1100		1400			
Selenium	iMET2SAMS	mg/kg	0.13		0.12		0.15		0.90			
Silver	iMET2SAMS	mg/kg	<0.10		<0.10		<0.10		0.11			
Sodium	iMET2SAICP	mg/kg	490		460		330		160			
Strontium	iMET2SAICP	mg/kg	84		94		54		18			
Sulfur	iMET2SAICP	mg/kg	430		310		230		290			
Thallium	iMET2SAMS	mg/kg	0.16		<0.10		<0.10		0.34			
Thorium	iMET2SAMS	mg/kg	2.5		1.5		1.5		4.4			
Tin	iMET2SAMS	mg/kg	<1.0		<1.0		<1.0		<1.0			
Titanium	iMET2SAICP	mg/kg	390		300		230		190			
Uranium	iMET2SAMS	mg/kg	1.8		4.8		8.9		0.87			
Vanadium	iMET2SAICP	mg/kg	38		250		250		85			
Yttrium*	iMET2SAMS	mg/kg	65		38		21		6.8			
Zinc	iMET2SAICP	mg/kg	630		660		380		72			
pH	iPH1WASE		6.7		6.7		6.9		7.2			
Electrical Conductivity	iEC1WZSE	mS/m	20.2		16.9		12.1		4.9			
Alkalinity as CaCO3	iALK1WATI	mg/L	25		11		6		7			
TDS (calculated)	iSOL1WDCA	mg/L	110		93		66		27			
Aluminium	iMET1WCICP	mg/L	<0.005		<0.005		<0.005		0.43			
Antimony	iMET1WCMS	mg/L	<0.0001		<0.0001		<0.0001		0.0002			
Arsenic	iMET1WCMS	mg/L	<0.001		<0.001		<0.001		<0.001			
Barium	iMET1WCICP	mg/L	<0.002		<0.002		<0.002		0.003			
Beryllium	iMET1WCICP	mg/L	<0.001		<0.001		<0.001		<0.001			
Bismuth*	iMET1WCMS	mg/L	<0.0001		<0.0001		<0.0001		<0.0001			
Boron	iMET1WCICP	mg/L	0.02		<0.02		0.03		0.04			
Cadmium	iMET1WCMS	mg/L	<0.0001		<0.0001		<0.0001		<0.0001			
Calcium	iMET1WCICP	mg/L	9.5		5.8		1.4		0.4			
Chloride	iCO1WCDA	mg/L	15		20		18		2			
Chromium	iMET1WCICP	mg/L	<0.001		0.002		0.006		0.001			

LAB ID			133	134	135	136
Client ID			MDRC1549_68-74	MDRC1549_74-90	MDRC1549_90-96	MDRC1551_08-14
Sampled						
Analyte	Method	Unit				
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Copper	iMET1WCMS	mg/L	<0.0001	0.0003	<0.0001	0.0022
Fluoride	iF1WASE	mg/L	0.21	0.21	0.33	0.46
Iron	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	0.39
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	iMET1WCICP	mg/L	0.007	0.006	0.007	<0.005
Magnesium	iMET1WCICP	mg/L	4.8	3.5	1.1	0.3
Manganese	iMET1WCICP	mg/L	0.013	0.002	0.002	0.004
Mercury	iMET1WCMS	mg/L	0.0001	0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.77	0.47	0.27	0.37
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	6.7	6.8	3.6	3.1
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	3.2	3.3	3.5	7.3
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	17.3	15.4	16.8	7.4
Strontium	iMET1WCICP	mg/L	0.029	0.017	0.005	0.004
Sulphate (from S)	iMET1WCICP	mg/L	43.9	24.6	15.8	5.7
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	0.0084
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	0.017	0.005	<0.005	<0.005
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)		4/7/2023	4/7/2023	4/7/2023	4/7/2023
	ARD		12/6/2023	12/6/2023	12/6/2023	12/6/2023
	iALK1WATI		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iF1WASE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iMET1WCICP		21/6/2023	21/6/2023	21/6/2023	21/6/2023
	iMET1WCMS		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iPH1WASE		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		20/6/2023	20/6/2023	20/6/2023	20/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID	137	138	139	140
Client ID	MDRC1551_16-22	MDRC1551_24-30	MDRC1551_52-62	MDRC1551_82-90

Sampled

Analyte	Method	Unit

LAB ID			137	138	139	140
Client ID			MDRC1551_16-2	MDRC1551_24-30	MDRC1551_52-62	MDRC1551_82-90
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	9	9	10	16
pH, 1:2 soil:water*	ARD		7.5	7.2	6.8	7.2
Acid Neutralising Capacity	ARD	kg H2SO4	2.0	1.5	1.3	3.0
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	2.3	0.6	<0.5
NAG pH*	ARD		6.2	5.5	6.0	7.5
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	<0.01	<0.01	0.01
Carbon	(combs)	%	0.05	<0.05	0.19	0.18
Sulfur*	(combs)	%	0.04	0.04	0.02	0.03
Nitrogen	(total)	%	<0.005			0.006
Aluminium	iMET2SAICP	mg/kg	11100			7990
Antimony	iMET2SAMS	mg/kg	0.92			0.27
Arsenic	iMET2SAMS	mg/kg	40			20
Barium	iMET2SAICP	mg/kg	62			110
Beryllium	iMET2SAICP	mg/kg	0.59			2.5
Bismuth*	iMET2SAMS	mg/kg	0.43			0.54
Cadmium	iMET2SAMS	mg/kg	<0.10			1.1
Calcium	iMET2SAICP	mg/kg	460			610
Chromium	iMET2SAICP	mg/kg	140			67
Cobalt	iMET2SAMS	mg/kg	13			100
Copper	iMET2SAMS	mg/kg	59			55
Iron	iMET2SAICP	mg/kg	150000			270000
Lanthanum*	iMET2SAICP	mg/kg	6.7			7.8
Lead	iMET2SAMS	mg/kg	18			4.2
Lithium	iMET2SAICP	mg/kg	2.4			35
Magnesium	iMET2SAICP	mg/kg	760			1100
Manganese	iMET2SAICP	mg/kg	720			31000
Mercury	iMET2SAMS	mg/kg	<0.04			0.19
Molybdenum	iMET2SAMS	mg/kg	1.9			0.71
Nickel	iMET2SAICP	mg/kg	38			160
Phosphorus	iMET2SAICP	mg/kg	160			420
Potassium	iMET2SAICP	mg/kg	1000			2200
Selenium	iMET2SAMS	mg/kg	0.93			0.50
Silver	iMET2SAMS	mg/kg	0.13			<0.10
Sodium	iMET2SAICP	mg/kg	120			250
Strontium	iMET2SAICP	mg/kg	12			110
Sulfur	iMET2SAICP	mg/kg	200			340
Thallium	iMET2SAMS	mg/kg	0.29			2.0
Thorium	iMET2SAMS	mg/kg	5.5			2.0
Tin	iMET2SAMS	mg/kg	1.2			<1.0
Titanium	iMET2SAICP	mg/kg	340			260
Uranium	iMET2SAMS	mg/kg	1.1			2.7
Vanadium	iMET2SAICP	mg/kg	120			47
Yttrium*	iMET2SAMS	mg/kg	4.6			30
Zinc	iMET2SAICP	mg/kg	75			620
pH	iPH1WASE		7.0	6.9	6.6	6.9
Electrical Conductivity	iEC1WZSE	mS/m	4.0	4.6	4.6	7.6
Alkalinity as CaCO3	iALK1WATI	mg/L	5	5	4	6

LAB ID			137	138	139	140
Client ID			MDRC1551_16-2	MDRC1551_24-30	MDRC1551_52-62	MDRC1551_82-90
Sampled						
Analyte	Method	Unit				
TDS (calculated)	iSOL1WDCA	mg/L	22	25	25	42
Aluminium	iMET1WCICP	mg/L	0.33	0.039	<0.005	<0.005
Antimony	iMET1WCMS	mg/L	0.0001	0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.03	0.04	0.02	0.07
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	0.2	0.3	0.7	1.3
Chloride	iCO1WCDA	mg/L	3	4	3	7
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	0.007	<0.005
Copper	iMET1WCMS	mg/L	0.0014	0.0012	0.0004	0.0003
Fluoride	iF1WASE	mg/L	0.35	0.41	0.16	0.56
Iron	iMET1WCICP	mg/L	0.27	0.021	0.006	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	0.0001	0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	<0.005	0.012	0.011
Magnesium	iMET1WCICP	mg/L	0.1	0.1	0.5	0.8
Manganese	iMET1WCICP	mg/L	0.003	<0.001	0.004	0.002
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.43	0.44	0.28	0.18
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	2.7	2.5	2.6	4.3
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	5.7	6.3	3.7	3.4
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	6.0	7.2	6.2	8.9
Strontium	iMET1WCICP	mg/L	<0.002	<0.002	0.004	0.003
Sulphate (from S)	iMET1WCICP	mg/L	4.4	4.5	6.7	10.6
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0062	0.0059	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.0005	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	<0.005	<0.005	0.007	<0.005
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)		4/7/2023			4/7/2023
	ARD		12/6/2023	12/6/2023	12/6/2023	12/6/2023
	iALK1WATI		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iF1WASE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iMET1WCICP		21/6/2023	21/6/2023	21/6/2023	21/6/2023
	iMET1WCMS		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET2SAICP		28/8/2023			28/8/2023

LAB ID	137			140	
Client ID					
Sampled					
Analyte	Method	Unit			
Date Analysed	iMET2SAMS	28/8/2023	28/8/2023		
	iNP1WTFIA	19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iPH1WASE	16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA	28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)	20/6/2023	20/6/2023	20/6/2023	20/6/2023
Sample Condition		Ambient	Ambient	Ambient	Ambient

LAB ID			141	142	143	144
Client ID			MDRC1552_18-24	MDRC1552_64-70	MDRC1552_82-88	MDRC1554_54-60
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	20	22	27	13
pH, 1:2 soil:water*	ARD		7.3	7.0	7.1	7.4
Acid Neutralising Capacity	ARD	kg H2SO4	2.5	1.2	2.4	2.6
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	1.6
NAG pH*	ARD		7.0	7.3	7.6	6.0
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	0.01	0.02	<0.01
Carbon	(combs)	%	<0.05	0.16	<0.05	0.11
Sulfur*	(combs)	%	0.02	0.03	0.04	0.02
Nitrogen	(total)	%	0.013	<0.005	<0.005	<0.005
Aluminium	iMET2SAICP	mg/kg	16300	6770	5630	22600
Antimony	iMET2SAMS	mg/kg	0.66	0.35	0.33	0.35
Arsenic	iMET2SAMS	mg/kg	26	8.9	15	16
Barium	iMET2SAICP	mg/kg	69	62	42	5.8
Beryllium	iMET2SAICP	mg/kg	1.2	3.5	0.94	1.2
Bismuth*	iMET2SAMS	mg/kg	0.51	0.13	0.44	0.20
Cadmium	iMET2SAMS	mg/kg	<0.10	0.49	0.15	0.19
Calcium	iMET2SAICP	mg/kg	870	220	380	980
Chromium	iMET2SAICP	mg/kg	120	37	70	64
Cobalt	iMET2SAMS	mg/kg	17	23	23	7.1
Copper	iMET2SAMS	mg/kg	86	13	33	21
Iron	iMET2SAICP	mg/kg	97000	340000	120000	280000
Lanthanum*	iMET2SAICP	mg/kg	8.1	9.9	5.5	13
Lead	iMET2SAMS	mg/kg	18	3.5	5.0	12
Lithium	iMET2SAICP	mg/kg	8.5	<2.0	11	6.5
Magnesium	iMET2SAICP	mg/kg	1300	450	700	2200
Manganese	iMET2SAICP	mg/kg	820	8000	4700	230
Mercury	iMET2SAMS	mg/kg	<0.04	0.11	0.06	0.21
Molybdenum	iMET2SAMS	mg/kg	1.2	0.49	1.5	0.78
Nickel	iMET2SAICP	mg/kg	46	100	53	50
Phosphorus	iMET2SAICP	mg/kg	210	550	54	180
Potassium	iMET2SAICP	mg/kg	1200	340	690	210
Selenium	iMET2SAMS	mg/kg	0.76	0.12	0.28	0.53
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10	<0.10
Sodium	iMET2SAICP	mg/kg	200	150	130	200
Strontium	iMET2SAICP	mg/kg	14	6.2	11	8.9

LAB ID			141	142	143	144
Client ID			MDRC1552_18-2 4	MDRC1552_64- 70	MDRC1552_82- 88	MDRC1554_54- 60
Sampled						
Analyte	Method	Unit				
Sulfur	iMET2SAICP	mg/kg	96	240	330	120
Thallium	iMET2SAMS	mg/kg	0.31	0.27	0.60	<0.10
Thorium	iMET2SAMS	mg/kg	7.6	1.7	2.4	4.1
Tin	iMET2SAMS	mg/kg	2.3	<1.0	<1.0	<1.0
Titanium	iMET2SAICP	mg/kg	270	340	71	490
Uranium	iMET2SAMS	mg/kg	1.1	2.5	0.90	2.3
Vanadium	iMET2SAICP	mg/kg	140	34	52	70
Yttrium*	iMET2SAMS	mg/kg	7.7	33	9.3	9.3
Zinc	iMET2SAICP	mg/kg	76	390	170	290
pH	iPH1WASE		7.0	6.6	6.7	6.9
Electrical Conductivity	iEC1WZSE	mS/m	9.4	9.7	12.7	7.0
Alkalinity as CaCO3	iALK1WATI	mg/L	6	4	3	5
TDS (calculated)	iSOL1WDCA	mg/L	52	53	70	38
Aluminium	iMET1WCICP	mg/L	0.64	<0.005	<0.005	0.13
Antimony	iMET1WCMS	mg/L	0.0002	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.04	<0.02	0.04	0.03
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0002	<0.0001	0.0001
Calcium	iMET1WCICP	mg/L	1.1	1.4	2.3	0.3
Chloride	iCO1WCDA	mg/L	11	8	18	6
Chromium	iMET1WCICP	mg/L	0.002	<0.001	<0.001	0.001
Cobalt	iMET1WCICP	mg/L	<0.005	0.013	<0.005	<0.005
Copper	iMET1WCMS	mg/L	0.0023	0.0010	0.0003	0.0012
Fluoride	iF1WASE	mg/L	0.86	0.21	0.49	1.1
Iron	iMET1WCICP	mg/L	0.49	0.016	<0.005	0.26
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	0.0002	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	0.009	0.008	0.013
Magnesium	iMET1WCICP	mg/L	0.8	0.9	1.7	0.2
Manganese	iMET1WCICP	mg/L	0.004	0.007	0.011	<0.001
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	0.04	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.67	0.97	0.22	0.71
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.9	2.3	4.9	1.7
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	9.3	2.6	2.8	7.3
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	13.4	15.9	14.9	12.0
Strontium	iMET1WCICP	mg/L	0.006	0.006	0.009	<0.002
Sulphate (from S)	iMET1WCICP	mg/L	10.5	25.4	18.7	11.1
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0079	<0.0005	<0.0005	0.0015

LAB ID			141	142	143	144
Client ID			MDRC1552_18-2 4	MDRC1552_64- 70	MDRC1552_82- 88	MDRC1554_54- 60
Sampled						
Analyte	Method	Unit				
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.0007	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	0.007	0.048	<0.005	0.013
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)		4/7/2023	4/7/2023	4/7/2023	4/7/2023
	ARD		12/6/2023	12/6/2023	12/6/2023	12/6/2023
	iALK1WATI		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iF1WASE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iMET1WCICP		21/6/2023	21/6/2023	21/6/2023	21/6/2023
	iMET1WCMS		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iPH1WASE		16/6/2023	16/6/2023	16/6/2023	16/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		20/6/2023	20/6/2023	20/6/2023	20/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			145	146	147	148
Client ID			MDRC1554_94-1 00	MDRC1554_10 6-112	MDRC1569_08- 14	MDRC1569_26- 32
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	20	55	19	11
pH, 1:2 soil:water*	ARD		7.4	5.5	7.4	7.1
Acid Neutralising Capacity	ARD	kg H2SO4	3.3	1.1	3.3	1.9
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	15	0.9	2.9
NAG pH*	ARD		8.1	2.6	6.0	5.6
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	11	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.02	0.06	0.01	<0.01
Carbon	(combs)	%	<0.05	0.86	<0.05	<0.05
Sulfur*	(combs)	%	0.05	0.58	0.12	0.03
Nitrogen	(total)	%	<0.005	<0.005	<0.005	
Aluminium	iMET2SAICP	mg/kg	7060	5970	12800	
Antimony	iMET2SAMS	mg/kg	0.10	1.0	0.58	
Arsenic	iMET2SAMS	mg/kg	8.6	31	31	
Barium	iMET2SAICP	mg/kg	61	1.4	120	
Beryllium	iMET2SAICP	mg/kg	1.5	0.79	0.78	
Bismuth*	iMET2SAMS	mg/kg	0.21	0.13	0.36	
Cadmium	iMET2SAMS	mg/kg	0.24	<0.10	0.12	
Calcium	iMET2SAICP	mg/kg	810	300	910	
Chromium	iMET2SAICP	mg/kg	42	44	110	
Cobalt	iMET2SAMS	mg/kg	29	9.6	16	
Copper	iMET2SAMS	mg/kg	9.7	19	61	
Iron	iMET2SAICP	mg/kg	280000	150000	100000	
Lanthanum*	iMET2SAICP	mg/kg	5.3	7.5	8.5	
Lead	iMET2SAMS	mg/kg	2.4	3.8	14	

LAB ID			145	146	147	148
Client ID			MDRC1554_94-100	MDRC1554_106-112	MDRC1569_08-14	MDRC1569_26-32
Sampled						
Analyte	Method	Unit				
Lithium	iMET2SAICP	mg/kg	6.0	3.0	4.4	
Magnesium	iMET2SAICP	mg/kg	1200	1100	1700	
Manganese	iMET2SAICP	mg/kg	28000	580	530	
Mercury	iMET2SAMS	mg/kg	0.20	0.07	0.04	
Molybdenum	iMET2SAMS	mg/kg	0.53	2.3	1.3	
Nickel	iMET2SAICP	mg/kg	71	16	38	
Phosphorus	iMET2SAICP	mg/kg	210	190	190	
Potassium	iMET2SAICP	mg/kg	1500	110	1600	
Selenium	iMET2SAMS	mg/kg	0.22	0.88	0.81	
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10	
Sodium	iMET2SAICP	mg/kg	320	<100	220	
Strontium	iMET2SAICP	mg/kg	67	2.3	22	
Sulfur	iMET2SAICP	mg/kg	450	4500	330	
Thallium	iMET2SAMS	mg/kg	0.39	<0.10	0.39	
Thorium	iMET2SAMS	mg/kg	1.4	1.4	4.8	
Tin	iMET2SAMS	mg/kg	<1.0	<1.0	1.0	
Titanium	iMET2SAICP	mg/kg	99	150	190	
Uranium	iMET2SAMS	mg/kg	2.7	1.2	0.81	
Vanadium	iMET2SAICP	mg/kg	34	25	91	
Yttrium*	iMET2SAMS	mg/kg	16	4.9	6.9	
Zinc	iMET2SAICP	mg/kg	270	<50	77	
pH	iPH1WASE		6.9	5.4	6.9	6.8
Electrical Conductivity	iEC1WZSE	mS/m	9.2	29.4	8.4	4.8
Alkalinity as CaCO3	iALK1WATI	mg/L	6	<1	4	5
TDS (calculated)	iSOL1WDCA	mg/L	50	160	46	26
Aluminium	iMET1WCICP	mg/L	<0.005	0.014	0.20	0.35
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0001	0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	0.004	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.03	0.08	0.04	0.03
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	0.7	13.6	0.9	0.4
Chloride	iCO1WCDA	mg/L	13	11	11	5
Chromium	iMET1WCICP	mg/L	0.006	<0.001	<0.001	0.001
Cobalt	iMET1WCICP	mg/L	<0.005	0.11	<0.005	<0.005
Copper	iMET1WCMS	mg/L	<0.0001	0.0031	0.0020	0.0011
Fluoride	iF1WASE	mg/L	0.39	0.11	0.42	0.27
Iron	iMET1WCICP	mg/L	<0.005	<0.005	0.20	0.21
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	0.011	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	0.5	10.5	0.6	0.3
Manganese	iMET1WCICP	mg/L	<0.001	2.1	0.004	0.002
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	0.05	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.44	0.30	0.44	0.46

LAB ID			145	146	147	148
Client ID			MDRC1554_94-100	MDRC1554_106-112	MDRC1569_08-14	MDRC1569_26-32
Sampled						
Analyte	Method	Unit				
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.1	8.1	3.4	2.6
Selenium	iMET1WCMS	mg/L	<0.001	0.002	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	3.0	2.8	8.1	4.4
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	13.9	13.7	11.7	7.1
Strontium	iMET1WCICP	mg/L	<0.002	0.053	0.007	0.003
Sulphate (from S)	iMET1WCICP	mg/L	9.6	102	11.7	5.4
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	0.0021	0.0019
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	<0.005	0.031	<0.005	<0.005
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)		4/7/2023	4/7/2023	4/7/2023	
	ARD		12/6/2023	12/6/2023	13/6/2023	13/6/2023
	iALK1WATI		16/6/2023	20/6/2023	20/6/2023	20/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iF1WASE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iMET1WCICP		21/6/2023	21/6/2023	21/6/2023	21/6/2023
	iMET1WCMS		16/6/2023	20/6/2023	20/6/2023	20/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	
	iNP1WTFIA		19/6/2023	23/6/2023	23/6/2023	23/6/2023
	iPH1WASE		16/6/2023	20/6/2023	20/6/2023	20/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		20/6/2023	20/6/2023	20/6/2023	20/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			149	150	151	152
Client ID			MDRC1569_32-40	MDRC1569_40-44	MDRC1569_50-56	MDRC1572_02-10
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	18	13	17	140
pH, 1:2 soil:water*	ARD		7.0	7.2	7.1	7.8
Acid Neutralising Capacity	ARD	kg H2SO4	2.0	3.5	2.4	5.5
NAG (Net Acid Generation)*	ARD	kgH2SO4	3.1	<0.5	<0.5	<0.5
NAG pH*	ARD		5.6	7.1	6.6	7.8
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	<0.01	<0.01	0.04
Carbon	(combs)	%	0.09	0.06	0.10	<0.05
Sulfur*	(combs)	%	0.02	0.02	0.02	0.11
Nitrogen	(total)	%	0.007	<0.005	<0.005	0.005
Aluminium	iMET2SAICP	mg/kg	19800	22300	20700	15600
Antimony	iMET2SAMS	mg/kg	0.54	0.20	0.80	0.23

LAB ID			149	150	151	152
Client ID			MDRC1569_32-40	MDRC1569_40-44	MDRC1569_50-56	MDRC1572_02-10
Sampled						
Analyte	Method	Unit				
Arsenic	iMET2SAMS	mg/kg	44	46	41	19
Barium	iMET2SAICP	mg/kg	54	450	47	200
Beryllium	iMET2SAICP	mg/kg	<0.50	1.0	1.2	0.91
Bismuth*	iMET2SAMS	mg/kg	0.79	0.42	0.44	0.26
Cadmium	iMET2SAMS	mg/kg	<0.10	0.18	0.47	<0.10
Calcium	iMET2SAICP	mg/kg	510	740	530	1800
Chromium	iMET2SAICP	mg/kg	220	110	81	97
Cobalt	iMET2SAMS	mg/kg	8.2	40	8.3	18
Copper	iMET2SAMS	mg/kg	70	26	17	43
Iron	iMET2SAICP	mg/kg	160000	240000	260000	98000
Lanthanum*	iMET2SAICP	mg/kg	8.4	21	4.9	10
Lead	iMET2SAMS	mg/kg	25	21	18	12
Lithium	iMET2SAICP	mg/kg	4.9	17	4.7	6.6
Magnesium	iMET2SAICP	mg/kg	560	620	700	2300
Manganese	iMET2SAICP	mg/kg	990	20000	1700	810
Mercury	iMET2SAMS	mg/kg	<0.04	<0.04	0.25	<0.04
Molybdenum	iMET2SAMS	mg/kg	1.7	1.5	0.71	0.92
Nickel	iMET2SAICP	mg/kg	19	51	76	48
Phosphorus	iMET2SAICP	mg/kg	140	180	150	140
Potassium	iMET2SAICP	mg/kg	810	770	200	1900
Selenium	iMET2SAMS	mg/kg	0.86	0.35	0.32	0.50
Silver	iMET2SAMS	mg/kg	0.11	<0.10	<0.10	<0.10
Sodium	iMET2SAICP	mg/kg	180	280	130	520
Strontium	iMET2SAICP	mg/kg	10	57	5.8	22
Sulfur	iMET2SAICP	mg/kg	110	160	130	480
Thallium	iMET2SAMS	mg/kg	0.27	0.43	<0.10	0.38
Thorium	iMET2SAMS	mg/kg	12	11	8.2	4.5
Tin	iMET2SAMS	mg/kg	3.2	1.8	1.1	<1.0
Titanium	iMET2SAICP	mg/kg	610	770	720	190
Uranium	iMET2SAMS	mg/kg	2.1	3.4	2.6	0.61
Vanadium	iMET2SAICP	mg/kg	210	100	78	81
Yttrium*	iMET2SAMS	mg/kg	4.8	13	7.6	7.9
Zinc	iMET2SAICP	mg/kg	<50	58	400	66
pH	iPH1WASE		6.9	7.0	7.0	7.9
Electrical Conductivity	iEC1WZSE	mS/m	8.2	7.4	8.4	64.4
Alkalinity as CaCO3	iALK1WATI	mg/L	7	12	7	39
TDS (calculated)	iSOL1WDCA	mg/L	45	41	46	350
Aluminium	iMET1WCICP	mg/L	0.52	0.040	0.023	<0.005
Antimony	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	0.002	0.016
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.03	0.04	0.03	0.10
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	1.1	1.8	1.2	36.7
Chloride	iCO1WCDA	mg/L	10	4	11	48
Chromium	iMET1WCICP	mg/L	0.001	0.001	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005

LAB ID			149	150	151	152
Client ID			MDRC1569_32-40	MDRC1569_40-44	MDRC1569_50-56	MDRC1572_02-10
Sampled						
Analyte	Method	Unit				
Copper	iMET1WCMS	mg/L	0.0019	0.0003	0.0004	0.0004
Fluoride	iF1WASE	mg/L	0.27	0.66	0.44	0.91
Iron	iMET1WCICP	mg/L	0.28	0.019	0.012	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	<0.005	0.016	0.006
Magnesium	iMET1WCICP	mg/L	0.8	1.1	0.8	13.0
Manganese	iMET1WCICP	mg/L	0.003	0.004	<0.001	<0.001
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	<0.01	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.60	0.47	0.56	0.41
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.3	3.9	3.1	9.1
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	0.002
Silicon	iMET1WCICP	mg/L	5.4	5.8	4.9	10
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	11.7	9.3	11.9	59.4
Strontium	iMET1WCICP	mg/L	0.007	0.010	0.006	0.19
Sulphate (from S)	iMET1WCICP	mg/L	9.2	6.2	8.4	178
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0068	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	0.0003	<0.0002	0.0003	<0.0002
Zinc	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)		4/7/2023	4/7/2023	4/7/2023	4/7/2023
	ARD		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iALK1WATI		20/6/2023	20/6/2023	20/6/2023	20/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iF1WASE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iMET1WCICP		21/6/2023	21/6/2023	21/6/2023	21/6/2023
	iMET1WCMS		20/6/2023	20/6/2023	20/6/2023	20/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		23/6/2023	23/6/2023	23/6/2023	23/6/2023
	iPH1WASE		20/6/2023	20/6/2023	20/6/2023	20/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		20/6/2023	20/6/2023	20/6/2023	20/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			153	154	155	156
Client ID			MDRC1572_24-30	MDRC1572_60-66	MDRC1573_06-12	MDRC1573_34-40
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	14	30	35	37

LAB ID		153	154	155	156
Client ID		MDRC1572_24-30	MDRC1572_60-66	MDRC1573_06-12	MDRC1573_34-40
Sampled					
Analyte	Method	Unit			
pH, 1:2 soil:water*	ARD	7.3	7.4	7.6	7.0
Acid Neutralising Capacity	ARD	kg H2SO4 1.8	3.0	5.5	2.0
NAG (Net Acid Generation)*	ARD	kgH2SO4 1.5	2.3	<0.5	<0.5
NAG pH*	ARD	6.2	6.0	6.4	7.0
NAG to pH <4.5*	ARD	kgH2SO4 <0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	% <0.01	0.01	0.02	<0.01
Carbon	(combs)	% <0.05	0.15	<0.05	0.07
Sulfur*	(combs)	% 0.03	0.02	0.14	0.03
Nitrogen	(total)	%	<0.005	0.006	<0.005
Aluminium	iMET2SAICP	mg/kg	16600	13600	12700
Antimony	iMET2SAMS	mg/kg	0.14	0.49	0.47
Arsenic	iMET2SAMS	mg/kg	3.2	21	40
Barium	iMET2SAICP	mg/kg	20	170	140
Beryllium	iMET2SAICP	mg/kg	1.3	0.82	0.62
Bismuth*	iMET2SAMS	mg/kg	0.24	0.29	0.67
Cadmium	iMET2SAMS	mg/kg	<0.10	<0.10	0.22
Calcium	iMET2SAICP	mg/kg	1200	1300	460
Chromium	iMET2SAICP	mg/kg	76	97	220
Cobalt	iMET2SAMS	mg/kg	4.4	16	17
Copper	iMET2SAMS	mg/kg	8.5	50	52
Iron	iMET2SAICP	mg/kg	130000	81000	160000
Lanthanum*	iMET2SAICP	mg/kg	17	8.9	5.4
Lead	iMET2SAMS	mg/kg	9.7	12	22
Lithium	iMET2SAICP	mg/kg	16	5.4	8.8
Magnesium	iMET2SAICP	mg/kg	2600	2600	420
Manganese	iMET2SAICP	mg/kg	480	530	4700
Mercury	iMET2SAMS	mg/kg	0.08	<0.04	0.08
Molybdenum	iMET2SAMS	mg/kg	0.36	0.92	1.8
Nickel	iMET2SAICP	mg/kg	30	44	38
Phosphorus	iMET2SAICP	mg/kg	270	160	110
Potassium	iMET2SAICP	mg/kg	290	1900	580
Selenium	iMET2SAMS	mg/kg	0.24	0.64	0.68
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10
Sodium	iMET2SAICP	mg/kg	400	420	210
Strontium	iMET2SAICP	mg/kg	9.8	26	12
Sulfur	iMET2SAICP	mg/kg	130	280	180
Thallium	iMET2SAMS	mg/kg	<0.10	0.33	0.34
Thorium	iMET2SAMS	mg/kg	6.9	4.8	11
Tin	iMET2SAMS	mg/kg	<1.0	1.0	2.5
Titanium	iMET2SAICP	mg/kg	120	150	560
Uranium	iMET2SAMS	mg/kg	1.8	0.67	2.1
Vanadium	iMET2SAICP	mg/kg	48	79	220
Yttrium*	iMET2SAMS	mg/kg	9.3	8.0	5.8
Zinc	iMET2SAICP	mg/kg	140	68	84
pH	iPH1WASE	6.8	7.0	6.8	6.7
Electrical Conductivity	iEC1WZSE	mS/m 6.5	18.2	15.9	16.7
Alkalinity as CaCO3	iALK1WATI	mg/L 5	7	5	5
TDS (calculated)	iSOL1WDCA	mg/L 36	100	87	92

LAB ID			153	154	155	156
Client ID			MDRC1572_24-30	MDRC1572_60-66	MDRC1573_06-12	MDRC1573_34-40
Sampled						
Analyte	Method	Unit				
Aluminium	iMET1WCICP	mg/L	0.52	0.069	0.070	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	0.003	0.006
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.06	0.03	0.04	0.04
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0005	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	0.2	1.0	0.9	3.6
Chloride	iCO1WCDA	mg/L	9	20	16	27
Chromium	iMET1WCICP	mg/L	0.002	0.002	<0.001	0.001
Cobalt	iMET1WCICP	mg/L	<0.005	0.11	0.050	0.009
Copper	iMET1WCMS	mg/L	0.0012	0.0088	0.0044	0.0038
Fluoride	iF1WASE	mg/L	0.61	1.3	0.45	0.29
Iron	iMET1WCICP	mg/L	0.30	0.16	0.095	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	0.0002	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	<0.005	0.010	<0.005	<0.005
Magnesium	iMET1WCICP	mg/L	0.2	0.7	0.6	2.5
Manganese	iMET1WCICP	mg/L	0.001	0.019	0.006	0.004
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	0.06	0.02	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	0.46	2.1	0.50	0.50
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	2.4	3.9	2.9	5.5
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	7.6	5.4	12	5.1
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	10.3	30.9	24.9	18.0
Strontium	iMET1WCICP	mg/L	<0.002	0.013	0.007	0.021
Sulphate (from S)	iMET1WCICP	mg/L	5.5	52.5	32.6	18.9
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	0.0004	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0014	0.0012	0.0008	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	0.0007	0.0005	0.0008
Zinc	iMET1WCICP	mg/L	<0.005	0.25	<0.005	<0.005
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)			4/7/2023	4/7/2023	4/7/2023
	ARD		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iALK1WATI		20/6/2023	20/6/2023	20/6/2023	20/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iF1WASE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iMET1WCICP		21/6/2023	21/6/2023	21/6/2023	21/6/2023
	iMET1WCMS		20/6/2023	20/6/2023	20/6/2023	20/6/2023
	iMET2SAICP			28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS			28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		23/6/2023	23/6/2023	23/6/2023	23/6/2023

LAB ID		153	154	155	156
Client ID					
Sampled					
Analyte	Method	Unit			
Date Analysed	iPH1WASE	20/6/2023	20/6/2023	20/6/2023	20/6/2023
	iSOL1WDCA	28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)	20/6/2023	20/6/2023	20/6/2023	20/6/2023
Sample Condition		Ambient	Ambient	Ambient	Ambient

LAB ID			157	158	159	160
Client ID			MDRC1576_00-06	MDRC1573_58-62	MDRC1576_62-68	MDRC1576_76-80
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	39	29	53	42
pH, 1:2 soil:water*	ARD		7.0	7.8	7.6	7.2
Acid Neutralising Capacity	ARD	kg H2SO4	1.5	6.4	5.1	2.4
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	2.1	<0.5
NAG pH*	ARD		6.9	7.8	6.0	7.3
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.02	<0.01	0.02	<0.01
Carbon	(combs)	%	0.20	0.06	0.36	0.08
Sulfur*	(combs)	%	0.02	0.09	0.04	0.02
Nitrogen	(total)	%	<0.005	0.008		
Aluminium	iMET2SAICP	mg/kg	3920	16100		
Antimony	iMET2SAMS	mg/kg	0.36	0.26		
Arsenic	iMET2SAMS	mg/kg	7.4	19		
Barium	iMET2SAICP	mg/kg	76	140		
Beryllium	iMET2SAICP	mg/kg	1.1	0.99		
Bismuth*	iMET2SAMS	mg/kg	0.11	0.31		
Cadmium	iMET2SAMS	mg/kg	0.46	<0.10		
Calcium	iMET2SAICP	mg/kg	240	1800		
Chromium	iMET2SAICP	mg/kg	28	110		
Cobalt	iMET2SAMS	mg/kg	17	17		
Copper	iMET2SAMS	mg/kg	8.1	45		
Iron	iMET2SAICP	mg/kg	200000	88000		
Lanthanum*	iMET2SAICP	mg/kg	5.4	14		
Lead	iMET2SAMS	mg/kg	2.5	14		
Lithium	iMET2SAICP	mg/kg	2.0	6.8		
Magnesium	iMET2SAICP	mg/kg	250	3000		
Manganese	iMET2SAICP	mg/kg	4400	590		
Mercury	iMET2SAMS	mg/kg	0.10	<0.04		
Molybdenum	iMET2SAMS	mg/kg	0.88	1.0		
Nickel	iMET2SAICP	mg/kg	38	51		
Phosphorus	iMET2SAICP	mg/kg	180	130		
Potassium	iMET2SAICP	mg/kg	300	2400		
Selenium	iMET2SAMS	mg/kg	0.18	0.40		
Silver	iMET2SAMS	mg/kg	<0.10	<0.10		
Sodium	iMET2SAICP	mg/kg	230	190		
Strontium	iMET2SAICP	mg/kg	7.4	20		
Sulfur	iMET2SAICP	mg/kg	200	150		
Thallium	iMET2SAMS	mg/kg	<0.10	0.44		

LAB ID			157	158	159	160
Client ID			MDRC1576_00-0 6	MDRC1573_58- 62	MDRC1576_62- 68	MDRC1576_76- 80
Sampled						
Analyte	Method	Unit				
Thorium	iMET2SAMS	mg/kg	1.0	5.2		
Tin	iMET2SAMS	mg/kg	<1.0	1.0		
Titanium	iMET2SAICP	mg/kg	220	150		
Uranium	iMET2SAMS	mg/kg	1.1	0.68		
Vanadium	iMET2SAICP	mg/kg	21	86		
Yttrium*	iMET2SAMS	mg/kg	8.0	8.2		
Zinc	iMET2SAICP	mg/kg	150	61		
pH	iPH1WASE		6.9	8.0	7.1	6.7
Electrical Conductivity	iEC1WZSE	mS/m	17.4	16.7	20.8	20.4
Alkalinity as CaCO3	iALK1WATI	mg/L	7	56	9	4
TDS (calculated)	iSOL1WDCA	mg/L	96	92	110	110
Aluminium	iMET1WCICP	mg/L	0.011	<0.005	0.024	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	0.0002	0.0002	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	0.002	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	0.031	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.06	0.03	0.04	0.03
Cadmium	iMET1WCMS	mg/L	0.0046	<0.0001	0.0009	<0.0001
Calcium	iMET1WCICP	mg/L	1.7	9.0	1.7	2.5
Chloride	iCO1WCDA	mg/L	12	8	21	34
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	0.002
Cobalt	iMET1WCICP	mg/L	0.16	<0.005	0.085	<0.005
Copper	iMET1WCMS	mg/L	0.012	0.0014	0.050	0.0002
Fluoride	iF1WASE	mg/L	0.19	0.60	1.1	0.41
Iron	iMET1WCICP	mg/L	0.16	<0.005	0.24	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0007	<0.0001
Lithium	iMET1WCICP	mg/L	0.006	<0.005	0.008	0.005
Magnesium	iMET1WCICP	mg/L	1.1	3.9	1.3	1.9
Manganese	iMET1WCICP	mg/L	0.14	0.002	0.13	<0.001
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	0.11	<0.01	0.10	<0.01
Nitrogen, total	iNP1WTFIA	mg/L	1.8	0.75	1.1	0.86
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.8	7.1	4.2	4.3
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	3.9	15	7.2	3.5
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	28.8	13.8	37.7	28.3
Strontium	iMET1WCICP	mg/L	0.010	0.050	0.009	0.011
Sulphate (from S)	iMET1WCICP	mg/L	60.1	10.8	85.1	25.8
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	0.0009	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005

LAB ID			157	158	159	160
Client ID			MDRC1576_00-06	MDRC1573_58-62	MDRC1576_62-68	MDRC1576_76-80
Sampled						
Analyte	Method	Unit				
Yttrium*	iMET1WCMS	mg/L	0.0013	0.0005	0.0046	<0.0002
Zinc	iMET1WCICP	mg/L	0.39	<0.005	0.67	0.015
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)		4/7/2023	4/7/2023		
	ARD		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iALK1WATI		20/6/2023	20/6/2023	20/6/2023	20/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iF1WASE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iMET1WCICP		21/6/2023	21/6/2023	21/6/2023	21/6/2023
	iMET1WCMS		20/6/2023	20/6/2023	20/6/2023	20/6/2023
	iMET2SAICP		28/8/2023	28/8/2023		
	iMET2SAMS		28/8/2023	28/8/2023		
	iNP1WTFIA		23/6/2023	23/6/2023	23/6/2023	23/6/2023
	iPH1WASE		20/6/2023	20/6/2023	20/6/2023	20/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		20/6/2023	20/6/2023	20/6/2023	20/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			161	162	163	164
Client ID			MDRC1576_80-94	MDRC1599_02-08	MDRC1599_28-34	MDRC1599_52-58
Sampled						
Analyte	Method	Unit				
EC 1 soil 2 water paste*	ARD	mS/m	31	30	21	16
pH, 1:2 soil:water*	ARD		7.4	8.4	7.2	7.1
Acid Neutralising Capacity	ARD	kg H2SO4	18	11	3.0	4.1
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
NAG pH*	ARD		7.9	8.1	6.6	7.3
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	0.01	<0.01	<0.01	0.01
Carbon	(combs)	%	0.72	0.12	<0.05	0.11
Sulfur*	(combs)	%	0.02	0.10	0.02	0.02
Nitrogen	(total)	%	0.005	0.007	0.009	<0.005
Aluminium	iMET2SAICP	mg/kg	11900	17600	15400	18400
Antimony	iMET2SAMS	mg/kg	0.15	0.47	0.15	0.19
Arsenic	iMET2SAMS	mg/kg	5.5	19	28	20
Barium	iMET2SAICP	mg/kg	60	130	69	1500
Beryllium	iMET2SAICP	mg/kg	2.3	0.96	0.61	2.0
Bismuth*	iMET2SAMS	mg/kg	0.28	0.28	0.59	0.27
Cadmium	iMET2SAMS	mg/kg	0.27	<0.10	<0.10	1.3
Calcium	iMET2SAICP	mg/kg	3800	3200	650	750
Chromium	iMET2SAICP	mg/kg	59	97	140	64
Cobalt	iMET2SAMS	mg/kg	34	19	15	80
Copper	iMET2SAMS	mg/kg	36	47	73	11
Iron	iMET2SAICP	mg/kg	220000	82000	92000	250000
Lanthanum*	iMET2SAICP	mg/kg	6.4	14	9.2	31
Lead	iMET2SAMS	mg/kg	6.4	14	19	14
Lithium	iMET2SAICP	mg/kg	6.3	8.1	4.7	22
Magnesium	iMET2SAICP	mg/kg	5400	2900	1100	790

LAB ID			161	162	163	164
Client ID			MDRC1576_80-9 4	MDRC1599_02- 08	MDRC1599_28- 34	MDRC1599_52- 58
Sampled						
Analyte	Method	Unit				
Manganese	iMET2SAICP	mg/kg	16000	640	630	54000
Mercury	iMET2SAMS	mg/kg	0.11	<0.04	<0.04	0.85
Molybdenum	iMET2SAMS	mg/kg	0.38	0.99	0.93	0.93
Nickel	iMET2SAICP	mg/kg	110	55	36	100
Phosphorus	iMET2SAICP	mg/kg	2000	150	110	110
Potassium	iMET2SAICP	mg/kg	820	2500	850	1800
Selenium	iMET2SAMS	mg/kg	0.20	0.57	0.61	0.24
Silver	iMET2SAMS	mg/kg	<0.10	<0.10	<0.10	<0.10
Sodium	iMET2SAICP	mg/kg	250	250	210	750
Strontium	iMET2SAICP	mg/kg	37	28	11	220
Sulfur	iMET2SAICP	mg/kg	180	240	83	340
Thallium	iMET2SAMS	mg/kg	0.57	0.44	0.23	0.72
Thorium	iMET2SAMS	mg/kg	3.1	4.2	9.0	6.0
Tin	iMET2SAMS	mg/kg	<1.0	<1.0	2.5	<1.0
Titanium	iMET2SAICP	mg/kg	180	170	270	590
Uranium	iMET2SAMS	mg/kg	4.1	0.69	1.6	3.6
Vanadium	iMET2SAICP	mg/kg	40	76	150	52
Yttrium*	iMET2SAMS	mg/kg	16	7.1	5.5	22
Zinc	iMET2SAICP	mg/kg	280	69	<50	370
pH	iPH1WASE		7.2	8.1	6.8	6.8
Electrical Conductivity	iEC1WZSE	mS/m	13.6	17.8	10.0	8.0
Alkalinity as CaCO3	iALK1WATI	mg/L	9	62	6	10
TDS (calculated)	iSOL1WDCA	mg/L	75	98	55	44
Aluminium	iMET1WCICP	mg/L	<0.005	0.010	0.27	0.016
Antimony	iMET1WCMS	mg/L	<0.0001	0.0002	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	0.004	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	0.014	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.03	0.07	0.04	0.02
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Calcium	iMET1WCICP	mg/L	1.5	6.8	0.8	1.3
Chloride	iCO1WCDA	mg/L	18	7	10	2
Chromium	iMET1WCICP	mg/L	0.003	<0.001	<0.001	0.004
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	0.022	0.007
Copper	iMET1WCMS	mg/L	0.0002	0.0019	0.010	0.0015
Fluoride	iF1WASE	mg/L	0.91	1.0	0.72	0.39
Iron	iMET1WCICP	mg/L	<0.005	<0.005	0.23	0.027
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	0.006	<0.005	<0.005	0.020
Magnesium	iMET1WCICP	mg/L	1.2	2.9	0.5	0.9
Manganese	iMET1WCICP	mg/L	0.010	<0.001	0.003	0.001
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0003
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	<0.01	<0.01	0.02
Nitrogen, total	iNP1WTFIA	mg/L	0.42	0.57	0.68	0.40
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.1	10.4	4.1	3.9

LAB ID			161	162	163	164
Client ID			MDRC1576_80-9 4	MDRC1599_02- 08	MDRC1599_28- 34	MDRC1599_52- 58
Sampled						
Analyte	Method	Unit				
Selenium	iMET1WCMS	mg/L	0.002	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	4.1	12	7.2	4.6
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	19.1	17.9	15.5	10.9
Strontium	iMET1WCICP	mg/L	0.004	0.045	0.004	0.007
Sulphate (from S)	iMET1WCICP	mg/L	17.4	8.5	13.9	13.9
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	0.0019	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	0.0007	0.0028	0.0002
Zinc	iMET1WCICP	mg/L	<0.005	<0.005	0.006	0.011
Date Analysed	(combs)		18/7/2023	18/7/2023	18/7/2023	18/7/2023
	(total)		4/7/2023	4/7/2023	4/7/2023	4/7/2023
	ARD		13/6/2023	13/6/2023	13/6/2023	13/6/2023
	iALK1WATI		20/6/2023	20/6/2023	20/6/2023	20/6/2023
	iCO1WCDA		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iF1WASE		19/6/2023	19/6/2023	19/6/2023	19/6/2023
	iMET1WCICP		21/6/2023	21/6/2023	21/6/2023	21/6/2023
	iMET1WCMS		20/6/2023	20/6/2023	20/6/2023	20/6/2023
	iMET2SAICP		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iMET2SAMS		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	iNP1WTFIA		23/6/2023	23/6/2023	23/6/2023	23/6/2023
	iPH1WASE		20/6/2023	20/6/2023	20/6/2023	20/6/2023
	iSOL1WDCA		28/8/2023	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)		20/6/2023	20/6/2023	20/6/2023	20/6/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			165	166	167
Client ID			MDRC1599_72-7 8	MDRC1599_90- 96	MDRC1599_96- 100
Sampled					
Analyte	Method	Unit			
EC 1 soil 2 water paste*	ARD	mS/m	8	39	29
pH, 1:2 soil:water*	ARD		6.9	7.7	7.6
Acid Neutralising Capacity	ARD	kg H2SO4	1.5	19	22
NAG (Net Acid Generation)*	ARD	kgH2SO4	<0.5	<0.5	<0.5
NAG pH*	ARD		6.9	7.5	7.1
NAG to pH <4.5*	ARD	kgH2SO4	<0.5	<0.5	<0.5
Sulfur present as SO4*	SO4 S (ARD)	%	<0.01	0.01	0.01
Carbon	(combs)	%	0.08	1.65	4.09
Sulfur*	(combs)	%	<0.01	0.01	0.08
Nitrogen	(total)	%	<0.005		0.015
Aluminium	iMET2SAICP	mg/kg	2640		28100
Antimony	iMET2SAMS	mg/kg	0.29		<0.10
Arsenic	iMET2SAMS	mg/kg	13		6.9
Barium	iMET2SAICP	mg/kg	18		1.9

LAB ID	165	166	167
Client ID	MDRC1599_72-78	MDRC1599_90-96	MDRC1599_96-100

Sampled

Analyte	Method	Unit			
Beryllium	iMET2SAICP	mg/kg	1.5		1.5
Bismuth*	iMET2SAMS	mg/kg	<0.10		0.21
Cadmium	iMET2SAMS	mg/kg	0.12		0.11
Calcium	iMET2SAICP	mg/kg	180		2600
Chromium	iMET2SAICP	mg/kg	93		86
Cobalt	iMET2SAMS	mg/kg	7.1		20
Copper	iMET2SAMS	mg/kg	16		8.6
Iron	iMET2SAICP	mg/kg	270000		170000
Lanthanum*	iMET2SAICP	mg/kg	2.7		7.2
Lead	iMET2SAMS	mg/kg	1.9		3.3
Lithium	iMET2SAICP	mg/kg	<2.0		34
Magnesium	iMET2SAICP	mg/kg	480		41000
Manganese	iMET2SAICP	mg/kg	1700		14000
Mercury	iMET2SAMS	mg/kg	0.04		0.72
Molybdenum	iMET2SAMS	mg/kg	0.87		0.55
Nickel	iMET2SAICP	mg/kg	31		74
Phosphorus	iMET2SAICP	mg/kg	890		520
Potassium	iMET2SAICP	mg/kg	89		86
Selenium	iMET2SAMS	mg/kg	0.10		3.2
Silver	iMET2SAMS	mg/kg	<0.10		<0.10
Sodium	iMET2SAICP	mg/kg	<100		<100
Strontium	iMET2SAICP	mg/kg	3.6		3.1
Sulfur	iMET2SAICP	mg/kg	<50		830
Thallium	iMET2SAMS	mg/kg	<0.10		<0.10
Thorium	iMET2SAMS	mg/kg	<1.0		2.4
Tin	iMET2SAMS	mg/kg	<1.0		<1.0
Titanium	iMET2SAICP	mg/kg	120		100
Uranium	iMET2SAMS	mg/kg	2.9		1.8
Vanadium	iMET2SAICP	mg/kg	17		66
Yttrium*	iMET2SAMS	mg/kg	12		20
Zinc	iMET2SAICP	mg/kg	110		240
pH	iPH1WASE		6.6	7.2	7.4
Electrical Conductivity	iEC1WZSE	mS/m	3.6	19.8	15.4
Alkalinity as CaCO3	iALK1WATI	mg/L	4	20	16
TDS (calculated)	iSOL1WDCA	mg/L	20	110	85
Aluminium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	<0.002	<0.002	<0.002
Beryllium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	<0.02	0.03	0.03
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	1.6	5.7	6.0
Chloride	iCO1WCDA	mg/L	<1	16	7
Chromium	iMET1WCICP	mg/L	<0.001	<0.001	<0.001
Cobalt	iMET1WCICP	mg/L	<0.005	<0.005	<0.005
Copper	iMET1WCMS	mg/L	0.0006	0.0077	0.0008
Fluoride	iF1WASE	mg/L	0.12	1.0	0.59

LAB ID		165	166	167
Client ID		MDRC1599_72-78	MDRC1599_90-96	MDRC1599_96-100
Sampled				
Analyte	Method	Unit		
Iron	iMET1WCICP	mg/L	<0.005	<0.005
Lanthanum	iMET1WCICP	mg/L	<0.005	<0.005
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001
Lithium	iMET1WCICP	mg/L	0.009	0.009
Magnesium	iMET1WCICP	mg/L	1.0	3.9
Manganese	iMET1WCICP	mg/L	0.008	0.11
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001
Molybdenum	iMET1WCICP	mg/L	<0.02	<0.02
Nickel	iMET1WCICP	mg/L	<0.01	0.02
Nitrogen, total	iNP1WTFIA	mg/L	0.19	0.49
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	1.7	6.8
Selenium	iMET1WCMS	mg/L	<0.001	0.001
Silicon	iMET1WCICP	mg/L	1.9	1.7
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	2.7	20.7
Strontium	iMET1WCICP	mg/L	0.009	0.015
Sulphate (from S)	iMET1WCICP	mg/L	5.4	27.2
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001
Vanadium	iMET1WCICP	mg/L	<0.005	<0.005
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L	0.007	<0.005
Date Analysed	(combs)	18/7/2023	18/7/2023	18/7/2023
	(total)	4/7/2023		4/7/2023
	ARD	13/6/2023	13/6/2023	13/6/2023
	iALK1WATI	20/6/2023	20/6/2023	20/6/2023
	iCO1WCDA	19/6/2023	19/6/2023	19/6/2023
	iEC1WZSE	19/6/2023	19/6/2023	19/6/2023
	iF1WASE	19/6/2023	19/6/2023	19/6/2023
	iMET1WCICP	21/6/2023	21/6/2023	21/6/2023
	iMET1WCMS	20/6/2023	20/6/2023	20/6/2023
	iMET2SAICP	28/8/2023		28/8/2023
	iMET2SAMS	28/8/2023		28/8/2023
	iNP1WTFIA	23/6/2023	23/6/2023	23/6/2023
	iPH1WASE	20/6/2023	20/6/2023	20/6/2023
	iSOL1WDCA	28/8/2023	28/8/2023	28/8/2023
	SO4 S (ARD)	20/6/2023	20/6/2023	20/6/2023
Sample Condition		Ambient	Ambient	Ambient

Method	Method Description
(combs)	Total carbon, total organic carbon (acid pretreatment), total inorganic carbon (calculation) and Sulfur in soils by combustion, in-house method S57.
(total)	Total nitrogen, Kjeldhal digestion by in house method S10 (Method 7A2a; Rayment & Lyons (2011)).
ARD	The acid generating and acid neutralising capacities of the sample are measured. These values are used in acid/base accounting (ABA) to determine if the sample will generate acid after prolonged exposure in the environment. The methods used are based on industry conventions. A Net Acid Generation (NAG) test is often used to confirm the predictions from ABA..
iALK1WATI	Alkalinity (as CaCO3) and constituents by acid titration.

Method	Method Description
iCO1WCDA	Colourimetric analysis by DA (Discrete Autoanalyser).
IEC1WZSE	Electrical conductivity in water compensated to 25C.
iF1WASE	Fluoride in water by ion specific electrode (ISE).
iMET1WCICP	Total dissolved metals by ICPAES.
iMET1WCMS	Total dissolved metals by ICPMS.
iMET2SAICP	Acid digestable metals (dry wt basis) by digestion and ICPAES.
iMET2SAMS	Acid digestable metals (dry wt basis) by ICPMS.
INP1WTFIA	Total Nitrogen by persulphate digestion and analysis by FIA.
iPH1WASE	pH in water by pH meter.
iSOL1WDCA	Total Dissolved Solids (TDS) calculated (ECond * 5.5)
SO4 S (ARD)	Sulfur present as Sulfate (HCl ext.)

Please note: This is an amended report that contains information that is different from the previous report . The previous report must be destroyed and replaced with this version. The following change(s) have been made: pH, EC, alkalinity and TDS_calc results on the 1:5 extracts for sample 92 were reported incorrectly and have been amended.

A quality assurance report is attached.

Analyses were outsourced to Intertek Genalysis. A copy of their report is attached.

The samples were extracted in accordance with an inhouse modified AS 4439.3-2019 using DI water as the extractant. Results reported for these samples under method codes iPH1WASE, iEC1WZSE, iALK1WATI, iMET1WCMS, iMET1WCICP, iCO1WCDA and iSOL1WDCA are concentrations found in the 1:5 extract.

These results apply only to the sample(s) as received. Unless arrangements are made to the contrary, these samples will be disposed of after 30 days of the issue of this report.

This report may only be reproduced in full.

*Analysis not covered by scope of ChemCentre's NATA accreditation.



Geoffrey Firms
Team Leader
SSD Inorganic Chemistry
 28-Aug-2023



Barry Price
Senior Scientist
SSD Inorganic Chemistry



WORLD RECOGNISED
ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing, Accreditation No. 8

Purchase Order: 9000000315

ChemCentre Reference: 23S1012 R0

Hancock Prospecting
P.O Locked Bag No. 2
West Perth WA 6872

Attention: Colleen Burgers

ChemCentre

Scientific Services Division

Report of Examination



Resources and Chemistry Precinct
Cnr Manning Road and Townsing Drive
Bentley
WA 6102
T +61 8 9422 9800
F +61 8 9422 9801
www.chemcentre.wa.gov.au
ABN 40 991 885 705

Report on: 8 samples received on 22/09/2023

LAB ID	Material	Client ID and Description
23S1012 / 001	leachate	MDRC1339_88-112 22S4297/027
23S1012 / 002	leachate	MDRC1384_00-06 22S4297/045
23S1012 / 003	leachate	MDRC1397_82-88 22S4297/055
23S1012 / 004	leachate	MDRC1415_98-104 22S4297/070
23S1012 / 005	leachate	MDRC1475_06-12 22S4297/092
23S1012 / 006	leachate	MDRC1486_86-94 22S4297/097
23S1012 / 007	leachate	MDRC1554_106-112 22S4297/146
23S1012 / 008	solution	Synthetic Groundwater Verification Analysis

LAB ID	001	002	003	004
Client ID	MDRC1339_88-112	MDRC1384_00-06	MDRC1397_82-88	MDRC1415_98-104

Sampled

Analyte	Method	Unit	001	002	003	004
Alkalinity as CaCO ₃	iALK1WATI	mg/L	49	93	3	38
Aluminium	iMET1WCICP	mg/L	<0.005	<0.005	0.49	0.006
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L		0.19		
Barium	iMET1WCMS	mg/L	0.0073		0.018	0.016
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0010	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCMS	mg/L	0.018	0.024	0.042	0.015
Cadmium	iMET1WCMS	mg/L	0.0009	<0.0001	0.0005	0.0006
Calcium	iMET1WCICP	mg/L	157	164	207	164
Chloride	iCO1WCDA	mg/L	1700	1710	1670	1690
Chromium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	iMET1WCICP	mg/L	0.31		0.25	0.18
Cobalt	iMET1WCMS	mg/L		0.033		
Copper	iMET1WCMS	mg/L	0.0096	0.0012	0.036	0.0015
Electrical Conductivity	IEC1WZSE	mS/m	677	646	695	695
Fluoride	iF1WASE	mg/L	0.06	0.11	0.27	0.14
Iron	iMET1WCICP	mg/L	0.009	<0.005	<0.005	0.006
Lanthanum	iMET1WCMS	mg/L	0.0003	0.0002	0.0023	0.0002
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCMS	mg/L	0.0033	0.0050	0.017	0.0035
Magnesium	iMET1WCICP	mg/L	176	162	192	188
Manganese	iMET1WCICP	mg/L	29	0.65	8.3	24

LAB ID			001	002	003	004
Client ID			MDRC1339_88-1 12	MDRC1384_00- 06	MDRC1397_82- 88	MDRC1415_98- 104
Sampled						
Analyte	Method	Unit				
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Nickel	iMET1WCICP	mg/L	0.47		1.2	0.61
Nickel	iMET1WCMS	mg/L		0.017		
Nitrogen, total	iNP1WTFIA	mg/L	0.30	0.75	0.30	0.26
pH	iPH1WASE		7.1	7.5	5.6	7.2
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	112	99.6	110	115
Selenium	iMET1WCMS	mg/L	0.005	<0.001	0.018	0.018
Silicon	iMET1WCICP	mg/L	1.1	7.3	1.7	0.90
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	1040	999	1020	1040
Strontium	iMET1WCICP	mg/L	0.15	0.55	0.33	0.22
Sulphate (from S)	iMET1WCICP	mg/L	1130	864	1250	1180
TDS (calculated)	iSOL1WDCA	mg/L	3700	3600	3800	3800
Thallium	iMET1WCMS	mg/L	0.0013	0.0002	0.0004	0.0002
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	0.0003	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	<0.0001	0.0002	<0.0001	<0.0001
Yttrium*	iMET1WCMS	mg/L	0.0014	0.0003	0.017	0.0011
Zinc	iMET1WCICP	mg/L	0.26		2.6	0.15
Zinc	iMET1WCMS	mg/L		0.009		
Date Analysed	iALK1WATI		18/10/2023	18/10/2023	18/10/2023	18/10/2023
	iCO1WCDA		19/10/2023	19/10/2023	19/10/2023	19/10/2023
	iEC1WZSE		18/10/2023	18/10/2023	18/10/2023	18/10/2023
	iF1WASE		23/10/2023	20/10/2023	20/10/2023	20/10/2023
	iMET1WCICP		20/10/2023	20/10/2023	20/10/2023	20/10/2023
	iMET1WCMS		26/10/2023	26/10/2023	26/10/2023	26/10/2023
	iNP1WTFIA		26/10/2023	26/10/2023	26/10/2023	26/10/2023
	iPH1WASE		18/10/2023	18/10/2023	18/10/2023	18/10/2023
	iSOL1WDCA		18/10/2023	18/10/2023	18/10/2023	18/10/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			005	006	007	008
Client ID			MDRC1475_06-1 2	MDRC1486_86- 94	MDRC1554_10 6-112	Synthetic Groundwater
Sampled						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	125	70	73	141
Aluminium	iMET1WCICP	mg/L	<0.005	<0.005	0.006	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCICP	mg/L	0.10			
Barium	iMET1WCMS	mg/L		0.0019	0.0097	0.0010
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCMS	mg/L	0.026	0.024	0.027	<0.005

LAB ID			005	006	007	008
Client ID			MDRC1475_06-1 2	MDRC1486_86- 94	MDRC1554_10 6-112	Synthetic Groundwater
Sampled						
Analyte	Method	Unit				
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0003	0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	168	177	146	131
Chloride	iCO1WCDA	mg/L	1680	1670	1670	1670
Chromium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	iMET1WCICP	mg/L		0.052	0.099	
Cobalt	iMET1WCMS	mg/L	0.017			<0.0001
Copper	iMET1WCMS	mg/L	0.0008	0.0008	0.0015	0.0001
Electrical Conductivity	iEC1WZSE	mS/m	656	682	673	651
Fluoride	iF1WASE	mg/L	0.23	0.20	0.39	<0.05
Iron	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	0.010
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCMS	mg/L	0.0036	0.014	0.0056	<0.0001
Magnesium	iMET1WCICP	mg/L	153	166	158	150
Manganese	iMET1WCICP	mg/L	0.24	13	4.0	
Manganese	iMET1WCMS	mg/L				0.0004
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	0.002	<0.001	<0.001	<0.001
Nickel	iMET1WCICP	mg/L		0.22		
Nickel	iMET1WCMS	mg/L	0.006		0.050	<0.001
Nitrogen, total	iNP1WTFIA	mg/L	0.59	0.25	0.43	0.05
pH	iPH1WASE		7.6	7.4	7.5	8.0
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	95.5	110	119	121
Selenium	iMET1WCMS	mg/L	<0.001	0.004	0.004	<0.001
Silicon	iMET1WCICP	mg/L	9.1	1.5	2.1	<0.05
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	992	1000	1030	1050
Strontium	iMET1WCICP	mg/L	0.72	0.24	0.15	
Strontium	iMET1WCMS	mg/L				0.017
Sulphate (from S)	iMET1WCICP	mg/L	846	1040	965	851
TDS (calculated)	iSOL1WDCA	mg/L	3600	3800	3700	3600
Thallium	iMET1WCMS	mg/L	0.0001	<0.0001	0.0003	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	0.0011	0.0001	0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.0006	<0.0001	<0.0001	0.0009
Yttrium*	iMET1WCMS	mg/L	<0.0002	0.0002	<0.0002	<0.0002
Zinc	iMET1WCICP	mg/L		0.23		
Zinc	iMET1WCMS	mg/L	0.006		0.026	0.006
Date Analysed	iALK1WATI		18/10/2023	18/10/2023	18/10/2023	18/10/2023
	iCO1WCDA		19/10/2023	19/10/2023	19/10/2023	19/10/2023
	iEC1WZSE		18/10/2023	18/10/2023	18/10/2023	18/10/2023
	iF1WASE		20/10/2023	20/10/2023	20/10/2023	20/10/2023
	iMET1WCICP		20/10/2023	20/10/2023	20/10/2023	20/10/2023
	iMET1WCMS		26/10/2023	26/10/2023	26/10/2023	26/10/2023
	iNP1WTFIA		26/10/2023	26/10/2023	26/10/2023	26/10/2023
	iPH1WASE		18/10/2023	18/10/2023	18/10/2023	18/10/2023
	iSOL1WDCA		18/10/2023	18/10/2023	18/10/2023	18/10/2023
Sample Condition			Ambient	Ambient	Ambient	Cold

Method	Method Description
iALK1WATI	Alkalinity (as CaCO ₃) and constituents by acid titration.
iCO1WCDA	Colourimetric analysis by DA (Discrete Autoanalyser).
IEC1WZSE	Electrical conductivity in water compensated to 25C.
iF1WASE	Fluoride in water by ion specific electrode (ISE).
iMET1WCICP	Total dissolved metals by ICPAES.
iMET1WCMS	Total dissolved metals by ICPMS.
iNP1WTFIA	Total Nitrogen by persulphate digestion and analysis by FIA.
iPH1WASE	pH in water by pH meter.
iSOL1WDCA	Total Dissolved Solids (TDS) calculated (ECond * 5.5)

Samples were leached 1:5 with synthetic groundwater (recipe provided by client). Results reported for these samples are concentrations found in the 1:5 extract.

Sample 8 contains results for the blank synthetic groundwater. Sample results have not been corrected for this blank.

These results apply only to the sample(s) as received. Unless arrangements are made to the contrary, these samples will be disposed of after 30 days of the issue of this report.

This report may only be reproduced in full.

*Analysis not covered by scope of ChemCentre's NATA accreditation.



Geoffrey Firns
Team Leader
SSD Inorganic Chemistry
 27-Oct-2023



Quality Assurance Report



Client : Hancock Prospecting

Client Ref No :

CoC No :

QA Report No : 22S4297-QA R 0

Analyte	Method	Unit	LoR	Blank	Sample Duplicates			Acceptable	Recoveries		Acceptable
					Sample	Duplicate	RPD	RPD	LCS	Matrix Spike	Recovery
							%	%	%	%	%
Scientific Services Division											
Sample Matrix : rock											
22S4297/000											
Copper - Filterable	iMET1WCICP	mg/L	0.002	<0.002	-	-	-	10%	102%	-	75% - 125%
22S4297/001											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Silver	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	-	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	108%	-	75% - 125%
Aluminium	iMET2SAICP	mg/kg	10	<10	7060	9270	27%	20%	-	-	75% - 125%
Alkalinity as CaCO3	iALK1WATI	mg/L	1	<1	10	11	9%	10%	98%	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H2SO4/t	0.5	<0.5	2.6	2.3	12%	20%	-	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	104%	-	75% - 125%
Arsenic	iMET2SAMS	mg/kg	0.2	<0.2	6.0	8.0	28%	20%	-	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.12	0.12	<1%	10%	106%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.010	0.008	22%	10%	-	-	75% - 125%
Barium	iMET2SAICP	mg/kg	0.1	<0.1	97	140	36%	20%	-	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Beryllium	iMET2SAICP	mg/kg	0.05	<0.05	1.5	2.0	28%	20%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	102%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Bismuth	iMET2SAMS	mg/kg	0.05	<0.05	0.17	0.20	16%	20%	-	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	0.07	0.08	13%	10%	103%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	24.5	25.6	4%	10%	95%	-	75% - 125%
Calcium	iMET2SAICP	mg/kg	10	<10	810	900	10%	20%	-	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Cadmium	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	-	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	57	59	3%	10%	104%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	98%	-	75% - 125%
Cobalt	iMET2SAMS	mg/kg	0.5	<0.5	29	35	18%	20%	-	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Chromium	iMET2SAICP	mg/kg	0.05	<0.05	34	40	16%	20%	-	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0002	0.0001	66%	10%	101%	-	75% - 125%
Copper	iMET2SAMS	mg/kg	0.5	<0.5	7.4	9.0	19%	20%	-	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	140	140	<1%	10%	109%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	63.9	65.1	1%	10%	101%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.51	0.54	5%	10%	110%	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	101%	-	75% - 125%
Iron	iMET2SAICP	mg/kg	5	<5	180000	260000	36%	20%	-	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	108%	-	75% - 125%
Mercury	iMET2SAMS	mg/kg	0.02	<0.02	<0.04	<0.04	<1%	20%	-	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	6.1	6.4	4%	10%	97%	-	75% - 125%
Potassium	iMET2SAICP	mg/kg	5	<5	280	370	27%	20%	-	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lanthanum	iMET2SAICP	mg/kg	0.1	<0.1	5.8	7.7	28%	20%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.006	0.006	<1%	10%	98%	-	75% - 125%
Lithium	iMET2SAICP	mg/kg	0.2	<0.2	<2.0	<2.0	<1%	20%	-	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	19.9	20.5	2%	10%	98%	-	75% - 125%
Magnesium	iMET2SAICP	mg/kg	5	<5	1300	1500	14%	20%	-	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.004	0.004	<1%	10%	100%	-	75% - 125%
Manganese	iMET2SAICP	mg/kg	0.2	<0.2	2800	4500	46%	20%	-	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	100%	-	75% - 125%
Molybdenum	iMET2SAMS	mg/kg	0.05	<0.05	0.53	0.79	39%	20%	-	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Total Nitrogen	(total)	%	0.005	<0.005	<0.005	0.014	94%	10%	105%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	1.2	1.2	<1%	10%	104%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	59.0	60.6	2%	10%	95%	-	75% - 125%
Sodium	iMET2SAICP	mg/kg	10	<10	540	560	3%	20%	-	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
NAG to pH <4.5	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	100%	-	75% - 125%
Nickel	iMET2SAICP	mg/kg	1	<1	35	45	25%	20%	-	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	93%	-	75% - 125%
Phosphorus	iMET2SAICP	mg/kg	5	<5	60	92	42%	20%	94%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	101%	-	75% - 125%
Lead	iMET2SAMS	mg/kg	0.5	<0.5	2.2	2.8	24%	20%	-	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	6.9	7.1	2%	10%	101%	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.3	7.3	<1%	10%	101%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	7.0	7.1	1%	10%	105%	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.06	0.07	15%	10%	-	-	75% - 125%
Sulfur	iMET2SAICP	mg/kg	5	<5	460	580	23%	20%	-	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	120%	-	75% - 125%
Antimony	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	0.15	40%	20%	-	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	105%	-	75% - 125%
Selenium	iMET2SAMS	mg/kg	0.05	<0.05	0.13	0.30	79%	20%	-	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	6.7	6.9	2%	10%	97%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Tin	iMET2SAMS	mg/kg	0.5	<0.5	<1.0	<1.0	<1%	20%	-	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	177	182	2%	10%	98%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.22	0.22	<1%	10%	100%	-	75% - 125%
Strontium	iMET2SAICP	mg/kg	0.2	<0.2	15	19	23%	20%	-	-	75% - 125%
Sulfur present as SO ₄	SO ₄ S (ARD)	%	0.01	<0.01	0.05	0.05	<1%	20%	101%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	350	360	2%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	94%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Thorium	iMET2SAMS	mg/kg	0.5	<0.5	1.2	1.4	15%	20%	-	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<1%	10%	104%	-	75% - 125%
Titanium	iMET2SAICP	mg/kg	5.0	<5.0	110	210	62%	20%	-	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%
Thallium	iMET2SAMS	mg/kg	0.05	<0.05	0.15	0.26	53%	20%	-	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	107%	-	75% - 125%
Uranium	iMET2SAMS	mg/kg	0.01	<0.01	0.57	0.74	25%	20%	-	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	100%	-	75% - 125%
Vanadium	iMET2SAICP	mg/kg	0.2	<0.2	23	33	35%	20%	-	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<1%	10%	106%	-	75% - 125%
Yttrium	iMET2SAMS	mg/kg	0.05	<0.05	8.0	9.8	20%	20%	-	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.006	<0.005	18%	10%	101%	-	75% - 125%
Zinc	iMET2SAICP	mg/kg	5	<5	78	100	24%	20%	99%	-	75% - 125%
22S4297/010											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Silver	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	-	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.015	0.049	106%	10%	-	-	75% - 125%
Aluminium	iMET2SAICP	mg/kg	10	<10	2510	2030	21%	20%	-	-	75% - 125%
Alkalinity as CaCO3	iALK1WATI	mg/L	1	<1	4	4	<1%	10%	109%	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H2SO4/t	0.5	<0.5	0.9	<0.5	57%	20%	110%	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	108%	-	75% - 125%
Arsenic	iMET2SAMS	mg/kg	0.2	<0.2	14	11	24%	20%	-	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	106%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.009	0.004	76%	10%	-	-	75% - 125%
Barium	iMET2SAICP	mg/kg	0.1	<0.1	5.6	6.1	8%	20%	95%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Beryllium	iMET2SAICP	mg/kg	0.05	<0.05	0.55	<0.50	9%	20%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	102%	-	75% - 125%
Bismuth	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	-	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	0.07	0.08	13%	10%	103%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.9	0.9	<1%	10%	95%	-	75% - 125%
Calcium	iMET2SAICP	mg/kg	10	<10	100	<100	<1%	20%	91%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Cadmium	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	-	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	<1	<1	<1%	10%	104%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.014	0.012	15%	10%	96%	-	75% - 125%
Cobalt	iMET2SAMS	mg/kg	0.5	<0.5	5.7	5.3	7%	20%	-	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Chromium	iMET2SAICP	mg/kg	0.05	<0.05	17	15	12%	20%	-	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0014	0.0010	33%	10%	-	-	75% - 125%
Copper	iMET2SAMS	mg/kg	0.5	<0.5	3.5	3.1	12%	20%	-	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	6	6	<1%	10%	109%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	2.9	2.8	3%	10%	101%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.09	0.08	11%	10%	100%	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.023	0.036	44%	10%	-	-	75% - 125%
Iron	iMET2SAICP	mg/kg	5	<5	210000	150000	33%	20%	-	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	108%	-	75% - 125%
Mercury	iMET2SAMS	mg/kg	0.02	<0.02	<0.04	<0.04	<1%	20%	-	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.5	1.5	<1%	10%	97%	-	75% - 125%
Potassium	iMET2SAICP	mg/kg	5	<5	58	<50	14%	20%	-	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lanthanum	iMET2SAICP	mg/kg	0.1	<0.1	1.8	1.4	25%	20%	121%	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	98%	-	75% - 125%
Lithium	iMET2SAICP	mg/kg	0.2	<0.2	<2.0	<2.0	<1%	20%	-	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.6	0.6	<1%	10%	98%	-	75% - 125%
Magnesium	iMET2SAICP	mg/kg	5	<5	160	130	20%	20%	123%	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.005	0.006	18%	10%	100%	-	75% - 125%
Manganese	iMET2SAICP	mg/kg	0.2	<0.2	310	270	13%	20%	-	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	100%	-	75% - 125%
Molybdenum	iMET2SAMS	mg/kg	0.05	<0.05	1.8	1.6	11%	20%	-	-	75% - 125%
Total Nitrogen	(total)	%	0.005	<0.005	<0.005	0.008	46%	10%	105%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.35	0.35	<1%	10%	104%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	2.9	2.7	7%	10%	95%	-	75% - 125%
Sodium	iMET2SAICP	mg/kg	10	<10	<100	<100	<1%	20%	-	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
NAG (Net Acid Generation)	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	107%	-	75% - 125%
NAG to pH <4.5	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	100%	-	75% - 125%
Nickel	iMET2SAICP	mg/kg	1	<1	11	<10	9%	20%	96%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	97%	-	75% - 125%
Phosphorus	iMET2SAICP	mg/kg	5	<5	330	260	23%	20%	-	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	102%	-	75% - 125%
Lead	iMET2SAMS	mg/kg	0.5	<0.5	2.3	2.0	13%	20%	-	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	6.5	6.5	<1%	10%	101%	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	6.9	6.8	1%	10%	101%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	5.9	5.7	3%	10%	105%	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.02	0.02	<1%	10%	114%	-	75% - 125%
Sulfur	iMET2SAICP	mg/kg	5	<5	<50	<50	<1%	20%	-	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	120%	-	75% - 125%
Antimony	iMET2SAMS	mg/kg	0.05	<0.05	0.41	0.35	15%	20%	-	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	109%	-	75% - 125%
Selenium	iMET2SAMS	mg/kg	0.05	<0.05	0.11	<0.10	9%	20%	-	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	2.3	2.3	<1%	10%	105%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Tin	iMET2SAMS	mg/kg	0.5	<0.5	<1.0	<1.0	<1%	20%	-	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	5.6	5.4	3%	10%	98%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.005	0.005	<1%	10%	100%	-	75% - 125%
Strontium	iMET2SAICP	mg/kg	0.2	<0.2	<2.0	<2.0	<1%	20%	100%	-	75% - 125%
Sulfur present as SO ₄	SO ₄ S (ARD)	%	0.01	<0.01	<0.01	<0.01	<1%	20%	101%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	16	15	6%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	94%	-	75% - 125%
Thorium	iMET2SAMS	mg/kg	0.5	<0.5	<1.0	<1.0	<1%	20%	-	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	<0.0005	0.0008	46%	10%	104%	-	75% - 125%
Titanium	iMET2SAICP	mg/kg	5.0	<5.0	64	53	18%	20%	99%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	103%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Thallium	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	-	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	107%	-	75% - 125%
Uranium	iMET2SAMS	mg/kg	0.01	<0.01	0.87	0.75	14%	20%	-	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	100%	-	75% - 125%
Vanadium	iMET2SAICP	mg/kg	0.2	<0.2	6.9	5.5	22%	20%	-	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<1%	10%	106%	-	75% - 125%
Yttrium	iMET2SAMS	mg/kg	0.05	<0.05	5.0	4.2	17%	20%	-	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	100%	-	75% - 125%
Zinc	iMET2SAICP	mg/kg	5	<5	<50	<50	<1%	20%	99%	-	75% - 125%
22S4297/020											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Silver	iMET2SAMS	mg/kg	0.05	<0.05	0.12	0.12	<1%	20%	-	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.017	0.022	25%	10%	-	-	75% - 125%
Aluminium	iMET2SAICP	mg/kg	10	<10	9210	8640	6%	20%	105%	-	75% - 125%
Alkalinity as CaCO3	iALK1WATI	mg/L	1	<1	15	16	6%	10%	109%	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H2SO4/t	0.5	<0.5	2.8	3.1	10%	20%	-	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	104%	-	75% - 125%
Arsenic	iMET2SAMS	mg/kg	0.2	<0.2	34	31	9%	20%	119%	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.04	0.04	<1%	10%	106%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.006	0.006	<1%	10%	98%	-	75% - 125%
Barium	iMET2SAICP	mg/kg	0.1	<0.1	81	85	4%	20%	95%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Beryllium	iMET2SAICP	mg/kg	0.05	<0.05	0.68	0.66	2%	20%	170%	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	102%	-	75% - 125%
Bismuth	iMET2SAMS	mg/kg	0.05	<0.05	0.36	0.33	8%	20%	-	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	0.08	0.07	13%	10%	103%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.6	1.8	11%	10%	-	-	75% - 125%
Calcium	iMET2SAICP	mg/kg	10	<10	500	490	2%	20%	91%	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Cadmium	iMET2SAMS	mg/kg	0.05	<0.05	0.10	<0.10	<1%	20%	-	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	6	6	<1%	10%	104%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	96%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Cobalt	iMET2SAMS	mg/kg	0.5	<0.5	14	13	7%	20%	-	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	0.001	<1%	10%	103%	-	75% - 125%
Chromium	iMET2SAICP	mg/kg	0.05	<0.05	120	110	8%	20%	117%	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0010	0.0011	9%	10%	-	-	75% - 125%
Copper	iMET2SAMS	mg/kg	0.5	<0.5	48	46	4%	20%	98%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	21	20	4%	10%	109%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	9.2	9.5	3%	10%	101%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.64	0.65	1%	10%	110%	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.017	0.020	16%	10%	-	-	75% - 125%
Iron	iMET2SAICP	mg/kg	5	<5	130000	120000	8%	20%	101%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	108%	-	75% - 125%
Mercury	iMET2SAMS	mg/kg	0.02	<0.02	<0.04	<0.04	<1%	20%	-	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	5.5	5.6	1%	10%	97%	-	75% - 125%
Potassium	iMET2SAICP	mg/kg	5	<5	1100	1000	9%	20%	-	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lanthanum	iMET2SAICP	mg/kg	0.1	<0.1	5.7	5.1	11%	20%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	98%	-	75% - 125%
Lithium	iMET2SAICP	mg/kg	0.2	<0.2	2.4	2.1	13%	20%	-	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.0	1.0	<1%	10%	98%	-	75% - 125%
Magnesium	iMET2SAICP	mg/kg	5	<5	850	810	4%	20%	123%	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.002	0.002	<1%	10%	100%	-	75% - 125%
Manganese	iMET2SAICP	mg/kg	0.2	<0.2	650	720	10%	20%	-	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	100%	-	75% - 125%
Molybdenum	iMET2SAMS	mg/kg	0.05	<0.05	1.5	1.4	6%	20%	-	-	75% - 125%
Total Nitrogen	(total)	%	0.005	<0.005	<0.005	0.006	18%	10%	105%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.71	0.72	1%	10%	103%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	12.1	12.2	0%	10%	95%	-	75% - 125%
Sodium	iMET2SAICP	mg/kg	10	<10	150	150	<1%	20%	-	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH2SO4/t	0.5	<0.5	<0.5	<0.5	<1%	10%	107%	-	75% - 125%
NAG to pH <4.5	ARD	kgH2SO4/t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	100%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Nickel	iMET2SAICP	mg/kg	1	<1	33	31	6%	20%	96%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	93%	-	75% - 125%
Phosphorus	iMET2SAICP	mg/kg	5	<5	170	150	12%	20%	94%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	101%	-	75% - 125%
Lead	iMET2SAMS	mg/kg	0.5	<0.5	13	13	<1%	20%	-	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	7.1	7.1	<1%	10%	101%	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.7	7.7	<1%	10%	101%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	6.7	6.8	1%	10%	105%	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.06	0.06	<1%	10%	114%	-	75% - 125%
Sulfur	iMET2SAICP	mg/kg	5	<5	230	220	4%	20%	-	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0002	0.0008	120%	10%	-	-	75% - 125%
Antimony	iMET2SAMS	mg/kg	0.05	<0.05	1.0	0.80	22%	20%	-	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	105%	-	75% - 125%
Selenium	iMET2SAMS	mg/kg	0.05	<0.05	1.1	1.1	<1%	20%	-	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	7.0	7.1	1%	10%	97%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Tin	iMET2SAMS	mg/kg	0.5	<0.5	<1.0	<1.0	<1%	20%	-	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	11.5	11.7	1%	10%	98%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.009	0.009	<1%	10%	99%	-	75% - 125%
Strontium	iMET2SAICP	mg/kg	0.2	<0.2	13	12	8%	20%	100%	-	75% - 125%
Sulfur present as SO4	SO4 S (ARD)	%	0.01	<0.01	0.01	0.01	<1%	20%	101%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	51	52	1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	94%	-	75% - 125%
Thorium	iMET2SAMS	mg/kg	0.5	<0.5	4.8	4.5	6%	20%	-	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	0.0018	0.0020	10%	10%	-	-	75% - 125%
Titanium	iMET2SAICP	mg/kg	5.0	<5.0	250	240	4%	20%	99%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	103%	-	75% - 125%
Thallium	iMET2SAMS	mg/kg	0.05	<0.05	0.31	0.31	<1%	20%	-	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	107%	-	75% - 125%
Uranium	iMET2SAMS	mg/kg	0.01	<0.01	0.96	0.88	8%	20%	-	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	98%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Vanadium	iMET2SAICP	mg/kg	0.2	<0.2	100	96	4%	20%	-	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	0.0005	0.0005	<1%	10%	106%	-	75% - 125%
Yttrium	iMET2SAMS	mg/kg	0.05	<0.05	5.1	5.0	1%	20%	-	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	102%	-	75% - 125%
Zinc	iMET2SAICP	mg/kg	5	<5	70	67	4%	20%	99%	-	75% - 125%
22S4297/030											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Silver	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	-	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	108%	-	75% - 125%
Aluminium	iMET2SAICP	mg/kg	10	<10	20500	20500	<1%	20%	105%	-	75% - 125%
Alkalinity as CaCO3	iALK1WATI	mg/L	1	<1	7	7	<1%	10%	98%	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H2SO4/t	0.5	<0.5	5.0	5.4	7%	20%	110%	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	104%	-	75% - 125%
Arsenic	iMET2SAMS	mg/kg	0.2	<0.2	44	44	<1%	20%	119%	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.07	0.07	<1%	10%	106%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	<0.002	<0.002	<1%	10%	97%	-	75% - 125%
Barium	iMET2SAICP	mg/kg	0.1	<0.1	21	20	4%	20%	95%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Beryllium	iMET2SAICP	mg/kg	0.05	<0.05	1.2	1.2	<1%	20%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	102%	-	75% - 125%
Bismuth	iMET2SAMS	mg/kg	0.05	<0.05	0.56	0.55	1%	20%	-	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	1.32	1.29	2%	10%	103%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	5.6	5.5	1%	10%	95%	-	75% - 125%
Calcium	iMET2SAICP	mg/kg	10	<10	690	670	2%	20%	91%	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Cadmium	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	-	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	7	7	<1%	10%	104%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.022	0.020	9%	10%	96%	-	75% - 125%
Cobalt	iMET2SAMS	mg/kg	0.5	<0.5	32	32	<1%	20%	97%	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Chromium	iMET2SAICP	mg/kg	0.05	<0.05	91	90	1%	20%	117%	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.015	0.015	<1%	10%	101%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Copper	iMET2SAICP	mg/kg	0.1	<0.1	76	75	1%	20%	118%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	49	47	4%	10%	109%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	21.7	21.5	0%	10%	101%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.69	0.68	1%	10%	100%	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.018	0.021	15%	10%	-	-	75% - 125%
Iron	iMET2SAICP	mg/kg	5	<5	210000	210000	<1%	20%	101%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	108%	-	75% - 125%
Mercury	iMET2SAMS	mg/kg	0.02	<0.02	0.14	0.12	15%	20%	-	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	7.0	6.9	1%	10%	97%	-	75% - 125%
Potassium	iMET2SAICP	mg/kg	5	<5	450	450	<1%	20%	-	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lanthanum	iMET2SAICP	mg/kg	0.1	<0.1	5.9	6.1	3%	20%	121%	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.012	0.012	<1%	10%	98%	-	75% - 125%
Lithium	iMET2SAICP	mg/kg	0.2	<0.2	12	13	8%	20%	140%	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	4.1	4.1	<1%	10%	98%	-	75% - 125%
Magnesium	iMET2SAICP	mg/kg	5	<5	9000	8900	1%	20%	123%	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.057	0.050	13%	10%	-	-	75% - 125%
Manganese	iMET2SAICP	mg/kg	0.2	<0.2	3500	3500	<1%	20%	106%	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	100%	-	75% - 125%
Molybdenum	iMET2SAMS	mg/kg	0.05	<0.05	1.4	1.4	<1%	20%	-	-	75% - 125%
Total Nitrogen	(total)	%	0.005	<0.005	0.008	0.009	11%	10%	105%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.55	0.55	<1%	10%	104%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	22.9	22.4	2%	10%	95%	-	75% - 125%
Sodium	iMET2SAICP	mg/kg	10	<10	190	190	<1%	20%	-	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	4.0	4.1	2%	10%	104%	-	75% - 125%
NAG to pH <4.5	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	0.03	0.03	<1%	10%	100%	-	75% - 125%
Nickel	iMET2SAICP	mg/kg	1	<1	120	110	8%	20%	96%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	93%	-	75% - 125%
Phosphorus	iMET2SAICP	mg/kg	5	<5	110	110	<1%	20%	94%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	102%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Lead	iMET2SAMS	mg/kg	0.5	<0.5	6.8	6.6	2%	20%	-	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	6.9	6.8	1%	10%	101%	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.0	7.0	<1%	10%	101%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	3.6	3.5	2%	10%	102%	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.28	0.30	6%	10%	114%	-	75% - 125%
Sulfur	iMET2SAICP	mg/kg	5	<5	2700	2400	11%	20%	-	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	120%	-	75% - 125%
Antimony	iMET2SAMS	mg/kg	0.05	<0.05	0.47	0.41	13%	20%	-	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	0.002	0.002	<1%	10%	109%	-	75% - 125%
Selenium	iMET2SAMS	mg/kg	0.05	<0.05	0.79	0.82	3%	20%	-	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	3.7	3.5	5%	10%	97%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Tin	iMET2SAMS	mg/kg	0.5	<0.5	<1.0	<1.0	<1%	20%	-	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	66.3	66.3	<1%	10%	98%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.015	0.015	<1%	10%	100%	-	75% - 125%
Strontium	iMET2SAICP	mg/kg	0.2	<0.2	12	11	8%	20%	100%	-	75% - 125%
Sulfur present as SO4	SO4 S (ARD)	%	0.01	<0.01	0.03	0.03	<1%	20%	101%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	120	120	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	94%	-	75% - 125%
Thorium	iMET2SAMS	mg/kg	0.5	<0.5	1.9	1.9	<1%	20%	-	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<1%	10%	104%	-	75% - 125%
Titanium	iMET2SAICP	mg/kg	5.0	<5.0	80	86	7%	20%	99%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	103%	-	75% - 125%
Thallium	iMET2SAMS	mg/kg	0.05	<0.05	0.59	0.62	4%	20%	-	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	107%	-	75% - 125%
Uranium	iMET2SAMS	mg/kg	0.01	<0.01	0.64	0.66	3%	20%	-	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	100%	-	75% - 125%
Vanadium	iMET2SAICP	mg/kg	0.2	<0.2	66	67	1%	20%	-	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	0.0003	0.0003	<1%	10%	106%	-	75% - 125%
Yttrium	iMET2SAMS	mg/kg	0.05	<0.05	9.1	9.4	3%	20%	-	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.056	0.054	3%	10%	100%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Zinc	iMET2SAICP	mg/kg	5	<5	150	150	<1%	20%	99%	-	75% - 125%
22S4297/040											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Silver	iMET2SAMS	mg/kg	0.05	<0.05	0.10	0.11	9%	20%	109%	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.091	0.061	39%	10%	-	-	75% - 125%
Aluminium	iMET2SAICP	mg/kg	10	<10	11100	11900	6%	20%	93%	-	75% - 125%
Alkalinity as CaCO ₃	iALK1WATI	mg/L	1	<1	8	8	<1%	10%	98%	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H ₂ SO ₄ /t	0.5	<0.5	2.8	2.4	15%	20%	-	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	104%	-	75% - 125%
Arsenic	iMET2SAMS	mg/kg	0.2	<0.2	30	29	3%	20%	118%	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.03	0.03	<1%	10%	106%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.005	0.005	<1%	10%	97%	-	75% - 125%
Barium	iMET2SAICP	mg/kg	0.1	<0.1	120	140	15%	20%	99%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Beryllium	iMET2SAICP	mg/kg	0.05	<0.05	0.72	0.74	2%	20%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	102%	-	75% - 125%
Bismuth	iMET2SAMS	mg/kg	0.05	<0.05	0.34	0.36	5%	20%	88%	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	0.08	0.07	13%	10%	103%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.3	1.2	8%	10%	95%	-	75% - 125%
Calcium	iMET2SAICP	mg/kg	10	<10	690	640	7%	20%	90%	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Cadmium	iMET2SAMS	mg/kg	0.05	<0.05	0.15	0.27	57%	20%	103%	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	14	15	6%	10%	104%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	98%	-	75% - 125%
Cobalt	iMET2SAMS	mg/kg	0.5	<0.5	13	15	14%	20%	-	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Chromium	iMET2SAICP	mg/kg	0.05	<0.05	100	110	9%	20%	-	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0030	0.0022	30%	10%	-	-	75% - 125%
Copper	iMET2SAMS	mg/kg	0.5	<0.5	52	53	1%	20%	101%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	22	23	4%	10%	95%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	10.1	10.4	2%	10%	101%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.56	0.57	1%	10%	100%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.098	0.058	51%	10%	-	-	75% - 125%
Iron	iMET2SAICP	mg/kg	5	<5	100000	100000	<1%	20%	100%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	108%	-	75% - 125%
Mercury	iMET2SAMS	mg/kg	0.02	<0.02	<0.04	0.07	54%	20%	-	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	3.5	3.6	2%	10%	97%	-	75% - 125%
Potassium	iMET2SAICP	mg/kg	5	<5	1300	1400	7%	20%	-	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lanthanum	iMET2SAICP	mg/kg	0.1	<0.1	7.6	8.6	12%	20%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	98%	-	75% - 125%
Lithium	iMET2SAICP	mg/kg	0.2	<0.2	3.9	4.3	9%	20%	-	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.6	0.6	<1%	10%	98%	-	75% - 125%
Magnesium	iMET2SAICP	mg/kg	5	<5	1700	1600	6%	20%	-	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.11	0.020	138%	10%	-	-	75% - 125%
Manganese	iMET2SAICP	mg/kg	0.2	<0.2	710	890	22%	20%	-	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	100%	-	75% - 125%
Molybdenum	iMET2SAMS	mg/kg	0.05	<0.05	1.2	1.3	8%	20%	83%	-	75% - 125%
Total Nitrogen	(total)	%	0.005	<0.005	0.006	0.006	<1%	10%	105%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.77	0.79	2%	10%	104%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	16.3	17.1	4%	10%	95%	-	75% - 125%
Sodium	iMET2SAICP	mg/kg	10	<10	240	250	4%	20%	120%	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	104%	-	75% - 125%
NAG to pH <4.5	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	100%	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	100%	-	75% - 125%
Nickel	iMET2SAICP	mg/kg	1	<1	36	38	5%	20%	94%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	97%	-	75% - 125%
Phosphorus	iMET2SAICP	mg/kg	5	<5	170	170	<1%	20%	92%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	102%	-	75% - 125%
Lead	iMET2SAMS	mg/kg	0.5	<0.5	13	15	14%	20%	-	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	7.1	7.1	<1%	10%	101%	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.4	7.3	1%	10%	101%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	6.7	6.9	2%	10%	102%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Sulfur	(combs)	%	0.01	<0.01	0.09	0.07	25%	10%	-	-	75% - 125%
Sulfur	iMET2SAICP	mg/kg	5	<5	300	260	14%	20%	-	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0002	0.0002	<1%	10%	120%	-	75% - 125%
Antimony	iMET2SAMS	mg/kg	0.05	<0.05	0.55	0.59	7%	20%	-	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	105%	-	75% - 125%
Selenium	iMET2SAMS	mg/kg	0.05	<0.05	0.63	0.70	10%	20%	-	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	6.1	6.3	3%	10%	105%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Tin	iMET2SAMS	mg/kg	0.5	<0.5	1.0	1.1	9%	20%	111%	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	11.2	11.7	4%	10%	98%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.005	0.005	<1%	10%	100%	-	75% - 125%
Strontium	iMET2SAICP	mg/kg	0.2	<0.2	16	18	11%	20%	-	-	75% - 125%
Sulfur present as SO4	SO4 S (ARD)	%	0.01	<0.01	0.01	0.01	<1%	20%	101%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	56	57	1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	94%	-	75% - 125%
Thorium	iMET2SAMS	mg/kg	0.5	<0.5	5.1	5.2	1%	20%	96%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	0.0033	0.0041	21%	10%	-	-	75% - 125%
Titanium	iMET2SAICP	mg/kg	5.0	<5.0	200	220	9%	20%	102%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	103%	-	75% - 125%
Thallium	iMET2SAMS	mg/kg	0.05	<0.05	0.38	0.59	43%	20%	-	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	107%	-	75% - 125%
Uranium	iMET2SAMS	mg/kg	0.01	<0.01	0.88	0.92	4%	20%	103%	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	100%	-	75% - 125%
Vanadium	iMET2SAICP	mg/kg	0.2	<0.2	95	93	2%	20%	-	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<1%	10%	106%	-	75% - 125%
Yttrium	iMET2SAMS	mg/kg	0.05	<0.05	7.0	7.4	5%	20%	-	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.007	<0.005	33%	10%	100%	-	75% - 125%
Zinc	iMET2SAICP	mg/kg	5	<5	66	69	4%	20%	99%	-	75% - 125%
22S4297/050											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Silver	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	109%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.069	0.072	4%	10%	100%	-	75% - 125%
Aluminium	iMET2SAICP	mg/kg	10	<10	17900	19000	5%	20%	93%	-	75% - 125%
Alkalinity as CaCO ₃	iALK1WATI	mg/L	1	<1	4	3	28%	10%	98%	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H ₂ SO ₄ /t	0.5	<0.5	1.9	1.8	5%	20%	109%	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	106%	-	75% - 125%
Arsenic	iMET2SAMS	mg/kg	0.2	<0.2	12	12	<1%	20%	118%	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.02	0.02	<1%	10%	101%	-	75% - 125%
Barium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	<0.002	<0.002	<1%	10%	97%	-	75% - 125%
Barium	iMET2SAICP	mg/kg	0.1	<0.1	9.4	7.2	26%	20%	-	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	104%	-	75% - 125%
Beryllium	iMET2SAICP	mg/kg	0.05	<0.05	1.2	1.2	<1%	20%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Bismuth	iMET2SAMS	mg/kg	0.05	<0.05	0.15	0.15	<1%	20%	88%	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	0.14	0.13	7%	10%	103%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.4	0.4	<1%	10%	99%	-	75% - 125%
Calcium	iMET2SAICP	mg/kg	10	<10	290	280	3%	20%	90%	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	102%	-	75% - 125%
Cadmium	iMET2SAMS	mg/kg	0.05	<0.05	0.33	0.34	2%	20%	103%	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	4	4	<1%	10%	106%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	95%	-	75% - 125%
Cobalt	iMET2SAMS	mg/kg	0.5	<0.5	5.5	5.3	3%	20%	103%	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	100%	-	75% - 125%
Chromium	iMET2SAICP	mg/kg	0.05	<0.05	54	51	5%	20%	-	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0001	0.0001	<1%	10%	93%	-	75% - 125%
Copper	iMET2SAMS	mg/kg	0.5	<0.5	16	16	<1%	20%	101%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	9	8	11%	10%	95%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	4.3	4.3	<1%	10%	101%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.54	0.54	<1%	10%	110%	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.065	0.050	26%	10%	-	-	75% - 125%
Iron	iMET2SAICP	mg/kg	5	<5	240000	260000	8%	20%	105%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	112%	-	75% - 125%



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Mercury	iMET2SAMS	mg/kg	0.02	<0.02	0.28	0.28	<1%	20%	-	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.8	1.8	<1%	10%	96%	-	75% - 125%
Potassium	iMET2SAICP	mg/kg	5	<5	86	87	1%	20%	-	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lanthanum	iMET2SAICP	mg/kg	0.1	<0.1	2.9	3.2	9%	20%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.006	0.006	<1%	10%	99%	-	75% - 125%
Lithium	iMET2SAICP	mg/kg	0.2	<0.2	2.9	3.6	21%	20%	-	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.3	0.3	<1%	10%	100%	-	75% - 125%
Magnesium	iMET2SAICP	mg/kg	5	<5	360	360	<1%	20%	-	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.002	<0.001	66%	10%	101%	-	75% - 125%
Manganese	iMET2SAICP	mg/kg	0.2	<0.2	390	420	7%	20%	-	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	99%	-	75% - 125%
Molybdenum	iMET2SAMS	mg/kg	0.05	<0.05	0.72	0.72	<1%	20%	83%	-	75% - 125%
Total Nitrogen	(total)	%	0.005	<0.005	<0.005	<0.005	<1%	10%	101%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.40	0.38	5%	10%	105%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	5.8	5.8	<1%	10%	98%	-	75% - 125%
Sodium	iMET2SAICP	mg/kg	10	<10	<100	<100	<1%	20%	120%	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	104%	-	75% - 125%
NAG to pH <4.5	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	100%	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	99%	-	75% - 125%
Nickel	iMET2SAICP	mg/kg	1	<1	54	53	1%	20%	94%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	98%	-	75% - 125%
Phosphorus	iMET2SAICP	mg/kg	5	<5	110	110	<1%	20%	92%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Lead	iMET2SAMS	mg/kg	0.5	<0.5	11	11	<1%	20%	107%	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	6.8	6.7	1%	10%	101%	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.2	7.3	1%	10%	101%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	6.2	6.1	1%	10%	102%	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.03	0.04	28%	10%	-	-	75% - 125%
Sulfur	iMET2SAICP	mg/kg	5	<5	120	130	8%	20%	99%	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	115%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Antimony	iMET2SAMS	mg/kg	0.05	<0.05	0.41	0.40	2%	20%	-	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Selenium	iMET2SAMS	mg/kg	0.05	<0.05	0.31	0.37	17%	20%	-	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	3.1	3.1	<1%	10%	94%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%
Tin	iMET2SAMS	mg/kg	0.5	<0.5	<1.0	<1.0	<1%	20%	111%	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	5.0	5.0	<1%	10%	101%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	<0.002	<0.002	<1%	10%	100%	-	75% - 125%
Strontium	iMET2SAICP	mg/kg	0.2	<0.2	2.5	2.6	3%	20%	96%	-	75% - 125%
Sulfur present as SO4	SO4 S (ARD)	%	0.01	<0.01	<0.01	<0.01	<1%	20%	101%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	23	23	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	89%	-	75% - 125%
Thorium	iMET2SAMS	mg/kg	0.5	<0.5	3.0	2.9	3%	20%	96%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<1%	10%	105%	-	75% - 125%
Titanium	iMET2SAICP	mg/kg	5.0	<5.0	460	480	4%	20%	102%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Thallium	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	122%	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Uranium	iMET2SAMS	mg/kg	0.01	<0.01	2.3	2.3	<1%	20%	103%	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	98%	-	75% - 125%
Vanadium	iMET2SAICP	mg/kg	0.2	<0.2	52	51	1%	20%	-	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<1%	10%	102%	-	75% - 125%
Yttrium	iMET2SAMS	mg/kg	0.05	<0.05	8.9	9.1	2%	20%	-	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	100%	-	75% - 125%
Zinc	iMET2SAICP	mg/kg	5	<5	260	270	3%	20%	99%	-	75% - 125%
22S4297/060											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Silver	iMET2SAMS	mg/kg	0.05	<0.05	0.10	0.11	9%	20%	109%	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.11	0.11	<1%	10%	106%	-	75% - 125%
Aluminium	iMET2SAICP	mg/kg	10	<10	11200	14300	24%	20%	93%	-	75% - 125%
Alkalinity as CaCO3	iALK1WATI	mg/L	1	<1	8	8	<1%	10%	98%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Acid Neutralising Capacity	ARD	kg H ₂ SO ₄ /t	0.5	<0.5	2.7	2.4	11%	20%	-	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	101%	-	75% - 125%
Arsenic	iMET2SAMS	mg/kg	0.2	<0.2	26	25	3%	20%	118%	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.03	0.03	<1%	10%	101%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.007	0.006	15%	10%	97%	-	75% - 125%
Barium	iMET2SAICP	mg/kg	0.1	<0.1	110	110	<1%	20%	99%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	104%	-	75% - 125%
Beryllium	iMET2SAICP	mg/kg	0.05	<0.05	0.66	0.67	1%	20%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Bismuth	iMET2SAMS	mg/kg	0.05	<0.05	0.30	0.34	12%	20%	-	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	<0.05	0.05	<1%	10%	103%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.2	1.1	8%	10%	99%	-	75% - 125%
Calcium	iMET2SAICP	mg/kg	10	<10	620	760	20%	20%	-	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	102%	-	75% - 125%
Cadmium	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	103%	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	7	7	<1%	10%	105%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.007	0.007	<1%	10%	95%	-	75% - 125%
Cobalt	iMET2SAMS	mg/kg	0.5	<0.5	13	13	<1%	20%	103%	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	101%	-	75% - 125%
Chromium	iMET2SAICP	mg/kg	0.05	<0.05	94	97	3%	20%	-	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0010	0.0010	<1%	10%	97%	-	75% - 125%
Copper	iMET2SAMS	mg/kg	0.5	<0.5	44	43	2%	20%	101%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	18	19	5%	10%	95%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	8.7	8.7	<1%	10%	101%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.42	0.42	<1%	10%	-	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.11	0.11	<1%	10%	100%	-	75% - 125%
Iron	iMET2SAICP	mg/kg	5	<5	100000	100000	<1%	20%	105%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	112%	-	75% - 125%
Mercury	iMET2SAMS	mg/kg	0.02	<0.02	<0.04	<0.04	<1%	20%	-	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	4.3	4.0	7%	10%	96%	-	75% - 125%
Potassium	iMET2SAICP	mg/kg	5	<5	1300	1400	7%	20%	-	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lanthanum	iMET2SAICP	mg/kg	0.1	<0.1	6.3	8.1	25%	20%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	99%	-	75% - 125%
Lithium	iMET2SAICP	mg/kg	0.2	<0.2	3.9	5.5	34%	20%	-	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.8	0.8	<1%	10%	100%	-	75% - 125%
Magnesium	iMET2SAICP	mg/kg	5	<5	1200	1100	8%	20%	-	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.004	0.004	<1%	10%	100%	-	75% - 125%
Manganese	iMET2SAICP	mg/kg	0.2	<0.2	450	480	6%	20%	-	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	100%	-	75% - 125%
Molybdenum	iMET2SAMS	mg/kg	0.05	<0.05	1.3	1.2	8%	20%	83%	-	75% - 125%
Total Nitrogen	(total)	%	0.005	<0.005	<0.005	<0.005	<1%	10%	101%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.39	0.39	<1%	10%	105%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	11.6	11.5	0%	10%	96%	-	75% - 125%
Sodium	iMET2SAICP	mg/kg	10	<10	180	190	5%	20%	120%	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	104%	-	75% - 125%
NAG to pH <4.5	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	100%	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	99%	-	75% - 125%
Nickel	iMET2SAICP	mg/kg	1	<1	33	35	5%	20%	99%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	98%	-	75% - 125%
Phosphorus	iMET2SAICP	mg/kg	5	<5	150	160	6%	20%	92%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	101%	-	75% - 125%
Lead	iMET2SAMS	mg/kg	0.5	<0.5	12	13	8%	20%	107%	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	7.1	7.1	<1%	10%	101%	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.4	7.4	<1%	10%	101%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	6.0	6.0	<1%	10%	102%	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.08	0.09	11%	10%	-	-	75% - 125%
Sulfur	iMET2SAICP	mg/kg	5	<5	250	270	7%	20%	99%	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0001	0.0001	<1%	10%	115%	-	75% - 125%
Antimony	iMET2SAMS	mg/kg	0.05	<0.05	0.53	0.51	3%	20%	-	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	0.002	0.002	<1%	10%	104%	-	75% - 125%
Selenium	iMET2SAMS	mg/kg	0.05	<0.05	0.58	0.56	3%	20%	-	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	4.9	4.7	4%	10%	94%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%
Tin	iMET2SAMS	mg/kg	0.5	<0.5	<1.0	<1.0	<1%	20%	111%	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	14.9	14.7	1%	10%	101%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.007	0.007	<1%	10%	100%	-	75% - 125%
Strontium	iMET2SAICP	mg/kg	0.2	<0.2	15	17	12%	20%	-	-	75% - 125%
Sulfur present as SO4	SO4 S (ARD)	%	0.01	<0.01	0.01	0.01	<1%	20%	101%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	48	48	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	89%	-	75% - 125%
Thorium	iMET2SAMS	mg/kg	0.5	<0.5	4.3	4.4	2%	20%	96%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	0.0021	0.0021	<1%	10%	105%	-	75% - 125%
Titanium	iMET2SAICP	mg/kg	5.0	<5.0	200	210	4%	20%	102%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Thallium	iMET2SAMS	mg/kg	0.05	<0.05	0.26	0.28	7%	20%	122%	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Uranium	iMET2SAMS	mg/kg	0.01	<0.01	0.80	0.78	2%	20%	103%	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	100%	-	75% - 125%
Vanadium	iMET2SAICP	mg/kg	0.2	<0.2	83	82	1%	20%	-	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	0.0003	0.0003	<1%	10%	102%	-	75% - 125%
Yttrium	iMET2SAMS	mg/kg	0.05	<0.05	7.2	7.6	5%	20%	-	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	100%	-	75% - 125%
Zinc	iMET2SAICP	mg/kg	5	<5	60	60	<1%	20%	99%	-	75% - 125%
22S4297/070											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Silver	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	109%	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.25	0.26	3%	10%	104%	-	75% - 125%
Aluminium	iMET2SAICP	mg/kg	10	<10	37300	37600	0%	20%	93%	-	75% - 125%
Alkalinity as CaCO3	iALK1WATI	mg/L	1	<1	<1	<1	<1%	10%	98%	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H2SO4/t	0.5	<0.5	5.7	5.5	3%	20%	100%	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	105%	-	75% - 125%
Arsenic	iMET2SAMS	mg/kg	0.2	<0.2	12	13	8%	20%	-	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.03	0.03	<1%	10%	102%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.008	0.008	<1%	10%	97%	-	75% - 125%
Barium	iMET2SAICP	mg/kg	0.1	<0.1	5.7	7.4	25%	20%	-	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	-	-	75% - 125%
Beryllium	iMET2SAICP	mg/kg	0.05	<0.05	1.0	1.0	<1%	20%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Bismuth	iMET2SAMS	mg/kg	0.05	<0.05	0.29	0.30	3%	20%	88%	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	2.05	2.12	3%	10%	101%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	30.7	30.9	0%	10%	95%	-	75% - 125%
Calcium	iMET2SAICP	mg/kg	10	<10	2400	2300	4%	20%	90%	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0003	0.0003	<1%	10%	100%	-	75% - 125%
Cadmium	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	103%	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	7	7	<1%	10%	105%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.20	0.20	<1%	10%	95%	-	75% - 125%
Cobalt	iMET2SAMS	mg/kg	0.5	<0.5	25	26	3%	20%	103%	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	101%	-	75% - 125%
Chromium	iMET2SAICP	mg/kg	0.05	<0.05	98	100	2%	20%	-	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0053	0.0050	5%	10%	100%	-	75% - 125%
Copper	iMET2SAMS	mg/kg	0.5	<0.5	21	20	4%	20%	101%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	110	110	<1%	10%	95%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	61.5	61.5	<1%	10%	101%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.20	0.20	<1%	10%	-	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.030	0.040	28%	10%	-	-	75% - 125%
Iron	iMET2SAICP	mg/kg	5	<5	110000	110000	<1%	20%	105%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	106%	-	75% - 125%
Mercury	iMET2SAMS	mg/kg	0.02	<0.02	0.18	0.18	<1%	20%	-	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	5.6	5.6	<1%	10%	98%	-	75% - 125%
Potassium	iMET2SAICP	mg/kg	5	<5	110	140	24%	20%	-	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lanthanum	iMET2SAICP	mg/kg	0.1	<0.1	3.5	3.4	2%	20%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.007	0.007	<1%	10%	-	-	75% - 125%
Lithium	iMET2SAICP	mg/kg	0.2	<0.2	36	37	2%	20%	-	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	32.5	32.8	0%	10%	97%	-	75% - 125%
Magnesium	iMET2SAICP	mg/kg	5	<5	56000	56000	<1%	20%	-	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	15	16	6%	10%	99%	-	75% - 125%
Manganese	iMET2SAICP	mg/kg	0.2	<0.2	3700	4100	10%	20%	-	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	99%	-	75% - 125%
Molybdenum	iMET2SAMS	mg/kg	0.05	<0.05	0.83	0.88	5%	20%	83%	-	75% - 125%
Total Nitrogen	(total)	%	0.005	<0.005	0.009	0.008	11%	10%	101%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.17	0.16	6%	10%	105%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	18.0	18.1	0%	10%	97%	-	75% - 125%
Sodium	iMET2SAICP	mg/kg	10	<10	110	110	<1%	20%	120%	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	60	62	3%	10%	105%	-	75% - 125%
NAG to pH <4.5	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	40	43	7%	10%	105%	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	0.43	0.44	2%	10%	98%	-	75% - 125%
Nickel	iMET2SAICP	mg/kg	1	<1	99	100	1%	20%	99%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	97%	-	75% - 125%
Phosphorus	iMET2SAICP	mg/kg	5	<5	800	780	2%	20%	92%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Lead	iMET2SAMS	mg/kg	0.5	<0.5	4.5	4.8	6%	20%	107%	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	5.0	5.0	<1%	10%	101%	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	5.1	5.0	1%	10%	101%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	2.2	2.1	4%	10%	102%	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	2.31	2.28	1%	10%	93%	-	75% - 125%
Sulfur	iMET2SAICP	mg/kg	5	<5	20000	21000	4%	20%	99%	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	113%	-	75% - 125%
Antimony	iMET2SAMS	mg/kg	0.05	<0.05	0.17	0.24	34%	20%	-	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	0.016	0.016	<1%	10%	100%	-	75% - 125%
Selenium	iMET2SAMS	mg/kg	0.05	<0.05	1.1	1.2	8%	20%	-	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	1.7	1.7	<1%	10%	100%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Tin	iMET2SAMS	mg/kg	0.5	<0.5	<1.0	1.0	<1%	20%	111%	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	263	266	1%	10%	99%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.11	0.11	<1%	10%	98%	-	75% - 125%
Strontium	iMET2SAICP	mg/kg	0.2	<0.2	4.7	5.5	15%	20%	99%	-	75% - 125%
Sulfur present as SO4	SO4 S (ARD)	%	0.01	<0.01	0.07	0.07	<1%	20%	100%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	340	340	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	93%	-	75% - 125%
Thorium	iMET2SAMS	mg/kg	0.5	<0.5	1.9	2.0	5%	20%	96%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<1%	10%	102%	-	75% - 125%
Titanium	iMET2SAICP	mg/kg	5.0	<5.0	82	82	<1%	20%	102%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	97%	-	75% - 125%
Thallium	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	0.13	26%	20%	122%	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	101%	-	75% - 125%
Uranium	iMET2SAMS	mg/kg	0.01	<0.01	1.1	1.2	8%	20%	103%	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	97%	-	75% - 125%
Vanadium	iMET2SAICP	mg/kg	0.2	<0.2	75	77	2%	20%	-	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	0.0015	0.0015	<1%	10%	101%	-	75% - 125%
Yttrium	iMET2SAMS	mg/kg	0.05	<0.05	8.5	8.6	1%	20%	-	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.32	0.32	<1%	10%	99%	-	75% - 125%
Zinc	iMET2SAICP	mg/kg	5	<5	95	94	1%	20%	95%	-	75% - 125%
22S4297/080											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.022	0.021	4%	10%	104%	-	75% - 125%
Alkalinity as CaCO3	iALK1WATI	mg/L	1	<1	7	8	13%	10%	109%	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H2SO4/t	0.5	<0.5	2.0	2.1	4%	20%	107%	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	98%	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.04	0.04	<1%	10%	102%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	<0.002	<0.002	<1%	10%	97%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	0.13	0.15	14%	10%	-	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.7	0.7	<1%	10%	95%	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0012	0.0012	<1%	10%	100%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Chloride	iCO1WCDA	mg/L	1	<1	8	8	<1%	10%	105%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.10	0.10	<1%	10%	95%	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	101%	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.057	0.058	1%	10%	100%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	24	24	<1%	10%	95%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	12.1	12.1	<1%	10%	101%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.83	0.81	2%	10%	-	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.14	0.14	<1%	10%	97%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	106%	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	3.1	3.1	<1%	10%	98%	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.4	0.4	<1%	10%	97%	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.050	0.049	2%	10%	99%	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	99%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	1.6	1.7	6%	10%	105%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	22.1	21.9	0%	10%	97%	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH2SO4/t	0.5	<0.5	<0.5	<0.5	<1%	10%	116%	-	75% - 125%
NAG to pH <4.5	ARD	kgH2SO4/t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	0.03	0.03	<1%	10%	98%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	97%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0008	0.0008	<1%	10%	101%	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	7.1	7.0	1%	10%	101%	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.3	7.3	<1%	10%	101%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	5.8	5.8	<1%	10%	-	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.03	0.05	50%	10%	-	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	113%	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	100%	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	5.6	5.6	<1%	10%	100%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	44.0	43.8	<1%	10%	99%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.003	0.003	<1%	10%	98%	-	75% - 125%
Sulfur present as SO4	SO4 S (ARD)	%	0.01	<0.01	0.01	0.01	<1%	20%	100%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	67	67	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	93%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	0.0024	0.0024	<1%	10%	102%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	101%	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	97%	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	0.013	0.012	8%	10%	101%	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.11	0.12	8%	10%	99%	-	75% - 125%
22S4297/090											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	106%	-	75% - 125%
Silver	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	110%	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.005	<0.005	<1%	10%	104%	-	75% - 125%
Aluminium	iMET2SAICP	mg/kg	10	<10	7190	7100	1%	20%	104%	-	75% - 125%
Alkalinity as CaCO3	iALK1WATI	mg/L	1	<1	8	8	<1%	10%	98%	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H2SO4/t	0.5	<0.5	1.7	1.6	6%	20%	-	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	96%	-	75% - 125%
Arsenic	iMET2SAMS	mg/kg	0.2	<0.2	93	84	10%	20%	-	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.04	0.04	<1%	10%	102%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	<0.002	<0.002	<1%	10%	97%	-	75% - 125%
Barium	iMET2SAICP	mg/kg	0.1	<0.1	250	220	12%	20%	-	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	-	-	75% - 125%
Beryllium	iMET2SAICP	mg/kg	0.05	<0.05	4.4	4.4	<1%	20%	115%	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%
Bismuth	iMET2SAMS	mg/kg	0.05	<0.05	0.18	0.20	10%	20%	81%	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	<0.05	<0.05	<1%	10%	101%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	2.0	2.0	<1%	10%	95%	-	75% - 125%
Calcium	iMET2SAICP	mg/kg	10	<10	530	550	3%	20%	91%	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Cadmium	iMET2SAMS	mg/kg	0.05	<0.05	0.52	0.53	1%	20%	112%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Chloride	iCO1WCDA	mg/L	1	<1	7	6	15%	10%	105%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	95%	-	75% - 125%
Cobalt	iMET2SAMS	mg/kg	0.5	<0.5	64	62	3%	20%	107%	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	101%	-	75% - 125%
Chromium	iMET2SAICP	mg/kg	0.05	<0.05	47	48	2%	20%	105%	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Copper	iMET2SAMS	mg/kg	0.5	<0.5	7.9	8.1	2%	20%	100%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	16	16	<1%	10%	-	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	7.8	7.8	<1%	10%	101%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.38	0.38	<1%	10%	-	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	97%	-	75% - 125%
Iron	iMET2SAICP	mg/kg	5	<5	300000	300000	<1%	20%	105%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	110%	-	75% - 125%
Mercury	iMET2SAMS	mg/kg	0.02	<0.02	<0.04	<0.04	<1%	20%	113%	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	4.0	3.9	2%	10%	98%	-	75% - 125%
Potassium	iMET2SAICP	mg/kg	5	<5	1500	1600	6%	20%	-	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lanthanum	iMET2SAICP	mg/kg	0.1	<0.1	5.0	5.0	<1%	20%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.009	0.009	<1%	10%	-	-	75% - 125%
Lithium	iMET2SAICP	mg/kg	0.2	<0.2	23	22	4%	20%	-	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.3	1.3	<1%	10%	97%	-	75% - 125%
Magnesium	iMET2SAICP	mg/kg	5	<5	390	400	2%	20%	116%	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.021	0.021	<1%	10%	99%	-	75% - 125%
Manganese	iMET2SAICP	mg/kg	0.2	<0.2	21000	21000	<1%	20%	97%	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	99%	-	75% - 125%
Molybdenum	iMET2SAMS	mg/kg	0.05	<0.05	1.7	1.7	<1%	20%	95%	-	75% - 125%
Total Nitrogen	(total)	%	0.005	<0.005	<0.005	<0.005	<1%	10%	106%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.16	0.15	6%	10%	105%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	8.5	8.5	<1%	10%	97%	-	75% - 125%
Sodium	iMET2SAICP	mg/kg	10	<10	220	210	4%	20%	-	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
NAG to pH <4.5	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	98%	-	75% - 125%
Nickel	iMET2SAICP	mg/kg	1	<1	92	94	2%	20%	98%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	97%	-	75% - 125%
Phosphorus	iMET2SAICP	mg/kg	5	<5	670	660	1%	20%	92%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Lead	iMET2SAMS	mg/kg	0.5	<0.5	2.3	2.4	4%	20%	119%	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	6.8	6.8	<1%	10%	101%	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.1	7.1	<1%	10%	-	-	75% - 125%
NAG pH	ARD		0.1	<0.1	7.6	7.6	<1%	10%	-	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.05	0.06	18%	10%	-	-	75% - 125%
Sulfur	iMET2SAICP	mg/kg	5	<5	480	480	<1%	20%	116%	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	111%	-	75% - 125%
Antimony	iMET2SAMS	mg/kg	0.05	<0.05	0.54	0.56	3%	20%	103%	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	101%	-	75% - 125%
Selenium	iMET2SAMS	mg/kg	0.05	<0.05	0.31	0.28	10%	20%	-	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	1.7	1.7	<1%	10%	100%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Tin	iMET2SAMS	mg/kg	0.5	<0.5	<1.0	<1.0	<1%	20%	99%	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	7.8	7.8	<1%	10%	99%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.005	0.005	<1%	10%	98%	-	75% - 125%
Strontium	iMET2SAICP	mg/kg	0.2	<0.2	54	52	3%	20%	97%	-	75% - 125%
Sulfur present as SO ₄	SO ₄ S (ARD)	%	0.01	<0.01	0.02	0.02	<1%	20%	100%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	43	43	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	94%	-	75% - 125%
Thorium	iMET2SAMS	mg/kg	0.5	<0.5	1.3	1.4	7%	20%	97%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<1%	10%	105%	-	75% - 125%
Titanium	iMET2SAICP	mg/kg	5.0	<5.0	82	85	3%	20%	98%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	102%	-	75% - 125%
Thallium	iMET2SAMS	mg/kg	0.05	<0.05	1.8	1.8	<1%	20%	113%	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Uranium	iMET2SAMS	mg/kg	0.01	<0.01	2.4	2.6	8%	20%	92%	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	97%	-	75% - 125%
Vanadium	iMET2SAICP	mg/kg	0.2	<0.2	31	32	3%	20%	100%	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<1%	10%	107%	-	75% - 125%
Yttrium	iMET2SAMS	mg/kg	0.05	<0.05	20	20	<1%	20%	-	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	99%	-	75% - 125%
Zinc	iMET2SAICP	mg/kg	5	<5	580	590	1%	20%	101%	-	75% - 125%
22S4297/100											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	104%	-	75% - 125%
Alkalinity as CaCO3	iALK1WATI	mg/L	1	<1	4	4	<1%	10%	-	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H2SO4/t	0.5	<0.5	2.1	1.9	10%	20%	-	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	109%	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.04	0.04	<1%	10%	102%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	<0.002	<0.002	<1%	10%	97%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	0.16	0.14	13%	10%	-	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.4	1.4	<1%	10%	95%	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	3	3	<1%	10%	108%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	95%	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	101%	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0003	0.0002	40%	10%	-	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	10	10	<1%	10%	-	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	5.2	5.1	1%	10%	102%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.64	0.63	1%	10%	-	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	97%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	110%	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	3.5	3.5	<1%	10%	98%	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.007	0.007	<1%	10%	-	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.8	0.8	<1%	10%	97%	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.011	0.011	<1%	10%	99%	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	99%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.13	0.12	8%	10%	105%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	4.4	4.3	2%	10%	97%	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
NAG to pH <4.5	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	98%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	97%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	6.6	6.7	1%	10%	-	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.2	7.2	<1%	10%	-	-	75% - 125%
NAG pH	ARD		0.1	<0.1	7.7	7.9	2%	10%	104%	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.06	0.05	18%	10%	98%	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0001	<0.0001	<1%	10%	111%	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	109%	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	1.7	1.7	<1%	10%	100%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0006	<0.0001	142%	10%	-	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	8.4	8.3	1%	10%	99%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.003	0.003	<1%	10%	98%	-	75% - 125%
Sulfur present as SO ₄	SO ₄ S (ARD)	%	0.01	<0.01	0.02	0.02	<1%	20%	100%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	28	28	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	94%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<1%	10%	105%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	102%	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	97%	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<1%	10%	107%	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	99%	-	75% - 125%



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
22S4297/110											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Silver	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	-	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.007	<0.005	33%	10%	104%	-	75% - 125%
Aluminium	iMET2SAICP	mg/kg	10	<10	3410	3640	6%	20%	106%	-	75% - 125%
Alkalinity as CaCO ₃	iALK1WATI	mg/L	1	<1	20	21	4%	10%	-	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H ₂ SO ₄ /t	0.5	<0.5	6.7	5.7	16%	20%	-	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	100%	-	75% - 125%
Arsenic	iMET2SAMS	mg/kg	0.2	<0.2	20	24	18%	20%	-	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.03	0.03	<1%	10%	102%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	<0.002	<0.002	<1%	10%	97%	-	75% - 125%
Barium	iMET2SAICP	mg/kg	0.1	<0.1	130	130	<1%	20%	100%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	-	-	75% - 125%
Beryllium	iMET2SAICP	mg/kg	0.05	<0.05	1.8	1.9	5%	20%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Bismuth	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	0.10	<1%	20%	90%	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	0.06	0.08	28%	10%	101%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	4.0	3.9	2%	10%	95%	-	75% - 125%
Calcium	iMET2SAICP	mg/kg	10	<10	1500	1200	22%	20%	-	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Cadmium	iMET2SAMS	mg/kg	0.05	<0.05	0.47	0.48	2%	20%	108%	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	7	7	<1%	10%	108%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	95%	-	75% - 125%
Cobalt	iMET2SAMS	mg/kg	0.5	<0.5	16	17	6%	20%	-	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.004	0.004	<1%	10%	101%	-	75% - 125%
Chromium	iMET2SAICP	mg/kg	0.05	<0.05	33	34	2%	20%	106%	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0003	0.0003	<1%	10%	97%	-	75% - 125%
Copper	iMET2SAMS	mg/kg	0.5	<0.5	12	13	8%	20%	112%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	23	23	<1%	10%	-	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	11.0	11.0	<1%	10%	102%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.59	0.60	1%	10%	-	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	97%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Iron	iMET2SAICP	mg/kg	5	<5	240000	250000	4%	20%	103%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	108%	-	75% - 125%
Mercury	iMET2SAMS	mg/kg	0.02	<0.02	0.14	0.13	7%	20%	-	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	3.9	3.9	<1%	10%	98%	-	75% - 125%
Potassium	iMET2SAICP	mg/kg	5	<5	960	1100	13%	20%	-	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lanthanum	iMET2SAICP	mg/kg	0.1	<0.1	5.1	5.3	3%	20%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lithium	iMET2SAICP	mg/kg	0.2	<0.2	4.8	5.4	11%	20%	-	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	2.5	2.5	<1%	10%	97%	-	75% - 125%
Magnesium	iMET2SAICP	mg/kg	5	<5	1100	1100	<1%	20%	120%	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.001	0.001	<1%	10%	99%	-	75% - 125%
Manganese	iMET2SAICP	mg/kg	0.2	<0.2	24000	26000	8%	20%	-	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	99%	-	75% - 125%
Molybdenum	iMET2SAMS	mg/kg	0.05	<0.05	0.64	0.74	14%	20%	-	-	75% - 125%
Total Nitrogen	(total)	%	0.005	<0.005	0.006	0.006	<1%	10%	106%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.31	0.30	3%	10%	103%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	11.4	11.4	<1%	10%	97%	-	75% - 125%
Sodium	iMET2SAICP	mg/kg	10	<10	240	240	<1%	20%	103%	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH2SO4/t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
NAG to pH <4.5	ARD	kgH2SO4/t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	98%	-	75% - 125%
Nickel	iMET2SAICP	mg/kg	1	<1	48	50	4%	20%	102%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	97%	-	75% - 125%
Phosphorus	iMET2SAICP	mg/kg	5	<5	220	230	4%	20%	106%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	101%	-	75% - 125%
Lead	iMET2SAMS	mg/kg	0.5	<0.5	4.1	4.6	11%	20%	-	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	7.5	7.5	<1%	10%	-	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	8.0	8.0	<1%	10%	-	-	75% - 125%
NAG pH	ARD		0.1	<0.1	8.4	8.5	1%	10%	104%	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.03	<0.01	100%	10%	93%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Sulfur	iMET2SAICP	mg/kg	5	<5	160	170	6%	20%	101%	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%
Antimony	iMET2SAMS	mg/kg	0.05	<0.05	0.35	0.44	22%	20%	-	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	101%	-	75% - 125%
Selenium	iMET2SAMS	mg/kg	0.05	<0.05	0.12	0.15	22%	20%	-	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	2.3	2.3	<1%	10%	100%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Tin	iMET2SAMS	mg/kg	0.5	<0.5	<1.0	<1.0	<1%	20%	109%	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	15.8	15.7	0%	10%	99%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.008	0.008	<1%	10%	98%	-	75% - 125%
Strontium	iMET2SAICP	mg/kg	0.2	<0.2	62	67	7%	20%	99%	-	75% - 125%
Sulfur present as SO ₄	SO ₄ S (ARD)	%	0.01	<0.01	<0.01	<0.01	<1%	20%	100%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	60	60	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	93%	-	75% - 125%
Thorium	iMET2SAMS	mg/kg	0.5	<0.5	<1.0	1.1	9%	20%	97%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<1%	10%	100%	-	75% - 125%
Titanium	iMET2SAICP	mg/kg	5.0	<5.0	170	190	11%	20%	-	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	96%	-	75% - 125%
Thallium	iMET2SAMS	mg/kg	0.05	<0.05	0.52	0.63	19%	20%	-	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Uranium	iMET2SAMS	mg/kg	0.01	<0.01	3.9	4.8	20%	20%	-	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	97%	-	75% - 125%
Vanadium	iMET2SAICP	mg/kg	0.2	<0.2	120	150	22%	20%	-	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<1%	10%	99%	-	75% - 125%
Yttrium	iMET2SAMS	mg/kg	0.05	<0.05	17	18	5%	20%	-	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.007	0.008	13%	10%	99%	-	75% - 125%
Zinc	iMET2SAICP	mg/kg	5	<5	190	200	5%	20%	101%	-	75% - 125%
22S4297/120											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.35	0.31	12%	10%	-	-	75% - 125%
Alkalinity as CaCO ₃	iALK1WATI	mg/L	1	<1	8	8	<1%	10%	-	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Acid Neutralising Capacity	ARD	kg H ₂ SO ₄ /t	0.5	<0.5	3.5	3.4	2%	20%	106%	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	0.001	0.001	<1%	10%	100%	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.04	0.04	<1%	10%	102%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	<0.002	<0.002	<1%	10%	97%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	<0.05	<0.05	<1%	10%	101%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.7	0.7	<1%	10%	95%	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	6	6	<1%	10%	108%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	95%	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.001	<0.001	<1%	10%	101%	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0021	0.0023	9%	10%	99%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	13	14	7%	10%	-	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	6.6	6.6	<1%	10%	102%	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.75	0.76	1%	10%	-	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.34	0.31	9%	10%	97%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	108%	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	2.9	2.9	<1%	10%	98%	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.5	0.5	<1%	10%	97%	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.004	0.004	<1%	10%	-	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	99%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.55	0.55	<1%	10%	103%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	9.7	9.5	2%	10%	97%	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	105%	-	75% - 125%
NAG to pH <4.5	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	105%	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	98%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	97%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0001	0.0001	<1%	10%	100%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
pH	iPH1WASE		0.1	<0.1	7.1	7.1	<1%	10%	-	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.5	7.5	<1%	10%	-	-	75% - 125%
NAG pH	ARD		0.1	<0.1	6.5	6.5	<1%	10%	104%	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.01	0.02	66%	10%	94%	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0003	0.0003	<1%	10%	104%	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	101%	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	9.3	9.4	1%	10%	100%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	5.1	5.1	<1%	10%	99%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.004	0.004	<1%	10%	98%	-	75% - 125%
Sulfur present as SO ₄	SO ₄ S (ARD)	%	0.01	<0.01	<0.01	<0.01	<1%	20%	100%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	36	36	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	93%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	0.0037	0.0044	17%	10%	-	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	97%	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	97%	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<1%	10%	99%	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	99%	-	75% - 125%
22S4297/130											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	99%	-	75% - 125%
Alkalinity as CaCO ₃	iALK1WATI	mg/L	1	<1	7	7	<1%	10%	-	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H ₂ SO ₄ /t	0.5	<0.5	3.0	3.0	<1%	20%	106%	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	103%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	<0.002	<0.002	<1%	10%	98%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	0.09	0.08	11%	10%	104%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.2	1.2	<1%	10%	100%	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	9	9	<1%	10%	107%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	95%	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.004	0.004	<1%	10%	100%	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0003	0.0003	<1%	10%	97%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	20	19	5%	10%	98%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	9.4	9.5	1%	10%	-	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.39	0.39	<1%	10%	-	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	102%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	108%	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	4.0	4.0	<1%	10%	100%	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.008	0.008	<1%	10%	98%	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.9	0.9	<1%	10%	102%	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.003	0.003	<1%	10%	101%	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	101%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.17	0.17	<1%	10%	103%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	13.3	13.4	0%	10%	97%	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH2SO4/t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
NAG to pH <4.5	ARD	kgH2SO4/t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	97%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	91%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	101%	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	6.8	6.8	<1%	10%	-	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.2	7.2	<1%	10%	102%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	7.9	8.0	1%	10%	-	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.03	0.02	40%	10%	94%	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	105%	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	3.5	3.6	2%	10%	96%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	14.3	14.3	<1%	10%	101%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.004	0.004	<1%	10%	104%	-	75% - 125%
Sulfur present as SO4	SO4 S (ARD)	%	0.01	<0.01	0.02	0.02	<1%	20%	104%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	52	52	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	93%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<1%	10%	100%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	97%	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	101%	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<1%	10%	99%	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	99%	-	75% - 125%
22S4297/140											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Silver	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	-	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	99%	-	75% - 125%
Aluminium	iMET2SAICP	mg/kg	10	<10	7990	8880	10%	20%	-	-	75% - 125%
Alkalinity as CaCO3	iALK1WATI	mg/L	1	<1	6	6	<1%	10%	-	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H2SO4/t	0.5	<0.5	3.0	3.3	9%	20%	106%	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	100%	-	75% - 125%
Arsenic	iMET2SAMS	mg/kg	0.2	<0.2	20	22	9%	20%	124%	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.07	0.07	<1%	10%	103%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	<0.002	<0.002	<1%	10%	98%	-	75% - 125%
Barium	iMET2SAICP	mg/kg	0.1	<0.1	110	120	8%	20%	98%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Beryllium	iMET2SAICP	mg/kg	0.05	<0.05	2.5	2.6	3%	20%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Bismuth	iMET2SAMS	mg/kg	0.05	<0.05	0.54	0.52	3%	20%	90%	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	0.18	0.16	11%	10%	104%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.3	1.3	<1%	10%	103%	-	75% - 125%
Calcium	iMET2SAICP	mg/kg	10	<10	610	620	1%	20%	91%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Cadmium	iMET2SAMS	mg/kg	0.05	<0.05	1.1	1.1	<1%	20%	108%	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	7	7	<1%	10%	108%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	98%	-	75% - 125%
Cobalt	iMET2SAMS	mg/kg	0.5	<0.5	100	110	9%	20%	106%	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.001	0.001	<1%	10%	100%	-	75% - 125%
Chromium	iMET2SAICP	mg/kg	0.05	<0.05	67	67	<1%	20%	106%	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0003	0.0003	<1%	10%	99%	-	75% - 125%
Copper	iMET2SAMS	mg/kg	0.5	<0.5	55	54	1%	20%	112%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	16	15	6%	10%	98%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	7.6	7.6	<1%	10%	-	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.56	0.56	<1%	10%	-	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	102%	-	75% - 125%
Iron	iMET2SAICP	mg/kg	5	<5	270000	300000	10%	20%	103%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	108%	-	75% - 125%
Mercury	iMET2SAMS	mg/kg	0.02	<0.02	0.19	0.20	5%	20%	-	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	4.3	4.3	<1%	10%	100%	-	75% - 125%
Potassium	iMET2SAICP	mg/kg	5	<5	2200	2300	4%	20%	-	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lanthanum	iMET2SAICP	mg/kg	0.1	<0.1	7.8	8.1	3%	20%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.011	0.012	8%	10%	98%	-	75% - 125%
Lithium	iMET2SAICP	mg/kg	0.2	<0.2	35	38	8%	20%	-	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	0.8	0.8	<1%	10%	101%	-	75% - 125%
Magnesium	iMET2SAICP	mg/kg	5	<5	1100	1100	<1%	20%	120%	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.002	0.002	<1%	10%	101%	-	75% - 125%
Manganese	iMET2SAICP	mg/kg	0.2	<0.2	31000	32000	3%	20%	-	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	99%	-	75% - 125%
Molybdenum	iMET2SAMS	mg/kg	0.05	<0.05	0.71	0.71	<1%	20%	94%	-	75% - 125%
Total Nitrogen	(total)	%	0.005	<0.005	0.006	0.006	<1%	10%	106%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.18	0.17	5%	10%	103%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	8.9	8.9	<1%	10%	97%	-	75% - 125%
Sodium	iMET2SAICP	mg/kg	10	<10	250	240	4%	20%	103%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
NAG (Net Acid Generation)	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
NAG to pH <4.5	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	100%	-	75% - 125%
Nickel	iMET2SAICP	mg/kg	1	<1	160	170	6%	20%	98%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	97%	-	75% - 125%
Phosphorus	iMET2SAICP	mg/kg	5	<5	420	450	6%	20%	106%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	100%	-	75% - 125%
Lead	iMET2SAMS	mg/kg	0.5	<0.5	4.2	4.0	4%	20%	117%	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	6.9	6.9	<1%	10%	-	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.2	7.3	1%	10%	102%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	7.5	7.7	2%	10%	-	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.03	0.05	50%	10%	-	-	75% - 125%
Sulfur	iMET2SAICP	mg/kg	5	<5	340	350	2%	20%	101%	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%
Antimony	iMET2SAMS	mg/kg	0.05	<0.05	0.27	0.25	7%	20%	115%	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	105%	-	75% - 125%
Selenium	iMET2SAMS	mg/kg	0.05	<0.05	0.50	0.63	23%	20%	-	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	3.4	3.4	<1%	10%	103%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	99%	-	75% - 125%
Tin	iMET2SAMS	mg/kg	0.5	<0.5	<1.0	<1.0	<1%	20%	109%	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	10.6	10.5	0%	10%	101%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.003	0.003	<1%	10%	106%	-	75% - 125%
Strontium	iMET2SAICP	mg/kg	0.2	<0.2	110	110	<1%	20%	100%	-	75% - 125%
Sulfur present as SO ₄	SO ₄ S (ARD)	%	0.01	<0.01	0.01	0.01	<1%	20%	104%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	42	42	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	93%	-	75% - 125%
Thorium	iMET2SAMS	mg/kg	0.5	<0.5	2.0	2.0	<1%	20%	97%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<1%	10%	100%	-	75% - 125%
Titanium	iMET2SAICP	mg/kg	5.0	<5.0	260	270	3%	20%	107%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	96%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Thallium	iMET2SAMS	mg/kg	0.05	<0.05	2.0	2.1	4%	20%	120%	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Uranium	iMET2SAMS	mg/kg	0.01	<0.01	2.7	2.8	3%	20%	97%	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	101%	-	75% - 125%
Vanadium	iMET2SAICP	mg/kg	0.2	<0.2	47	46	2%	20%	-	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<1%	10%	99%	-	75% - 125%
Yttrium	iMET2SAMS	mg/kg	0.05	<0.05	30	32	6%	20%	-	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	99%	-	75% - 125%
Zinc	iMET2SAICP	mg/kg	5	<5	620	650	4%	20%	101%	-	75% - 125%
22S4297/150											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%
Silver	iMET2SAMS	mg/kg	0.05	<0.05	<0.10	<0.10	<1%	20%	105%	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.040	0.047	16%	10%	-	-	75% - 125%
Aluminium	iMET2SAICP	mg/kg	10	<10	22300	20400	8%	20%	106%	-	75% - 125%
Alkalinity as CaCO3	iALK1WATI	mg/L	1	<1	12	12	<1%	10%	-	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H2SO4/t	0.5	<0.5	3.5	3.6	2%	20%	107%	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	114%	-	75% - 125%
Arsenic	iMET2SAMS	mg/kg	0.2	<0.2	46	43	6%	20%	-	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.04	0.04	<1%	10%	103%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	<0.002	<0.002	<1%	10%	98%	-	75% - 125%
Barium	iMET2SAICP	mg/kg	0.1	<0.1	450	440	2%	20%	100%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Beryllium	iMET2SAICP	mg/kg	0.05	<0.05	1.0	0.99	1%	20%	-	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	106%	-	75% - 125%
Bismuth	iMET2SAMS	mg/kg	0.05	<0.05	0.42	0.41	2%	20%	87%	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	0.06	0.08	28%	10%	104%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.8	1.9	5%	10%	100%	-	75% - 125%
Calcium	iMET2SAICP	mg/kg	10	<10	740	710	4%	20%	91%	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Cadmium	iMET2SAMS	mg/kg	0.05	<0.05	0.18	0.17	5%	20%	108%	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	4	4	<1%	10%	107%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	95%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Cobalt	iMET2SAMS	mg/kg	0.5	<0.5	40	37	7%	20%	105%	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.001	0.001	<1%	10%	100%	-	75% - 125%
Chromium	iMET2SAICP	mg/kg	0.05	<0.05	110	110	<1%	20%	106%	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0003	0.0003	<1%	10%	105%	-	75% - 125%
Copper	iMET2SAMS	mg/kg	0.5	<0.5	26	26	<1%	20%	103%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	13	13	<1%	10%	98%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	7.4	7.4	<1%	10%	-	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.66	0.68	2%	10%	-	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.019	0.021	10%	10%	-	-	75% - 125%
Iron	iMET2SAICP	mg/kg	5	<5	240000	240000	<1%	20%	106%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	107%	-	75% - 125%
Mercury	iMET2SAMS	mg/kg	0.02	<0.02	<0.04	<0.04	<1%	20%	118%	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	3.9	3.9	<1%	10%	99%	-	75% - 125%
Potassium	iMET2SAICP	mg/kg	5	<5	770	720	6%	20%	-	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lanthanum	iMET2SAICP	mg/kg	0.1	<0.1	21	20	4%	20%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	98%	-	75% - 125%
Lithium	iMET2SAICP	mg/kg	0.2	<0.2	17	16	6%	20%	-	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.1	1.1	<1%	10%	102%	-	75% - 125%
Magnesium	iMET2SAICP	mg/kg	5	<5	620	580	6%	20%	120%	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.004	0.003	28%	10%	-	-	75% - 125%
Manganese	iMET2SAICP	mg/kg	0.2	<0.2	20000	20000	<1%	20%	-	-	75% - 125%
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	101%	-	75% - 125%
Molybdenum	iMET2SAMS	mg/kg	0.05	<0.05	1.5	1.6	6%	20%	92%	-	75% - 125%
Total Nitrogen	(total)	%	0.005	<0.005	<0.005	<0.005	<1%	10%	106%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.47	0.48	2%	10%	102%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	9.3	9.3	<1%	10%	97%	-	75% - 125%
Sodium	iMET2SAICP	mg/kg	10	<10	280	260	7%	20%	103%	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH2SO4/t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
NAG to pH <4.5	ARD	kgH2SO4/t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	97%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Nickel	iMET2SAICP	mg/kg	1	<1	51	50	1%	20%	98%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	97%	-	75% - 125%
Phosphorus	iMET2SAICP	mg/kg	5	<5	180	170	5%	20%	106%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Lead	iMET2SAMS	mg/kg	0.5	<0.5	21	21	<1%	20%	113%	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	7.0	6.9	1%	10%	-	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.2	7.2	<1%	10%	102%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	7.1	7.3	2%	10%	-	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.02	0.02	<1%	10%	94%	-	75% - 125%
Sulfur	iMET2SAICP	mg/kg	5	<5	160	160	<1%	20%	101%	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	113%	-	75% - 125%
Antimony	iMET2SAMS	mg/kg	0.05	<0.05	0.20	0.27	29%	20%	101%	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	105%	-	75% - 125%
Selenium	iMET2SAMS	mg/kg	0.05	<0.05	0.35	0.36	2%	20%	-	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	5.8	5.8	<1%	10%	103%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	108%	-	75% - 125%
Tin	iMET2SAMS	mg/kg	0.5	<0.5	1.8	1.7	5%	20%	101%	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	6.2	6.1	1%	10%	101%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.010	0.010	<1%	10%	104%	-	75% - 125%
Strontium	iMET2SAICP	mg/kg	0.2	<0.2	57	56	1%	20%	99%	-	75% - 125%
Sulfur present as SO4	SO4 S (ARD)	%	0.01	<0.01	<0.01	<0.01	<1%	20%	104%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	41	41	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Thorium	iMET2SAMS	mg/kg	0.5	<0.5	11	11	<1%	20%	100%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<1%	10%	104%	-	75% - 125%
Titanium	iMET2SAICP	mg/kg	5.0	<5.0	770	750	2%	20%	107%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	97%	-	75% - 125%
Thallium	iMET2SAMS	mg/kg	0.05	<0.05	0.43	0.44	2%	20%	122%	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	106%	-	75% - 125%
Uranium	iMET2SAMS	mg/kg	0.01	<0.01	3.4	3.3	2%	20%	97%	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	98%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Vanadium	iMET2SAICP	mg/kg	0.2	<0.2	100	100	<1%	20%	-	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<1%	10%	113%	-	75% - 125%
Yttrium	iMET2SAMS	mg/kg	0.05	<0.05	13	12	8%	20%	-	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	99%	-	75% - 125%
Zinc	iMET2SAICP	mg/kg	5	<5	58	56	3%	20%	101%	-	75% - 125%
22S4297/160											
Silver - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%
Aluminium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	107%	-	75% - 125%
Alkalinity as CaCO3	iALK1WATI	mg/L	1	<1	4	4	<1%	10%	-	-	75% - 125%
Acid Neutralising Capacity	ARD	kg H2SO4/t	0.5	<0.5	2.4	2.3	4%	20%	107%	-	75% - 125%
Arsenic - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	109%	-	75% - 125%
Boron - Filterable	iMET1WCICP	mg/L	0.02	<0.02	0.03	0.02	40%	10%	103%	-	75% - 125%
Barium- Filterable	iMET1WCICP	mg/L	0.002	<0.002	<0.002	<0.002	<1%	10%	99%	-	75% - 125%
Beryllium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	103%	-	75% - 125%
Bismuth - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	106%	-	75% - 125%
Total Carbon	(combs)	%	0.05	<0.05	0.08	0.08	<1%	10%	104%	-	75% - 125%
Calcium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	2.5	2.5	<1%	10%	103%	-	75% - 125%
Cadmium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	105%	-	75% - 125%
Chloride	iCO1WCDA	mg/L	1	<1	34	34	<1%	10%	108%	-	75% - 125%
Cobalt - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	98%	-	75% - 125%
Chromium - Filterable	iMET1WCICP	mg/L	0.001	<0.001	0.002	0.002	<1%	10%	101%	-	75% - 125%
Copper - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	0.0002	0.0002	<1%	10%	105%	-	75% - 125%
EC 1 soil 2 water paste	ARD	mS/m	1	<1	42	42	<1%	10%	98%	-	75% - 125%
Conductivity at 25C	iEC1WZSE	mS/m	0.2	<0.2	20.4	20.4	<1%	10%	-	-	75% - 125%
Fluoride	iF1WASE	mg/L	0.05	<0.05	0.41	0.42	2%	10%	-	-	75% - 125%
Iron - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	102%	-	75% - 125%
Mercury - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	107%	-	75% - 125%
Potassium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	4.3	4.3	<1%	10%	99%	-	75% - 125%
Lanthanum - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	-	-	75% - 125%
Lithium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.005	<0.005	<1%	10%	98%	-	75% - 125%
Magnesium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	1.9	1.9	<1%	10%	101%	-	75% - 125%
Manganese - Filterable	iMET1WCICP	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	101%	-	75% - 125%

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery
Molybdenum - Filterable	iMET1WCICP	mg/L	0.02	<0.02	<0.02	<0.02	<1%	10%	99%	-	75% - 125%
Total Nitrogen	iNP1WTFIA	mg/L	0.01	<0.01	0.86	0.82	4%	10%	102%	-	75% - 125%
Sodium - Filterable	iMET1WCICP	mg/L	0.1	<0.1	28.3	27.7	2%	10%	99%	-	75% - 125%
NAG (Net Acid Generation)	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
NAG to pH <4.5	ARD	kgH ₂ SO ₄ /t	0.5	<0.5	<0.5	<0.5	<1%	10%	-	-	75% - 125%
Nickel - Filterable	iMET1WCICP	mg/L	0.01	<0.01	<0.01	<0.01	<1%	10%	100%	-	75% - 125%
Phosphorus - Filterable	iMET1WCICP	mg/L	0.1	<0.1	<0.1	<0.1	<1%	10%	97%	-	75% - 125%
Lead - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	104%	-	75% - 125%
pH	iPH1WASE		0.1	<0.1	6.7	6.6	1%	10%	-	-	75% - 125%
pH, 1:2 soil:water	ARD		0.5	<0.5	7.2	7.2	<1%	10%	102%	-	75% - 125%
NAG pH	ARD		0.1	<0.1	7.3	7.2	1%	10%	-	-	75% - 125%
Sulfur	(combs)	%	0.01	<0.01	0.02	0.02	<1%	10%	94%	-	75% - 125%
Antimony - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	113%	-	75% - 125%
Selenium - Filterable	iMET1WCMS	mg/L	0.001	<0.001	<0.001	<0.001	<1%	10%	105%	-	75% - 125%
Silicon - Filterable	iMET1WCICP	mg/L	0.05	<0.05	3.5	3.6	2%	10%	96%	-	75% - 125%
Tin - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	108%	-	75% - 125%
Sulfate (from S) - Filterable	iMET1WCICP	mg/L	0.1	<0.1	25.8	25.1	2%	10%	101%	-	75% - 125%
Strontium - Filterable	iMET1WCICP	mg/L	0.002	<0.002	0.011	0.011	<1%	10%	106%	-	75% - 125%
Sulfur present as SO ₄	SO ₄ S (ARD)	%	0.01	<0.01	<0.01	<0.01	<1%	20%	104%	-	75% - 125%
Total Dissolved Solids (Calc)	iSOL1WDCA	mg/L	5	<5	110	110	<1%	10%	-	-	75% - 125%
Thorium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	98%	-	75% - 125%
Titanium - Filterable	iMET1WCMS	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<1%	10%	104%	-	75% - 125%
Thallium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	97%	-	75% - 125%
Uranium - Filterable	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<1%	10%	106%	-	75% - 125%
Vanadium - Filterable	iMET1WCICP	mg/L	0.005	<0.005	<0.005	<0.005	<1%	10%	98%	-	75% - 125%
Yttrium - Filterable	iMET1WCMS	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<1%	10%	113%	-	75% - 125%
Zinc - Filterable	iMET1WCICP	mg/L	0.005	<0.005	0.015	0.015	<1%	10%	101%	-	75% - 125%

Definitions:

PO Box 1250, Bentley Delivery Centre, Bentley, WA, 6983, TEL: +61 8 9422 9800, FAX: +61 8 9422 9801, www.chemcentre.wa.gov.au



Quality Assurance Report



Analyte	Method	Unit	LoR	Blank	Sample	Duplicate	RPD	Acceptable RPD	LCS	Matrix Spike	Acceptable Recovery

RPD = Relative Percentage Difference

LCS = Laboratory Control Sample

LoR = Limit of Reporting

Quality Control Acceptance Criteria

Waters:

Lab Dups RPD <10% for results greater than 5 X LOR.

For results less than 5 x LOR no acceptance criteria for RPD.

Matrix spikes, LCS and Surrogate recoveries: Generally 75% - 125% for inorganics/metals, 60% - 140% for organics (+/- 50% surrogates) and 10% - 140% for labile SVOCs (including labile surrogates) unless other values are stated above.

Soils:

Soils: Lab Dups RPD <20% for results greater than 5 X LOR.

For results less than 5 x LOR no acceptance criteria for RPD.

Matrix spikes, LCS and Surrogate recoveries: Generally 75% - 125% for inorganics/metals, 60% - 140% for organics (+/- 50% surrogates) and 10% - 140% for labile SVOCs (including labile surrogates) unless other values are stated above.

This report shall not be reproduced except in full

Alex Martin
Team Leader
SSD Inorganic Chemistry

18-Jul-2023

Barry Price
Senior Scientist
SSD Inorganic Chemistry

Purchase Order: 9000000315
Your ref:
ChemCentre Reference: 23S1007
Enquiries: Barry Price
9422 9979
Ph Fax Email: bprice@chemcentre.wa.gov.au

Hancock Prospecting
P.O Locked Bag No.2
West Perth WA 6872

Attention: Colleen Burgers

Report on seven samples received on 18/9/23

Introduction

Acid Buffering Characteristic Curve (ABCC) tests on two samples were requested. Curve for dolomite ($\text{CaCO}_3 \cdot \text{MgCO}_3$) control added for comparison purposes.

Method

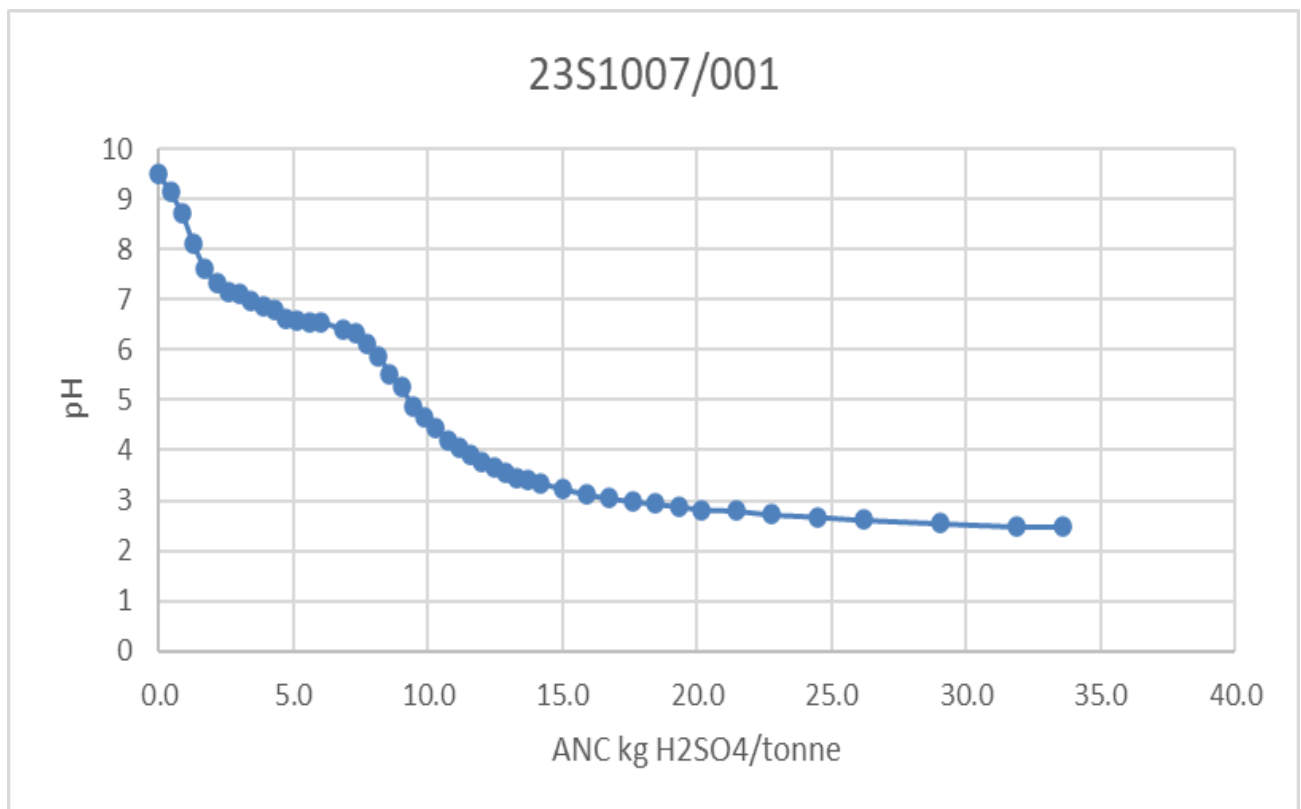
The samples were analysed according to the method in Appendix G in the AMIRA International ARD Test Handbook, Project P387A Prediction & Kinetic Control of Acid Mine Drainage, May 2002. The blank is the same volume of water as used for the samples titrated to pH2.5 using 2g as the nominal sample mass.

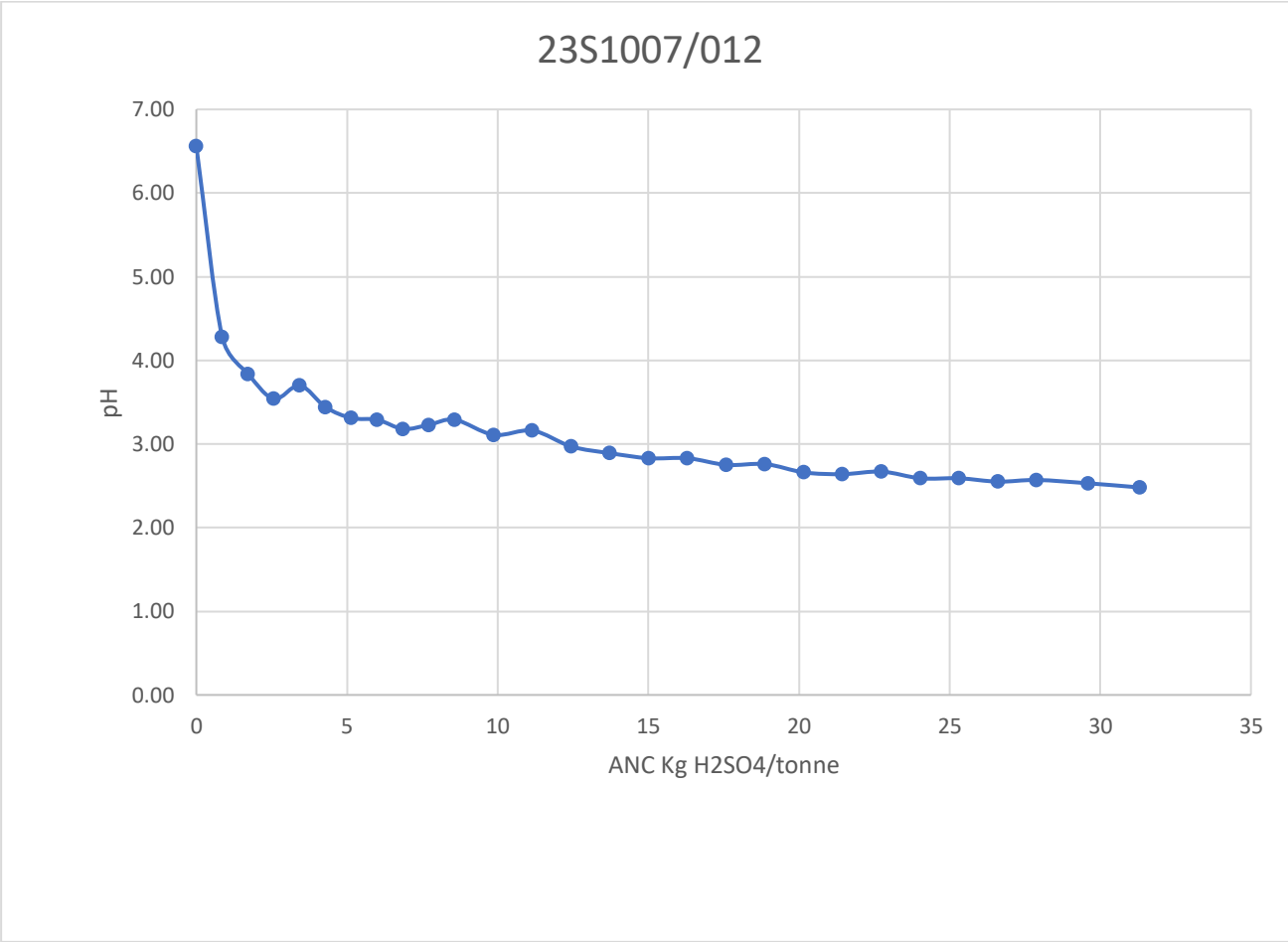
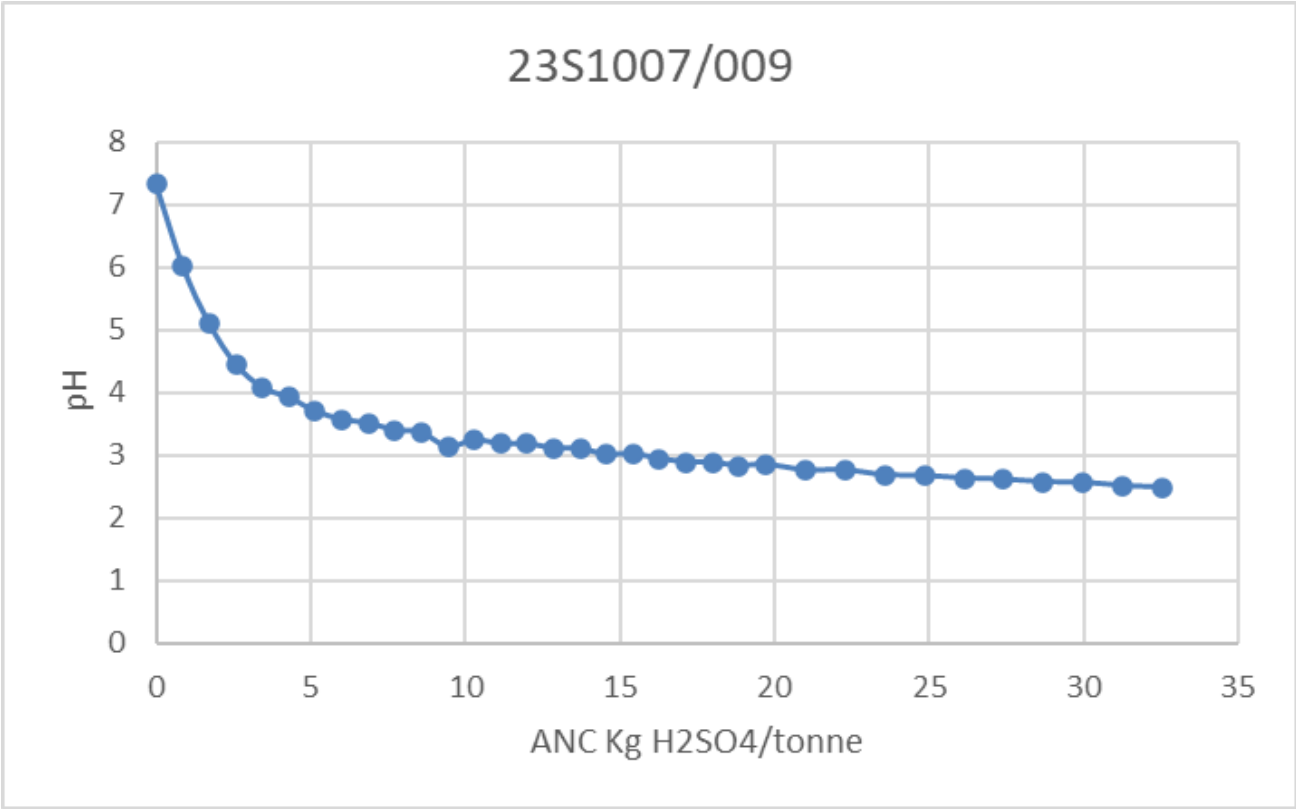
Results of Examination

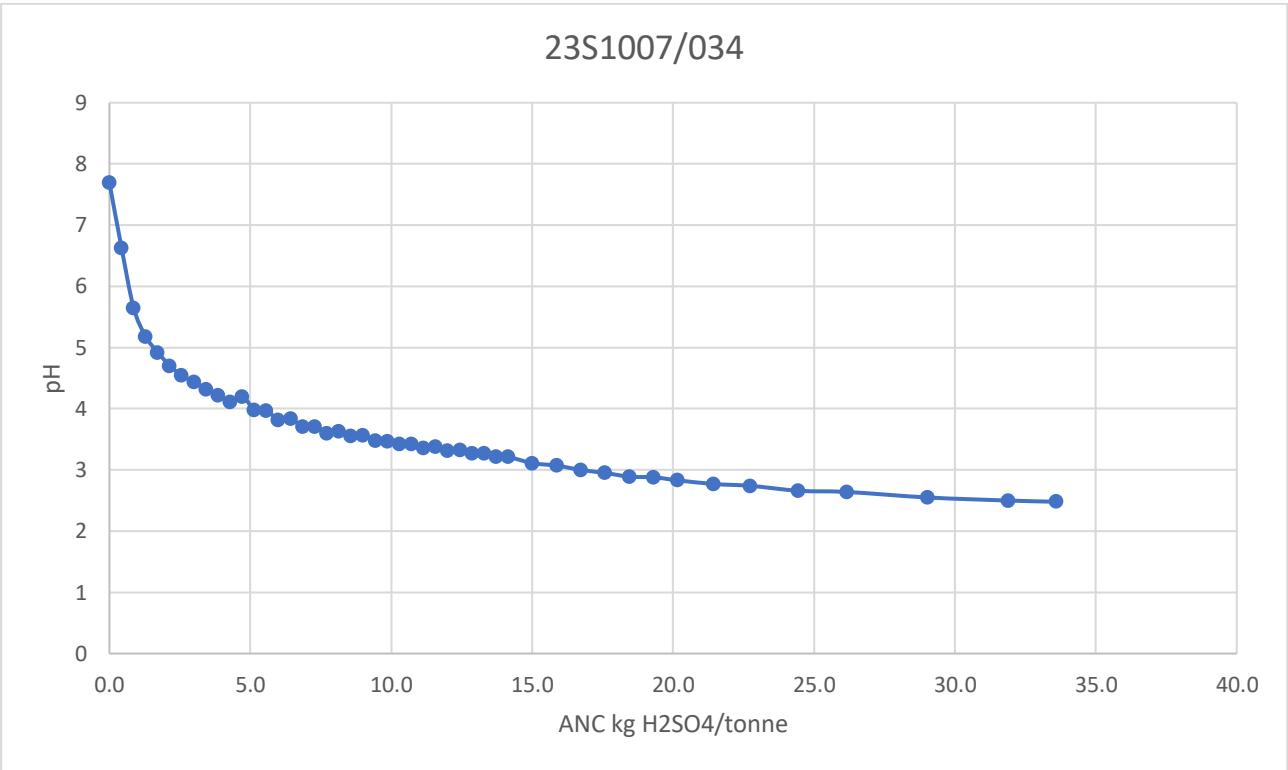
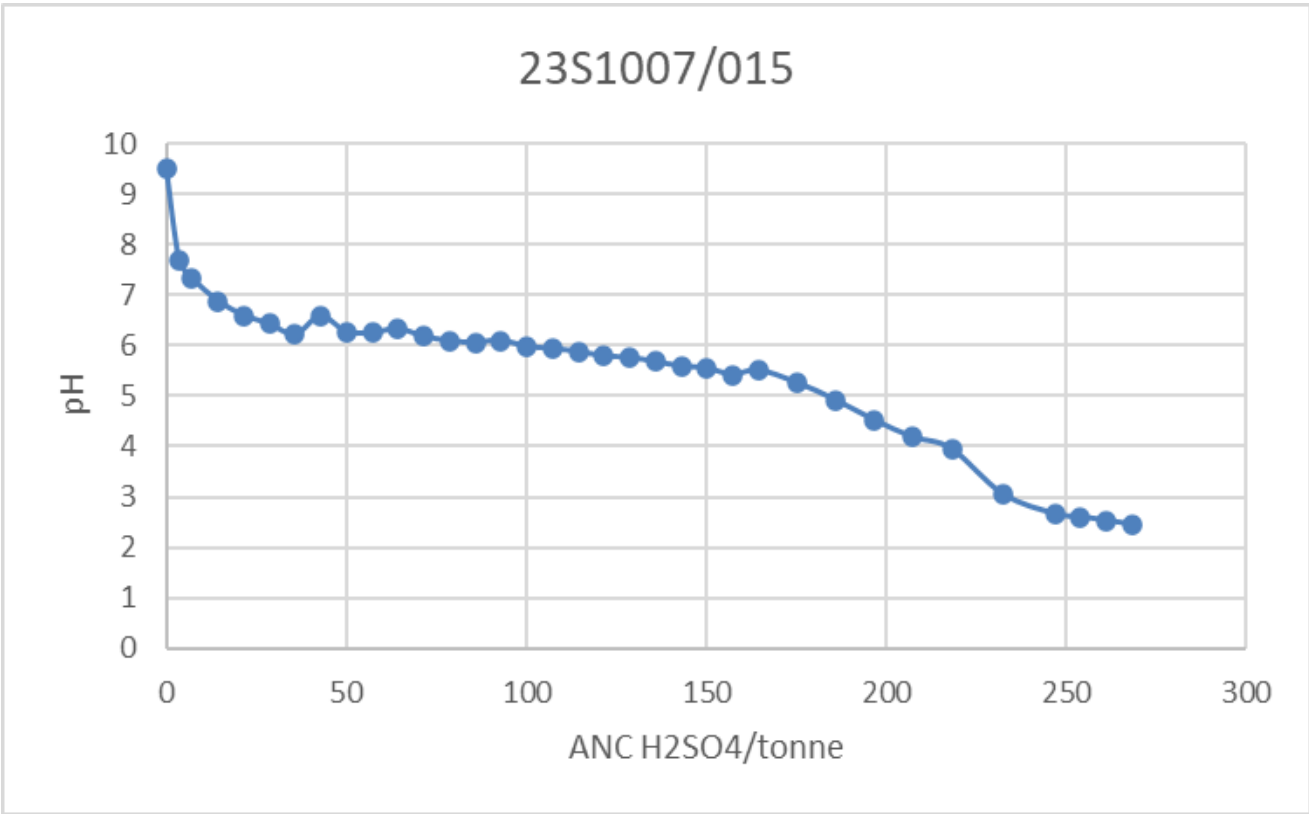
	Client ID	ANC to pH2.5	Net ANC to pH2.5	ANC (Sobek + H_2O_2)
		Kg H_2SO_4 /tonne	Kg H_2SO_4 /tonne	Kg H_2SO_4 /tonne
23S1007/001	MDRC0740_04-10	31.5	11.5	12
23S1007/009	MDRC1338_102-108	31.5	11.5	20

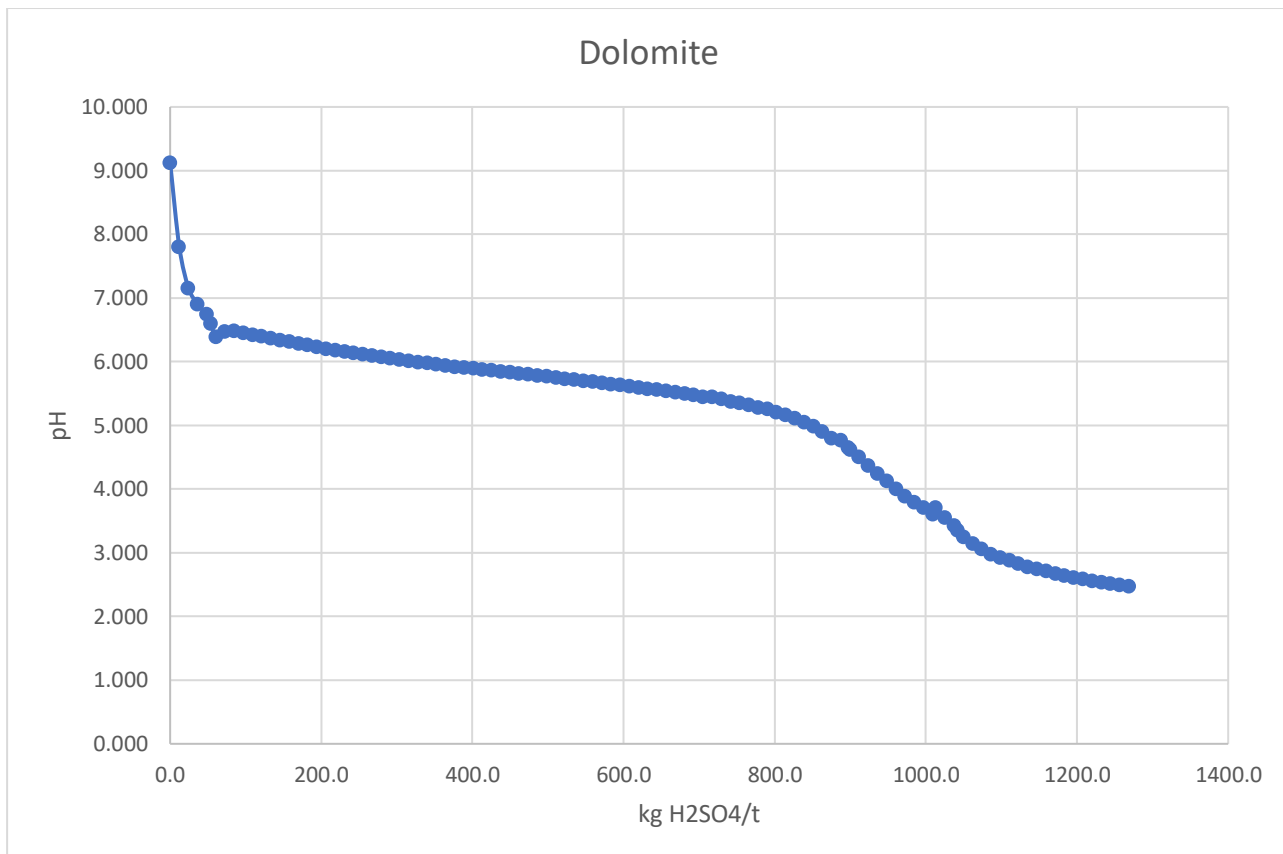
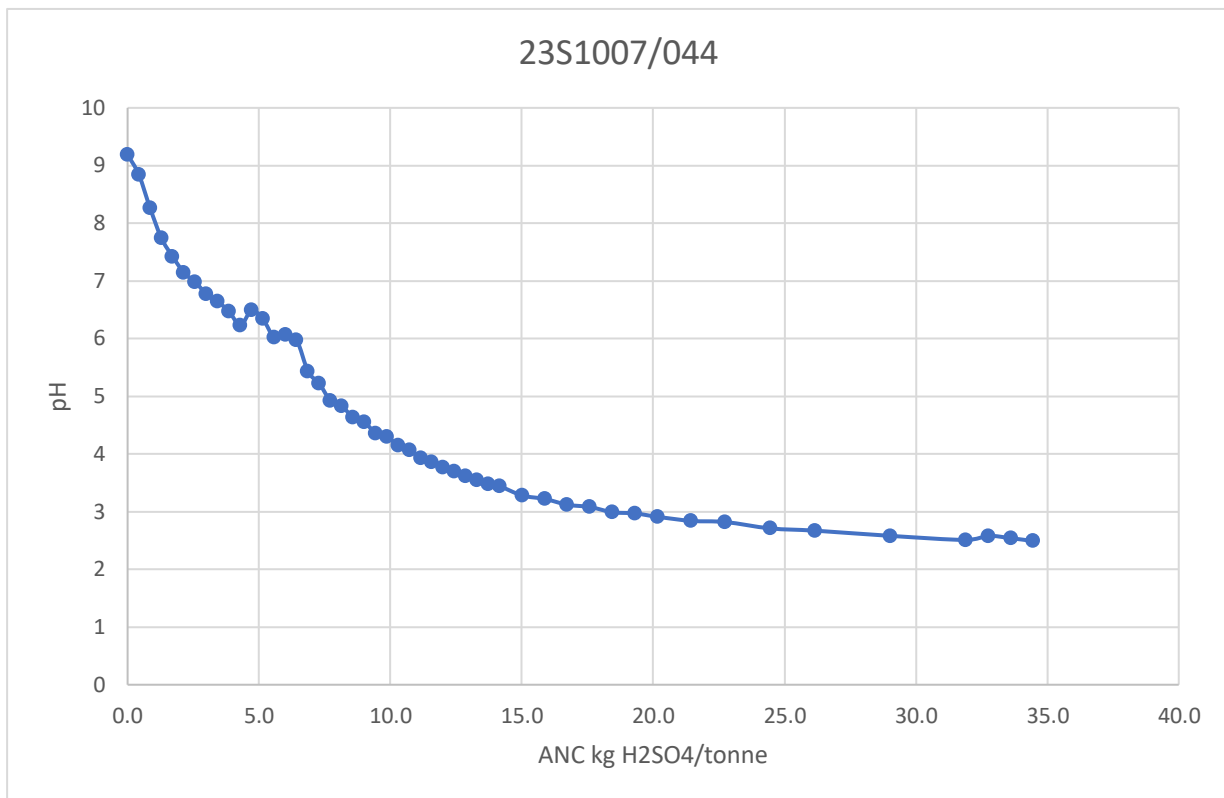


23S1007/012	MDRC1348_94-100	30.5	10.5	15
23S1007/015	MDRC1357_88-94	264	244	260
23S1007/016	MDRC1371_60-64	157	137	100
23S1007/034	MDRC1526_92-98	31.9	11.8	11
23S1007/044	MDRC1599_02-08	34	14	11
Blank		20		
Dolomite (CaCO ₃ .MgCO ₃)		1245		









Barry Price
Senior Chemist and Research Officer
Soil and Mining Chemistry

10/11/23

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1873
Lab ID: 23_1873_001
Client ID: 23S1451/007
Analysis: Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 24/10/2023
Date analysed: 21/11/2023
Date reported: 21/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 24/10/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

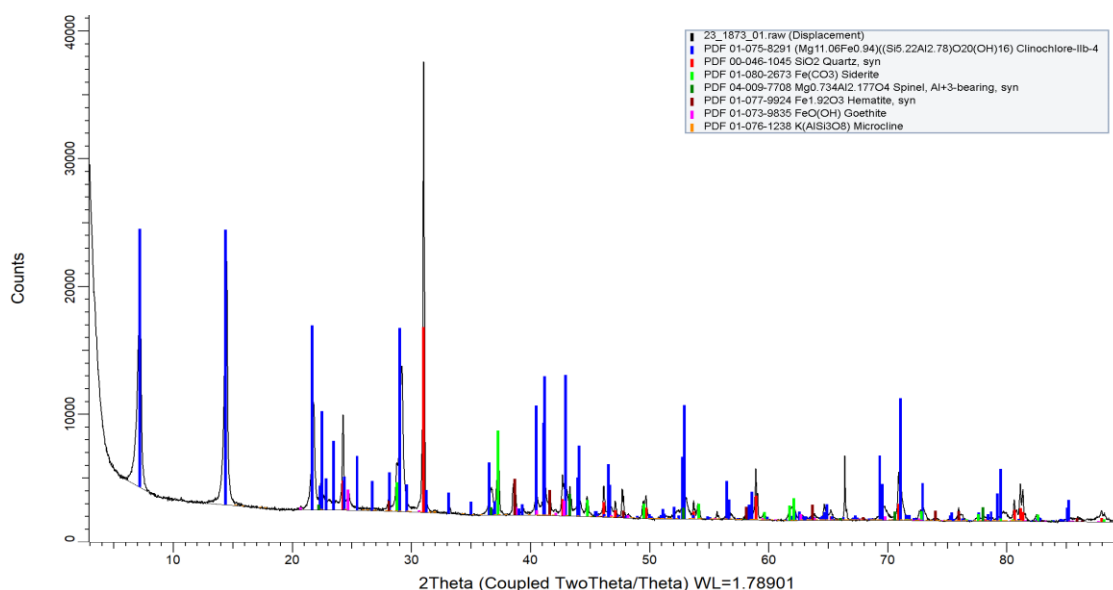
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Clinocllore-Ilb-4 ((Mg _{11.06} Fe _{0.94})(Si _{5.22} Al _{2.78})O ₂₀ (OH) ₁₆))	78	High
Quartz, syn (SiO ₂)	11	High
Siderite (Fe(CO ₃))	5	High
Spinel, Al+3-bearing, syn (Mg _{0.734} Al _{2.177} O ₄)	3	Low
Hematite, syn (Fe _{1.92} O ₃)	2	Medium
Goethite (FeO(OH))	2	Medium
Microcline (K(AlSi ₃ O ₈))	1	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Jarvis Lawson, Cert IV (Laboratory Techniques)
Reported: Jarvis Lawson, Cert IV (Laboratory Techniques)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Purchase Order: 9000000315

Your Reference:

ChemCentre Reference: 23S1007 R0

HanRoy Iron Ore Projects Pty Ltd
28-42 Ventnor Avenue
West Perth WA 6005

Resources and Chemistry Precinct
Cnr Manning Road and Townsing Drive
Bentley

WA 6102

T +61 8 9422 9800

F +61 8 9422 9801

www.chemcentre.wa.gov.au

ABN 40 991 885 705

Attention: Colleen Burgers

Final Report on 33 samples of rock received on 18/09/2023

<u>LAB ID</u>	<u>Client ID and Description</u>
23S1007 / 002	MDRC0964_06-12
23S1007 / 003	MDRC0971_06-12
23S1007 / 004	MDRC0972_06-14
23S1007 / 005	MDRC0973_04-12
23S1007 / 009	MDRC1338_102-108
23S1007 / 010	MDRC1339_88-112
23S1007 / 011	MDRC1348_86-92
23S1007 / 012	MDRC1348_94-100
23S1007 / 015	MDRC1357_88-94
23S1007 / 016	MDRC1371_60-64
23S1007 / 017	MDRC1371_108-116
23S1007 / 019	MDRC1374_94-100
23S1007 / 021	MDRC1391_76-82
23S1007 / 022	MDRC1397_82-88
23S1007 / 023	MDRC1409_06-12
23S1007 / 024	MDRC1412_106-112
23S1007 / 025	MDRC1414_06-12
23S1007 / 026	MDRC1415_92-98
23S1007 / 027	MDRC1415_98-104
23S1007 / 028	MDRC1438_04-10
23S1007 / 029	MDRC1441_100-106
23S1007 / 031	MDRC1460_06-12
23S1007 / 032	MDRC1475_06-12
23S1007 / 033	MDRC1486_86-94
23S1007 / 035	MDRC1536_04-08
23S1007 / 036	MDRC1536_82-88
23S1007 / 037	MDRC1551_08-14
23S1007 / 038	MDRC1554_106-112
23S1007 / 039	MDRC1569_08-14
23S1007 / 040	MDRC1572_02-10
23S1007 / 041	MDRC1573_06-12
23S1007 / 045	MDRC1599_90-96
23S1007 / 046	MDRC1599_96-100

Analyte Method Unit		TIC (combs) %	TOC (combs) %	CRS iCRS %
Lab ID	Client ID			
23S1007/002	MDRC0964_06-12			<0.01
23S1007/003	MDRC0971_06-12			<0.01
23S1007/004	MDRC0972_06-14			<0.01
23S1007/005	MDRC0973_04-12			<0.01
23S1007/009	MDRC1338_102-108	0.28	2.85	0.36
23S1007/010	MDRC1339_88-112	0.63	1.93	1.5
23S1007/011	MDRC1348_86-92	0.30	1.02	0.25
23S1007/012	MDRC1348_94-100	1.27	3.71	0.73
23S1007/015	MDRC1357_88-94	3.61	0.44	0.15
23S1007/016	MDRC1371_60-64	1.71	0.28	
23S1007/017	MDRC1371_108-116	0.68	2.34	1.1
23S1007/019	MDRC1374_94-100	3.86	0.35	
23S1007/021	MDRC1391_76-82			0.10
23S1007/022	MDRC1397_82-88	0.24	2.22	0.82
23S1007/023	MDRC1409_06-12			<0.01
23S1007/024	MDRC1412_106-112	1.82	2.61	1.3
23S1007/025	MDRC1414_06-12			<0.01
23S1007/026	MDRC1415_92-98	<0.05	1.19	0.15
23S1007/027	MDRC1415_98-104	0.63	1.43	2.0
23S1007/028	MDRC1438_04-10			<0.01
23S1007/029	MDRC1441_100-106	0.63	1.36	0.38
23S1007/031	MDRC1460_06-12			<0.01
23S1007/032	MDRC1475_06-12			<0.01
23S1007/033	MDRC1486_86-94	0.18	1.43	1.0
23S1007/035	MDRC1536_04-08			<0.01
23S1007/036	MDRC1536_82-88			0.33
23S1007/037	MDRC1551_08-14			<0.01
23S1007/038	MDRC1554_106-112			0.40
23S1007/039	MDRC1569_08-14			<0.01
23S1007/040	MDRC1572_02-10			<0.01
23S1007/041	MDRC1573_06-12			<0.01
23S1007/045	MDRC1599_90-96	0.19	1.46	
23S1007/046	MDRC1599_96-100	0.20	3.89	

Analyte	Method	Description
TIC	(combs)	Total inorganic carbon determined by combustion after removal of organic carbon by ignition.
TOC	(combs)	Total organic carbon by difference in carbon content following ignition at 400 C by in-house method S57.
CRS	iCRS	Chromium Reducible Sulphur

The results apply only to samples as received. This report may only be reproduced in full.

Unless otherwise advised, the samples in this job will be disposed of after a holding period of 30 days from the report date shown below.

The XRD analysis was outsourced to Microanalysis. Their report is attached. The ABCC report is also attached along with the data points used to construct the graphs. The LEAF1313 and LEAF1314 have been registered as separate jobs-23S1009 and 23S1010 respectively.

*Analysis not covered by scope of ChemCentre's NATA accreditation.

A handwritten signature in black ink that reads "B. Price". The signature is written in a cursive, flowing style.

Barry Price
Senior Scientist
Scientific Services Division
10-Nov-2023



WORLD RECOGNISED
ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing, Accreditation No. 8

Purchase Order: 9000000315

ChemCentre Reference: 23S1009 R0

HanRoy Iron Ore Projects Pty Ltd
28-42 Ventnor Avenue
West Perth WA 6005

Attention: Colleen Burgers

ChemCentre

Scientific Services Division

Report of Examination



Resources and Chemistry Precinct
Cnr Manning Road and Townsing Drive
Bentley
WA 6102
T +61 8 9422 9800
F +61 8 9422 9801
www.chemcentre.wa.gov.au
ABN 40 991 885 705

Report on: 65 samples received on 18/09/2023

<u>LAB ID</u>	<u>Material</u>	<u>Client ID and Description</u>
23S1009 / 001	leachate	1B1 Base Blank-1
23S1009 / 002	leachate	1B2 Water Blank-1
23S1009 / 003	leachate	1B3 Acid Blank-1
23S1009 / 004	leachate	1T10 MDRC0693_06-12Natural pH
23S1009 / 005	leachate	1T1 MDRC0693_06-12at pH 13
23S1009 / 006	leachate	1T2 MDRC0693_06-12at pH 12
23S1009 / 007	leachate	1T3 MDRC0693_06-12at pH 10.5
23S1009 / 008	leachate	1T4 MDRC0693_06-12at pH 9
23S1009 / 009	leachate	1T5 MDRC0693_06-12at pH 8
23S1009 / 010	leachate	1T6 MDRC0693_06-12at pH 7
23S1009 / 011	leachate	1T7 MDRC0693_06-12at pH 5.5
23S1009 / 012	leachate	1T8 MDRC0693_06-12at pH 4
23S1009 / 013	leachate	1T9 MDRC0693_06-12at pH 2
23S1009 / 014	leachate	2B1 Base Blank-2
23S1009 / 015	leachate	2B2 Water Blank-2
23S1009 / 016	leachate	2B3 Acid Blank-2
23S1009 / 017	leachate	2T10 MDRC0973_04-12Natural pH
23S1009 / 018	leachate	2T1 MDRC0973_04-12at pH 13
23S1009 / 019	leachate	2T2 MDRC0973_04-12at pH 12
23S1009 / 020	leachate	2T3 MDRC0973_04-12at pH 10.5
23S1009 / 021	leachate	2T4 MDRC0973_04-12at pH 9
23S1009 / 022	leachate	2T5 MDRC0973_04-12at pH 8
23S1009 / 023	leachate	2T6 MDRC0973_04-12at pH 7
23S1009 / 024	leachate	2T7 MDRC0973_04-12at pH 5.5
23S1009 / 025	leachate	2T8 MDRC0973_04-12at pH 4
23S1009 / 026	leachate	2T9 MDRC0973_04-12at pH 2
23S1009 / 027	leachate	3B1 Base Blank-3
23S1009 / 028	leachate	3B2 Water Blank-3
23S1009 / 029	leachate	3B3 Acid Blank-3
23S1009 / 030	leachate	3T10 MDRC0973_34-46Natural pH
23S1009 / 031	leachate	3T1 MDRC0973_34-46at pH 13
23S1009 / 032	leachate	3T2 MDRC0973_34-46at pH 12
23S1009 / 033	leachate	3T3 MDRC0973_34-46at pH 10.5
23S1009 / 034	leachate	3T4 MDRC0973_34-46at pH 9
23S1009 / 035	leachate	3T5 MDRC0973_34-46at pH 8
23S1009 / 036	leachate	3T6 MDRC0973_34-46at pH 7
23S1009 / 037	leachate	3T7 MDRC0973_34-46at pH 5.5
23S1009 / 038	leachate	3T8 MDRC0973_34-46at pH 4
23S1009 / 039	leachate	3T9 MDRC0973_34-46at pH 2
23S1009 / 040	leachate	4B1 Base Blank-4
23S1009 / 041	leachate	4B2 Water Blank-4
23S1009 / 042	leachate	4B3 Acid Blank-4
23S1009 / 043	leachate	4T10 MDRC1384_00-06Natural pH
23S1009 / 044	leachate	4T1 MDRC1384_00-06at pH 13
23S1009 / 045	leachate	4T2 MDRC1384_00-06at pH 12

<u>LAB ID</u>	<u>Material</u>	<u>Client ID and Description</u>
23S1009 / 046	leachate	4T3 MDRC1384_00-06at pH 10.5
23S1009 / 047	leachate	4T4 MDRC1384_00-06at pH 9
23S1009 / 048	leachate	4T5 MDRC1384_00-06at pH 8
23S1009 / 049	leachate	4T6 MDRC1384_00-06at pH 7
23S1009 / 050	leachate	4T7 MDRC1384_00-06at pH 5.5
23S1009 / 051	leachate	4T8 MDRC1384_00-06at pH 4
23S1009 / 052	leachate	4T9 MDRC1384_00-06at pH 2
23S1009 / 053	leachate	4B1 Base Blank-5
23S1009 / 054	leachate	4B2 Water Blank-5
23S1009 / 055	leachate	4B3 Acid Blank-5
23S1009 / 056	leachate	5T10 MDRC1572_60-66Natural pH
23S1009 / 057	leachate	5T1 MDRC1572_60-66at pH 13
23S1009 / 058	leachate	5T2 MDRC1572_60-66at pH 12
23S1009 / 059	leachate	5T3 MDRC1572_60-66at pH 10.5
23S1009 / 060	leachate	5T4 MDRC1572_60-66at pH 9
23S1009 / 061	leachate	5T5 MDRC1572_60-66at pH 8
23S1009 / 062	leachate	5T6 MDRC1572_60-66at pH 7
23S1009 / 063	leachate	5T7 MDRC1572_60-66at pH 5.5
23S1009 / 064	leachate	5T8 MDRC1572_60-66at pH 4
23S1009 / 065	leachate	5T9 MDRC1572_60-66at pH 2

LAB ID	001	002	003	004
Client ID^	1B1	1B2	1B3	1T10

Sampled^

Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	9880	1	<1	11
Aluminium	iMET1WCICP	mg/L	<0.050	<0.005	<0.005	<0.005
Antimony	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	0.0001
Arsenic	iMET1WCMS	mg/L	<0.010	<0.001	<0.001	<0.001
Barium	iMET1WCMS	mg/L	0.0048	<0.0001	0.0008	0.0089
Beryllium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L				0.10
Boron	iMET1WCMS	mg/L	<0.050	<0.005	0.018	
Cadmium	iMET1WCMS	mg/L	<0.0010	<0.0001	0.0008	0.0002
Calcium	iMET1WCICP	mg/L	<1.0	<0.1	0.2	14.1
Chloride	iCO1WCDA	mg/L	2	<1	<1	31
Chromium	iMET1WCMS	mg/L	<0.0050	<0.0005	<0.0005	<0.0005
Cobalt	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	0.0005
Copper	iMET1WCMS	mg/L	<0.0010	<0.0001	0.0021	0.0002
Electrical Conductivity	iEC1WZSE	mS/m	4420	<0.2	923	35.7
Fluoride	iF1WASE	mg/L	<0.50	<0.05	<0.05	0.51
Iron	iMET1WCICP	mg/L	<0.050	<0.005	0.10	<0.005
Lanthanum	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	0.0046
Magnesium	iMET1WCICP	mg/L	<1.0	<0.1	<0.1	11.0
Manganese	iMET1WCMS	mg/L	<0.0010	<0.0001	0.0010	0.0057
Mercury	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.010	<0.001	<0.001	<0.001
Nickel	iMET1WCMS	mg/L	<0.010	<0.001	<0.001	<0.001
Nitrogen, total	iNP1WTFIA	mg/L	0.03			0.63
pH	iPH1WASE		13.2	6.0	1.7	7.8
Phosphorus	iMET1WCICP	mg/L	<1.0	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	5900	<0.1	0.6	4.0
Selenium	iMET1WCMS	mg/L	<0.010	<0.001	<0.001	<0.001

LAB ID			001	002	003	004
Client ID^			1B1	1B2	1B3	1T10
Sampled^						
Analyte	Method	Unit				
Silicon	iMET1WCICP	mg/L	<0.50	<0.05	<0.05	6.5
Silver	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	3.0	<0.1	0.5	36.6
Strontium	iMET1WCMS	mg/L	<0.0010	<0.0001	0.0014	0.11
Sulphate (from S)	iMET1WCICP	mg/L	<1.0	<0.1	0.1	102
TDS (calculated)	iSOL1WDCA	mg/L	24000	<5	5100	200
Thallium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0050	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	0.0001
Yttrium*	iMET1WCMS	mg/L	<0.0020	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCMS	mg/L	0.012	<0.001	0.001	<0.001
Date Analysed	iALK1WATI		14/11/2023	13/11/2023	13/11/2023	13/11/2023
	iCO1WCDA		6/11/2023	10/11/2023	10/11/2023	10/11/2023
	IEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		28/11/2023	24/11/2023	24/11/2023	24/11/2023
	iMET1WCICP		22/11/2023	22/11/2023	22/11/2023	22/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA		16/11/2023			16/11/2023
	iPH1WASE		1/11/2023	1/11/2023	3/11/2023	1/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold
LAB ID			005	006	007	008
Client ID^			1T1	1T2	1T3	1T4
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	8720	430	37	14
Aluminium	iMET1WCICP	mg/L	4.9	0.33	<0.050	<0.005
Antimony	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	0.0001
Arsenic	iMET1WCMS	mg/L	0.041	0.018	<0.010	<0.001
Barium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	0.0028
Beryllium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Boron	iMET1WCICP	mg/L				0.09
Boron	iMET1WCMS	mg/L	0.12	0.15	0.12	
Cadmium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	0.0009
Calcium	iMET1WCICP	mg/L	<1.0	<1.0	<1.0	5.2
Chloride	iCO1WCDA	mg/L	24	28	25	26
Chromium	iMET1WCMS	mg/L	<0.0050	<0.0050	<0.0050	0.0007
Cobalt	iMET1WCMS	mg/L	0.0020	<0.0010	<0.0010	0.0003
Copper	iMET1WCMS	mg/L	0.0022	0.0011	<0.0010	0.0009
Electrical Conductivity	IEC1WZSE	mS/m	3830	206	35.6	31.2
Fluoride	iF1WASE	mg/L	0.96	0.62	0.66	0.61
Iron	iMET1WCICP	mg/L	0.060	<0.050	<0.050	<0.005
Lanthanum	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Lead	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Lithium	iMET1WCICP	mg/L		2.3		

LAB ID			005	006	007	008
Client ID^			1T1	1T2	1T3	1T4
Sampled^						
Analyte	Method	Unit				
Lithium	iMET1WCMS	mg/L	<0.0010		0.0023	0.0026
Magnesium	iMET1WCICP	mg/L	<1.0	<1.0	<1.0	4.5
Manganese	iMET1WCMS	mg/L	0.0014	<0.0010	<0.0010	0.0027
Mercury	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.010	<0.010	<0.010	0.002
Nickel	iMET1WCMS	mg/L	<0.010	<0.010	<0.010	<0.001
Nitrogen, total	iNP1WTFIA	mg/L	0.72	13	0.79	0.81
pH	iPH1WASE		13.2	11.9	10.2	9.1
Phosphorus	iMET1WCICP	mg/L	<1.0	<1.0	<1.0	<0.1
Potassium	iMET1WCICP	mg/L	5050	359	60.0	25.5
Selenium	iMET1WCMS	mg/L	<0.010	<0.010	<0.010	<0.001
Silicon	iMET1WCICP	mg/L	110	53	13	7.9
Silver	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Sodium	iMET1WCICP	mg/L	33.1	25.9	22.7	29.4
Strontium	iMET1WCMS	mg/L	0.0043	0.0043	0.0060	0.045
Sulphate (from S)	iMET1WCICP	mg/L	50.7	63.1	55.5	69.8
TDS (calculated)	iSOL1WDCA	mg/L	21000	1100	200	170
Thallium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Tin	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0050	<0.0050	<0.0050	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Vanadium	iMET1WCMS	mg/L	0.030	0.016	0.0022	0.0002
Yttrium*	iMET1WCMS	mg/L	<0.0020	<0.0020	<0.0020	<0.0002
Zinc	iMET1WCMS	mg/L	0.013	0.014	0.014	0.001
Date Analysed	iALK1WATI		14/11/2023	14/11/2023	14/11/2023	14/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	iEC1WZSE		13/11/2023	27/11/2023	13/11/2023	13/11/2023
	iF1WASE		28/11/2023	28/11/2023	28/11/2023	27/11/2023
	iMET1WCICP		22/11/2023	22/11/2023	22/11/2023	22/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA		16/11/2023	20/11/2023	20/11/2023	16/11/2023
	iPH1WASE		1/11/2023	1/11/2023	1/11/2023	1/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold

LAB ID			009	010	011	012
Client ID^			1T5	1T6	1T7	1T8
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	7	7	2	<1
Aluminium	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	0.19
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCMS	mg/L	0.0085	0.012	0.029	0.072
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0010
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.11	0.10	0.14	0.16
Cadmium	iMET1WCMS	mg/L	0.0001	<0.0001	0.0005	0.0002
Calcium	iMET1WCICP	mg/L	12.5	12.3	17.4	26.5

LAB ID			009	010	011	012
Client ID^			1T5	1T6	1T7	1T8
Sampled^						
Analyte	Method	Unit				
Chloride	iCO1WCDA	mg/L	28	28	29	29
Chromium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	0.0011
Cobalt	iMET1WCMS	mg/L	0.0006	0.0016	0.017	0.11
Copper	iMET1WCMS	mg/L	0.0002	0.0001	0.0008	0.0009
Electrical Conductivity	iEC1WZSE	mS/m	33.6	35.6	45.5	58.2
Fluoride	iF1WASE	mg/L	0.45	0.28	0.05	0.08
Iron	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0006
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCMS	mg/L	0.0072	0.0088	0.0083	0.0074
Magnesium	iMET1WCICP	mg/L	9.9	10.7	15.2	21.4
Manganese	iMET1WCMS	mg/L	0.0021	0.018	0.35	2.1
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Nickel	iMET1WCMS	mg/L	<0.001	<0.001	0.006	0.023
Nitrogen, total	iNP1WTFIA	mg/L	0.62			
pH	iPH1WASE		7.7	6.8	5.4	4.2
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.7	4.0	5.5	8.1
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	6.2	5.9	6.6	9.2
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	32.7	36.1	41.6	40.7
Strontium	iMET1WCMS	mg/L	0.097	0.10	0.16	0.24
Sulphate (from S)	iMET1WCICP	mg/L	90.9	79.4	79.1	70.0
TDS (calculated)	iSOL1WDCA	mg/L	180	200	250	320
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0002
Vanadium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	0.0004
Zinc	iMET1WCMS	mg/L	0.001	<0.001	0.002	0.010
Date Analysed	iALK1WATI		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	iEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		22/11/2023	22/11/2023	22/11/2023	22/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA		16/11/2023			
	iPH1WASE		3/11/2023	1/11/2023	1/11/2023	7/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold

LAB ID	013	014	015	016
Client ID^	1T9	2B1	2B2	2B3

Sampled^

Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	<1	11000	3	<1

LAB ID			013	014	015	016
Client ID^			1T9	2B1	2B2	2B3
Sampled^						
Analyte	Method	Unit				
Aluminium	iMET1WCICP	mg/L	3.5	<0.050	<0.005	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.010	<0.001	<0.001
Barium	iMET1WCMS	mg/L	0.43	0.0048	<0.0001	0.0008
Beryllium	iMET1WCMS	mg/L	0.0064	<0.0010	<0.0001	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.20			
Boron	iMET1WCMS	mg/L		<0.050	<0.005	0.016
Cadmium	iMET1WCMS	mg/L	0.0025	<0.0010	<0.0001	0.0009
Calcium	iMET1WCICP	mg/L	45.3	<1.0	<0.1	0.2
Chloride	iCO1WCDA	mg/L	25	<1	<1	<1
Chromium	iMET1WCMS	mg/L	0.11	<0.0050	<0.0005	<0.0005
Cobalt	iMET1WCMS	mg/L	0.38	<0.0010	<0.0001	<0.0001
Copper	iMET1WCMS	mg/L	0.022	<0.0010	<0.0001	0.0018
Electrical Conductivity	iEC1WZSE	mS/m	635	4920	1.0	878
Fluoride	iF1WASE	mg/L	0.15	1.9	<0.05	<0.05
Iron	iMET1WCICP	mg/L	6.9	<0.050	<0.005	<0.005
Lanthanum	iMET1WCMS	mg/L	0.014	<0.0010	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	0.0006	<0.0010	<0.0001	<0.0001
Lithium	iMET1WCMS	mg/L	0.010	<0.0010	<0.0001	<0.0001
Magnesium	iMET1WCICP	mg/L	40.2	<1.0	<0.1	<0.1
Manganese	iMET1WCICP	mg/L	9.7			
Manganese	iMET1WCMS	mg/L		0.0012	<0.0001	0.0001
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.001	<0.010	<0.001	<0.001
Nickel	iMET1WCICP	mg/L	0.09			
Nickel	iMET1WCMS	mg/L		<0.010	<0.001	<0.001
Nitrogen, total	iNP1WTFIA	mg/L		0.06		
pH	iPH1WASE		1.9	13.4	6.0	1.7
Phosphorus	iMET1WCICP	mg/L	<0.1	<1.0	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	8.8	6050	<0.1	0.6
Selenium	iMET1WCMS	mg/L	<0.001	<0.010	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	22	<0.50	<0.05	<0.05
Silver	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	43.1	4.0	<0.1	0.6
Strontium	iMET1WCMS	mg/L	0.50	0.0011	<0.0001	0.0012
Sulphate (from S)	iMET1WCICP	mg/L	38.6	<1.0	<0.1	<0.1
TDS (calculated)	iSOL1WDCA	mg/L	3500	27000	6	4800
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	0.0001	<0.0010	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0056	<0.0050	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	0.0043	<0.0010	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.0012	<0.0010	<0.0001	<0.0001
Yttrium*	iMET1WCMS	mg/L	0.0091	<0.0020	<0.0002	<0.0002
Zinc	iMET1WCMS	mg/L	0.17	<0.010	<0.001	<0.001
Date Analysed	iALK1WATI		13/11/2023	14/11/2023	13/11/2023	13/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	iEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023

LAB ID			013	014	015	016
Client ID^						
Sampled^						
Analyte	Method	Unit				
Date Analysed	iMET1WCICP		22/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA			16/11/2023		
	iPH1WASE		3/11/2023	1/11/2023	1/11/2023	3/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold
LAB ID			017	018	019	020
Client ID^			2T10	2T1	2T2	2T3
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	43	3010	498	67
Aluminium	iMET1WCICP	mg/L	0.011	8.3	1.5	0.32
Antimony	iMET1WCMS	mg/L	0.0002	<0.0010	<0.0010	<0.0010
Arsenic	iMET1WCMS	mg/L	0.003	0.11	0.060	0.022
Barium	iMET1WCMS	mg/L	0.020	0.0021	0.0011	0.0050
Beryllium	iMET1WCMS	mg/L	<0.0001	0.0036	<0.0010	<0.0010
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0010	<0.0010
Boron	iMET1WCICP	mg/L	0.09			
Boron	iMET1WCMS	mg/L		0.16	0.17	0.13
Cadmium	iMET1WCMS	mg/L	0.0004	<0.0010	<0.0010	<0.0010
Calcium	iMET1WCICP	mg/L	6.7	<1.0	<10.0	<1.0
Chloride	iCO1WCDA	mg/L	8	8	9	8
Chromium	iMET1WCMS	mg/L	<0.0005	<0.0050	<0.0050	<0.0050
Cobalt	iMET1WCMS	mg/L	0.0028	0.0025	0.0023	0.0029
Copper	iMET1WCMS	mg/L	0.0007	0.0067	0.0036	0.0013
Electrical Conductivity	iEC1WZSE	mS/m	17.6	1240	191	26.1
Fluoride	iF1WASE	mg/L	0.75	1.2	1.0	0.80
Iron	iMET1WCICP	mg/L	<0.005	<0.050	<0.50	0.15
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0010	<0.0010
Lead	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0010	<0.0010
Lithium	iMET1WCMS	mg/L	0.0013	<0.0010	<0.0010	<0.0010
Magnesium	iMET1WCICP	mg/L	3.7	<1.0	<10.0	<1.0
Manganese	iMET1WCMS	mg/L	0.0002	0.0040	<0.0010	0.0012
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0010	<0.0010
Molybdenum	iMET1WCMS	mg/L	0.002	<0.010	<0.010	<0.010
Nickel	iMET1WCMS	mg/L	0.001	<0.010	<0.010	<0.010
Nitrogen, total	iNP1WTFIA	mg/L	0.80	1.2	1.4	1.3
pH	iPH1WASE		8.7	12.8	11.9	10.3
Phosphorus	iMET1WCICP	mg/L	<0.1	<1.0	<10	<1.0
Potassium	iMET1WCICP	mg/L	7.5	1630	352	48.8
Selenium	iMET1WCMS	mg/L	<0.001	<0.010	<0.010	<0.010
Silicon	iMET1WCICP	mg/L	10	96	61	17
Silver	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0010	<0.0010
Sodium	iMET1WCICP	mg/L	19.6	23.6	18.8	16.2
Strontium	iMET1WCMS	mg/L	0.043	0.0057	0.0056	0.0058
Sulphate (from S)	iMET1WCICP	mg/L	21.5	27.2	26.5	19.7
TDS (calculated)	iSOL1WDCA	mg/L	97	6800	1000	140
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0010	<0.0010

LAB ID			017	018	019	020
Client ID^			2T10	2T1	2T2	2T3
Sampled^						
Analyte	Method	Unit				
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0010	<0.0010
Tin	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0010	<0.0010
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0050	<0.0050	<0.0050
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0010	<0.0010	<0.0010
Vanadium	iMET1WCMS	mg/L	0.0024	0.18	0.13	0.044
Yttrium*	iMET1WCMS	mg/L	0.0002	<0.0020	<0.0020	<0.0020
Zinc	iMET1WCMS	mg/L	<0.001	0.017	0.012	0.012
Date Analysed	iALK1WATI		13/11/2023	14/11/2023	14/11/2023	14/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	IEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		28/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA		16/11/2023	16/11/2023	16/11/2023	16/11/2023
	iPH1WASE		1/11/2023	1/11/2023	1/11/2023	3/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold

LAB ID			021	022	023	024
Client ID^			2T4	2T5	2T6	2T7
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	39	44	46	3
Aluminium	iMET1WCICP	mg/L	0.012	0.016	<0.005	0.009
Antimony	iMET1WCMS	mg/L	0.0002	0.0002	0.0002	<0.0001
Arsenic	iMET1WCMS	mg/L	0.002	0.002	<0.001	<0.001
Barium	iMET1WCMS	mg/L	0.014	0.030	0.052	0.13
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.10	0.09	0.11	0.16
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0005
Calcium	iMET1WCICP	mg/L	5.8	7.6	15.8	36.3
Chloride	iCO1WCDA	mg/L	7	9	9	8
Chromium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	iMET1WCMS	mg/L	0.0023	0.0029	0.0033	0.021
Copper	iMET1WCMS	mg/L	0.0006	0.0008	0.0008	0.0004
Electrical Conductivity	IEC1WZSE	mS/m	15.3	18.9	29.5	53.4
Fluoride	iF1WASE	mg/L	0.67	0.75	0.51	0.06
Iron	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	<0.005
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCMS	mg/L	0.0010	0.0011	0.0030	0.0084
Magnesium	iMET1WCICP	mg/L	3.1	4.3	8.9	18.7
Manganese	iMET1WCMS	mg/L	<0.0001	0.0001	0.011	0.26
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	0.001	0.001	<0.001	<0.001
Nickel	iMET1WCMS	mg/L	0.001	0.001	0.002	0.012
Nitrogen, total	iNP1WTFIA	mg/L	0.87	2.2		
pH	iPH1WASE		8.7	8.4	7.4	5.2
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1

LAB ID			021	022	023	024
Client ID^			2T4	2T5	2T6	2T7
Sampled^						
Analyte	Method	Unit				
Potassium	iMET1WCICP	mg/L	7.1	7.8	10.4	14.9
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	9.5	10	10	13
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	17.3	20.8	22.7	22.3
Strontium	iMET1WCMS	mg/L	0.034	0.051	0.096	0.21
Sulphate (from S)	iMET1WCICP	mg/L	18.7	22.9	22.9	17.6
TDS (calculated)	iSOL1WDCA	mg/L	84	100	160	290
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.0023	0.0019	0.0004	<0.0001
Yttrium*	iMET1WCMS	mg/L	<0.0002	0.0002	<0.0002	<0.0002
Zinc	iMET1WCMS	mg/L	<0.001	0.002	<0.001	0.003
Date Analysed	iALK1WATI		14/11/2023	13/11/2023	13/11/2023	13/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	iEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		28/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA		16/11/2023	16/11/2023		
	iPH1WASE		3/11/2023	1/11/2023	1/11/2023	7/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold

LAB ID			025	026	027	028
Client ID^			2T8	2T9	3B1	3B2
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	<1	<1	10900	1
Aluminium	iMET1WCICP	mg/L	0.77	19	<0.050	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0001
Arsenic	iMET1WCMS	mg/L	0.003	0.004	<0.010	<0.001
Barium	iMET1WCMS	mg/L	0.22	1.1	0.0046	<0.0001
Beryllium	iMET1WCMS	mg/L	0.0008	0.0075	<0.0010	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0001
Boron	iMET1WCICP	mg/L	0.18	0.23		
Boron	iMET1WCMS	mg/L			<0.050	<0.005
Cadmium	iMET1WCMS	mg/L	0.0017	0.0020	<0.0010	<0.0001
Calcium	iMET1WCICP	mg/L	64.4	109	<1.0	<0.1
Chloride	iCO1WCDA	mg/L	9	9	<1	<1
Chromium	iMET1WCMS	mg/L	0.0010	0.065	<0.0050	<0.0005
Cobalt	iMET1WCMS	mg/L	0.11	0.40	<0.0010	<0.0001
Copper	iMET1WCMS	mg/L	0.0011	0.032	0.0011	<0.0001
Electrical Conductivity	iEC1WZSE	mS/m	86.4	468	4990	0.2
Fluoride	iF1WASE	mg/L	0.32	0.64	1.8	<0.05
Iron	iMET1WCICP	mg/L	0.018	3.1	<0.050	<0.005
Lanthanum	iMET1WCMS	mg/L	0.0004	0.0062	<0.0010	<0.0001

LAB ID			025	026	027	028
Client ID^			2T8	2T9	3B1	3B2
Sampled^						
Analyte	Method	Unit				
Lead	iMET1WCMS	mg/L	<0.0001	0.0064	<0.0010	<0.0001
Lithium	iMET1WCMS	mg/L	0.011	0.016	<0.0010	<0.0001
Magnesium	iMET1WCICP	mg/L	31.7	53.0	<1.0	<0.1
Manganese	iMET1WCICP	mg/L		6.9		
Manganese	iMET1WCMS	mg/L	1.4		0.0014	<0.0001
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.001	<0.001	<0.010	<0.001
Nickel	iMET1WCMS	mg/L	0.046	0.15	<0.010	<0.001
Nitrogen, total	iNP1WTFIA	mg/L			0.11	
pH	iPH1WASE		4.1	2.1	13.4	5.9
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<1.0	<0.1
Potassium	iMET1WCICP	mg/L	20.0	29.9	6010	<0.1
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.010	<0.001
Silicon	iMET1WCICP	mg/L	20	43	<0.50	<0.05
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0001
Sodium	iMET1WCICP	mg/L	25.0	26.4	3.6	<0.1
Strontium	iMET1WCMS	mg/L	0.39	0.71	0.0010	<0.0001
Sulphate (from S)	iMET1WCICP	mg/L	17.1	10.1	<1.0	<0.1
TDS (calculated)	iSOL1WDCA	mg/L	480	2600	27000	<5
Thallium	iMET1WCMS	mg/L	0.0001	0.0007	<0.0010	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	0.0017	<0.0050	<0.0005
Uranium	iMET1WCMS	mg/L	0.0004	0.0099	<0.0010	<0.0001
Vanadium	iMET1WCMS	mg/L	<0.0001	0.0052	<0.0010	<0.0001
Yttrium*	iMET1WCMS	mg/L	0.0009	0.019	<0.0020	<0.0002
Zinc	iMET1WCMS	mg/L	0.009	0.15	0.010	<0.001
Date Analysed	iALK1WATI		13/11/2023	13/11/2023	14/11/2023	13/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	iEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	28/11/2023	27/11/2023
	iMET1WCICP		28/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA				16/11/2023	
	iPH1WASE		3/11/2023	3/11/2023	1/11/2023	1/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold

LAB ID			029	030	031	032
Client ID^			3B3	3T10	3T1	3T2
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	<1	5	10100	647
Aluminium	iMET1WCICP	mg/L	<0.005	0.040	21	4.8
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0010
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	0.082	0.057
Barium	iMET1WCMS	mg/L	0.0002	0.0021	<0.0010	<0.0010
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0010
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0010
Boron	iMET1WCMS	mg/L	<0.005	0.041	0.056	0.071

LAB ID			029	030	031	032
Client ID^			3B3	3T10	3T1	3T2
Sampled^						
Analyte	Method	Unit				
Cadmium	iMET1WCMS	mg/L	0.0004	0.0002	<0.0010	<0.0010
Calcium	iMET1WCICP	mg/L	<0.1	1.1	<1.0	<1.0
Chloride	iCO1WCDA	mg/L	<1	2	2	2
Chromium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0050	<0.0050
Cobalt	iMET1WCMS	mg/L	<0.0001	0.021	0.013	0.011
Copper	iMET1WCMS	mg/L	0.0004	0.0054	0.010	0.0062
Electrical Conductivity	IEC1WZSE	mS/m	168	4.5	4490	238
Fluoride	iF1WASE	mg/L	<0.05	0.22	1.2	0.88
Iron	iMET1WCICP	mg/L	<0.005	0.093	0.22	2.2
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0010
Lead	iMET1WCMS	mg/L	<0.0001	0.0002	<0.0010	<0.0010
Lithium	iMET1WCMS	mg/L	<0.0001	0.0012	<0.0010	<0.0010
Magnesium	iMET1WCICP	mg/L	<0.1	0.6	<1.0	<1.0
Manganese	iMET1WCMS	mg/L	<0.0001	0.018	0.0033	0.0025
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0010
Molybdenum	iMET1WCMS	mg/L	<0.001	<0.001	0.019	0.016
Nickel	iMET1WCMS	mg/L	<0.001	0.009	0.011	0.011
Nitrogen, total	iNP1WTFIA	mg/L			0.85	1.4
pH	iPH1WASE		2.3	7.2	13.3	12.1
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<1.0	<1.0
Potassium	iMET1WCICP	mg/L	<0.1	1.7	5420	407
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.010	<0.010
Silicon	iMET1WCICP	mg/L	<0.05	4.7	77	34
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0010
Sodium	iMET1WCICP	mg/L	<0.1	6.2	7.4	4.0
Strontium	iMET1WCMS	mg/L	0.0003	0.0069	<0.0010	<0.0010
Sulphate (from S)	iMET1WCICP	mg/L	<0.1	11.5	9.8	9.9
TDS (calculated)	iSOL1WDCA	mg/L	930	25	25000	1300
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0010
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0010	<0.0010
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0013	<0.0010
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0050	0.011
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0015	<0.0010
Vanadium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.067	0.036
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0020	<0.0020
Zinc	iMET1WCMS	mg/L	<0.001	0.024	0.014	0.017
Date Analysed	iALK1WATI		13/11/2023	13/11/2023	14/11/2023	14/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	IEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		28/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA				16/11/2023	16/11/2023
	iPH1WASE		3/11/2023	1/11/2023	1/11/2023	1/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold

LAB ID Client ID^			033 3T3	034 3T4	035 3T5	036 3T6
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	28	12	7	3
Aluminium	iMET1WCICP	mg/L	0.54	0.16	0.46	0.19
Antimony	iMET1WCMS	mg/L	<0.0010	0.0002	0.0002	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.010	0.001	<0.001	<0.001
Barium	iMET1WCMS	mg/L	<0.0010	0.0002	0.0012	0.0032
Beryllium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L		0.07	0.09	
Boron	iMET1WCMS	mg/L	0.095			0.031
Cadmium	iMET1WCMS	mg/L	<0.0010	0.0001	0.0002	<0.0001
Calcium	iMET1WCICP	mg/L	<1.0	<0.1	0.2	1.0
Chloride	iCO1WCDA	mg/L	2	2	2	2
Chromium	iMET1WCMS	mg/L	<0.0050	<0.0005	<0.0005	<0.0005
Cobalt	iMET1WCMS	mg/L	0.015	0.016	0.013	0.022
Copper	iMET1WCMS	mg/L	0.0028	0.0038	0.0034	0.0050
Electrical Conductivity	iEC1WZSE	mS/m	10.9	7.2	5.0	4.1
Fluoride	iF1WASE	mg/L	0.58	0.59	0.46	0.24
Iron	iMET1WCICP	mg/L	0.70	0.24	0.61	0.14
Lanthanum	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	<0.0010	0.0002	0.0002	0.0002
Lithium	iMET1WCMS	mg/L	<0.0010	0.0004	0.0007	0.0013
Magnesium	iMET1WCICP	mg/L	<1.0	<0.1	<0.1	0.6
Manganese	iMET1WCMS	mg/L	0.0036	0.0061	0.020	0.016
Mercury	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.010	0.005	0.002	<0.001
Nickel	iMET1WCMS	mg/L	<0.010	0.009	0.008	0.009
Nitrogen, total	iNP1WTFIA	mg/L	0.99	1.0	0.63	
pH	iPH1WASE		10.0	9.0	8.2	7.1
Phosphorus	iMET1WCICP	mg/L	<1.0	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	24.3	15.2	8.7	1.6
Selenium	iMET1WCMS	mg/L	<0.010	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	8.2	5.3	4.9	5.2
Silver	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	3.5	4.3	4.5	5.9
Strontium	iMET1WCMS	mg/L	<0.0010	0.0003	0.0017	0.0067
Sulphate (from S)	iMET1WCICP	mg/L	10.2	13.1	10.3	11.1
TDS (calculated)	iSOL1WDCA	mg/L	60	39	28	22
Thallium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0050	0.0013	0.0033	0.0008
Uranium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.0051	0.0003	0.0004	0.0002
Yttrium*	iMET1WCMS	mg/L	<0.0020	0.0005	0.0003	<0.0002
Zinc	iMET1WCMS	mg/L	0.014	0.005	0.011	0.026
Date Analysed	iALK1WATI		14/11/2023	14/11/2023	13/11/2023	13/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	iEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		28/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023

LAB ID		033	034	035		
Client ID^						
Sampled^						
Analyte	Method	Unit				
Date Analysed	iNP1WTFIA	16/11/2023	16/11/2023	16/11/2023		
	iPH1WASE	1/11/2023	3/11/2023	1/11/2023	1/11/2023	
	iSOL1WDCA	4/12/2023	4/12/2023	4/12/2023	4/12/2023	
Sample Condition		Cold	Cold	Cold	Cold	
LAB ID		037	038	039	040	
Client ID^		3T7	3T8	3T9	4B1	
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	<1	<1	<1	6500
Aluminium	iMET1WCICP	mg/L	<0.005	0.18	9.8	<0.050
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	0.001	<0.010
Barium	iMET1WCMS	mg/L	0.017	0.062	0.50	0.0029
Beryllium	iMET1WCMS	mg/L	<0.0001	0.0002	0.0017	<0.0010
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Boron	iMET1WCMS	mg/L	0.054	0.041	0.051	<0.050
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0007	0.0014	<0.0010
Calcium	iMET1WCICP	mg/L	4.2	8.3	12.4	<1.0
Chloride	iCO1WCDA	mg/L	1	1	2	<1
Chromium	iMET1WCMS	mg/L	<0.0005	<0.0005	0.071	<0.0050
Cobalt	iMET1WCMS	mg/L	0.023	0.030	0.091	<0.0010
Copper	iMET1WCMS	mg/L	0.0007	0.0004	0.021	<0.0010
Electrical Conductivity	iEC1WZSE	mS/m	8.4	14.0	422	3080
Fluoride	iF1WASE	mg/L	<0.05	0.06	0.23	<0.50
Iron	iMET1WCICP	mg/L	0.097	0.12	11	<0.050
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	0.016	<0.0010
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	0.010	<0.0010
Lithium	iMET1WCMS	mg/L	0.0028	0.0031	0.0036	<0.0010
Magnesium	iMET1WCICP	mg/L	2.3	4.3	6.2	<1.0
Manganese	iMET1WCMS	mg/L	0.085	0.40	2.4	0.0014
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Molybdenum	iMET1WCMS	mg/L	<0.001	0.003	<0.001	<0.010
Nickel	iMET1WCMS	mg/L	0.007	0.012	0.036	<0.010
Nitrogen, total	iNP1WTFIA	mg/L				0.06
pH	iPH1WASE		5.4	4.4	2.1	13.2
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<1.0
Potassium	iMET1WCICP	mg/L	2.5	3.0	4.3	3700
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.010
Silicon	iMET1WCICP	mg/L	5.4	7.1	14	<0.50
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Sodium	iMET1WCICP	mg/L	6.4	7.0	7.8	2.2
Strontium	iMET1WCMS	mg/L	0.029	0.061	0.10	<0.0010
Sulphate (from S)	iMET1WCICP	mg/L	6.9	4.1	1.4	<1.0
TDS (calculated)	iSOL1WDCA	mg/L	46	77	2300	17000
Thallium	iMET1WCMS	mg/L	<0.0001	0.0001	0.0014	<0.0010
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	0.0051	<0.0050

LAB ID			037	038	039	040
Client ID^			3T7	3T8	3T9	4B1
Sampled^						
Analyte	Method	Unit				
Uranium	iMET1WCMS	mg/L	<0.0001	0.0001	0.011	<0.0010
Vanadium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	<0.0010
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	0.022	<0.0020
Zinc	iMET1WCMS	mg/L	0.002	0.008	0.16	<0.010
Date Analysed	iALK1WATI		13/11/2023	13/11/2023	13/11/2023	14/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	IEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	28/11/2023
	iMET1WCICP		28/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA					16/11/2023
	iPH1WASE		3/11/2023	3/11/2023	3/11/2023	1/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold
LAB ID			041	042	043	044
Client ID^			4B2	4B3	4T10	4T1
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	<1	<1	4	5610
Aluminium	iMET1WCICP	mg/L	<0.005	<0.005	0.041	11
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	0.21
Barium	iMET1WCMS	mg/L	<0.0001	0.0007	0.011	<0.0010
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Boron	iMET1WCICP	mg/L			0.11	
Boron	iMET1WCMS	mg/L	<0.005	0.015		0.16
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0006	<0.0001	<0.0010
Calcium	iMET1WCICP	mg/L	<0.1	0.2	2.4	<1.0
Chloride	iCO1WCDA	mg/L	<1	<1	14	14
Chromium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0050
Cobalt	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0005	0.0069
Copper	iMET1WCMS	mg/L	<0.0001	0.0017	0.0004	0.035
Electrical Conductivity	IEC1WZSE	mS/m	0.6	831	11.6	2360
Fluoride	iF1WASE	mg/L	<0.05	<0.05	0.22	2.2
Iron	iMET1WCICP	mg/L	<0.005	<0.005	0.022	<0.050
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Lithium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0053	<0.0010
Magnesium	iMET1WCICP	mg/L	<0.1	<0.1	2.0	<1.0
Manganese	iMET1WCMS	mg/L	<0.0001	<0.0001	0.015	0.0019
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Molybdenum	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.010
Nickel	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.010
Nitrogen, total	iNP1WTFIA	mg/L				1.1
pH	iPH1WASE		5.8	1.8	6.8	13.1
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<1.0
Potassium	iMET1WCICP	mg/L	<0.1	0.5	6.6	3020
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.010

LAB ID			041	042	043	044
Client ID^			4B2	4B3	4T10	4T1
Sampled^						
Analyte	Method	Unit				
Silicon	iMET1WCICP	mg/L	<0.05	<0.05	13	150
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Sodium	iMET1WCICP	mg/L	<0.1	0.6	11.3	14.8
Strontium	iMET1WCMS	mg/L	<0.0001	0.0011	0.014	<0.0010
Sulphate (from S)	iMET1WCICP	mg/L	<0.1	0.1	17.3	24.2
TDS (calculated)	iSOL1WDCA	mg/L	<5	4600	64	13000
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0050
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0010
Vanadium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0003	0.50
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0020
Zinc	iMET1WCMS	mg/L	<0.001	<0.001	0.003	0.012
Date Analysed	iALK1WATI		13/11/2023	13/11/2023	13/11/2023	14/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	IEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		28/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA					16/11/2023
	iPH1WASE		1/11/2023	3/11/2023	1/11/2023	1/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold
LAB ID			045	046	047	048
Client ID^			4T2	4T3	4T4	4T5
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	452	54	16	26
Aluminium	iMET1WCICP	mg/L	0.33	0.25	0.14	0.18
Antimony	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0001	0.0001
Arsenic	iMET1WCMS	mg/L	0.11	0.029	0.006	0.003
Barium	iMET1WCMS	mg/L	<0.0010	0.0016	0.0036	0.0029
Beryllium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0001	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L			0.08	0.10
Boron	iMET1WCMS	mg/L	0.18	0.088		
Cadmium	iMET1WCMS	mg/L	<0.0010	<0.0010	0.0001	0.0001
Calcium	iMET1WCICP	mg/L	<1.0	<1.0	1.0	0.9
Chloride	iCO1WCDA	mg/L	15	14	14	14
Chromium	iMET1WCMS	mg/L	<0.0050	<0.0050	0.0006	0.0007
Cobalt	iMET1WCMS	mg/L	0.0017	<0.0010	0.0002	0.0002
Copper	iMET1WCMS	mg/L	0.018	0.0038	0.0009	0.0008
Electrical Conductivity	IEC1WZSE	mS/m	125	25.2	15.2	17.2
Fluoride	iF1WASE	mg/L	2.1	1.9	1.3	1.0
Iron	iMET1WCICP	mg/L	<0.050	0.13	0.098	0.15
Lanthanum	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0001	<0.0001
Lithium	iMET1WCMS	mg/L	<0.0010	<0.0010	0.0003	0.0005

LAB ID			045	046	047	048
Client ID^			4T2	4T3	4T4	4T5
Sampled^						
Analyte	Method	Unit				
Magnesium	iMET1WCICP	mg/L	<1.0	<1.0	0.7	0.7
Manganese	iMET1WCMS	mg/L	<0.0010	0.0013	0.0006	0.0010
Mercury	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.010	<0.010	0.002	0.002
Nickel	iMET1WCMS	mg/L	<0.010	<0.010	<0.001	<0.001
Nitrogen, total	iNP1WTFIA	mg/L	1.4	0.98	0.80	0.59
pH	iPH1WASE		11.8	10.1	8.9	8.4
Phosphorus	iMET1WCICP	mg/L	<1.0	<1.0	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	310	55.5	25.8	30.5
Selenium	iMET1WCMS	mg/L	<0.010	<0.010	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	75	17	12	13
Silver	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	10.7	8.1	9.8	10.5
Strontium	iMET1WCMS	mg/L	0.0014	0.0021	0.0054	0.0053
Sulphate (from S)	iMET1WCICP	mg/L	19.7	17.3	17.5	19.9
TDS (calculated)	iSOL1WDCA	mg/L	690	140	84	94
Thallium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0050	<0.0050	0.0013	0.0020
Uranium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.33	0.087	0.0056	0.0038
Yttrium*	iMET1WCMS	mg/L	<0.0020	<0.0020	<0.0002	<0.0002
Zinc	iMET1WCMS	mg/L	0.014	0.013	<0.001	0.001
Date Analysed	iALK1WATI		14/11/2023	14/11/2023	14/11/2023	13/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	iEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		28/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA		16/11/2023	16/11/2023	16/11/2023	16/11/2023
	iPH1WASE		1/11/2023	1/11/2023	3/11/2023	1/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold

LAB ID			049	050	051	052
Client ID^			4T6	4T7	4T8	4T9
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	6	2	<1	<1
Aluminium	iMET1WCICP	mg/L	0.016	<0.005	0.51	9.6
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	0.003
Barium	iMET1WCMS	mg/L	0.015	0.048	0.30	2.2
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0036	0.011
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.10	0.11	0.15	0.19
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0004	0.0012	0.0017
Calcium	iMET1WCICP	mg/L	2.2	7.0	33.8	76.8
Chloride	iCO1WCDA	mg/L	14	13	14	14

LAB ID			049	050	051	052
Client ID^			4T6	4T7	4T8	4T9
Sampled^						
Analyte	Method	Unit				
Chromium	iMET1WCMS	mg/L	<0.0005	<0.0005	0.0014	0.047
Cobalt	iMET1WCMS	mg/L	0.0004	0.0064	0.11	0.43
Copper	iMET1WCMS	mg/L	0.0002	0.0017	0.0050	0.032
Electrical Conductivity	iEC1WZSE	mS/m	11.1	18.9	61.1	546
Fluoride	iF1WASE	mg/L	0.32	0.05	0.14	0.36
Iron	iMET1WCICP	mg/L	0.008	<0.005	0.007	2.2
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0006	0.014
Lead	iMET1WCMS	mg/L	<0.0001	0.0002	0.0002	0.0070
Lithium	iMET1WCMS	mg/L	0.0017	0.0079	0.015	0.024
Magnesium	iMET1WCICP	mg/L	1.9	6.0	27.8	61.5
Manganese	iMET1WCICP	mg/L				9.0
Manganese	iMET1WCMS	mg/L	0.013	0.10	2.0	
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Nickel	iMET1WCMS	mg/L	<0.001	0.005	0.046	0.17
pH	iPH1WASE		7.0	5.7	3.8	2.0
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	8.0	9.5	18.0	27.6
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	13	14	25	53
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	10.9	12.4	14.9	16.0
Strontium	iMET1WCMS	mg/L	0.013	0.042	0.21	0.53
Sulphate (from S)	iMET1WCICP	mg/L	17.4	14.4	9.9	3.3
TDS (calculated)	iSOL1WDCA	mg/L	61	100	340	3000
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0001	0.0004
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	0.0010
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0003	0.0091
Vanadium	iMET1WCMS	mg/L	0.0004	<0.0001	<0.0001	0.0035
Yttrium*	iMET1WCMS	mg/L	<0.0002	<0.0002	0.0012	0.026
Zinc	iMET1WCMS	mg/L	<0.001	0.017	0.011	0.052
Date Analysed	iALK1WATI		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	iEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		28/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iPH1WASE		1/11/2023	3/11/2023	1/11/2023	3/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold

LAB ID			053	054	055	056
Client ID^			4B1	4B2	4B3	5T10
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	5820	<1	<1	8
Aluminium	iMET1WCICP	mg/L	<0.050	<0.005	0.026	0.010
Antimony	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001

LAB ID			053	054	055	056
Client ID^			4B1	4B2	4B3	5T10
Sampled^						
Analyte	Method	Unit				
Arsenic	iMET1WCMS	mg/L	<0.010	<0.001	<0.001	<0.001
Barium	iMET1WCMS	mg/L	0.0026	<0.0001	0.0003	0.0009
Beryllium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Boron	iMET1WCMS	mg/L	<0.050	<0.005	<0.005	0.043
Cadmium	iMET1WCMS	mg/L	<0.0010	<0.0001	0.0004	0.0010
Calcium	iMET1WCICP	mg/L	<1.0	<0.1	<0.1	0.5
Chloride	iCO1WCDA	mg/L	<1	<1	<1	10
Chromium	iMET1WCMS	mg/L	<0.0050	<0.0005	<0.0005	0.0014
Cobalt	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	0.039
Copper	iMET1WCMS	mg/L	<0.0010	<0.0001	0.0004	0.0054
Electrical Conductivity	iEC1WZSE	mS/m	2690	<0.2	169	10.5
Fluoride	iF1WASE	mg/L	<0.50	<0.05	<0.05	0.82
Iron	iMET1WCICP	mg/L	<0.050	<0.005	0.016	0.073
Lanthanum	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	0.0002
Lithium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	0.0046
Magnesium	iMET1WCICP	mg/L	<1.0	<0.1	<0.1	0.4
Manganese	iMET1WCMS	mg/L	0.0014	<0.0001	0.0006	0.012
Mercury	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.010	<0.001	<0.001	<0.001
Nickel	iMET1WCMS	mg/L	<0.010	<0.001	<0.001	0.033
Nitrogen, total	iNP1WTFIA	mg/L	0.03			
pH	iPH1WASE		13.2	5.7	2.5	7.4
Phosphorus	iMET1WCICP	mg/L	<1.0	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3350	<0.1	0.1	2.6
Selenium	iMET1WCMS	mg/L	<0.010	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	<0.50	<0.05	<0.05	8.7
Silver	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	1.9	<0.1	0.1	20.6
Strontium	iMET1WCMS	mg/L	<0.0010	<0.0001	0.0003	0.0025
Sulphate (from S)	iMET1WCICP	mg/L	<1.0	<0.1	<0.1	29.0
TDS (calculated)	iSOL1WDCA	mg/L	15000	<5	930	58
Thallium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0050	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	<0.0010	<0.0001	<0.0001	0.0001
Yttrium*	iMET1WCMS	mg/L	<0.0020	<0.0002	<0.0002	0.0008
Zinc	iMET1WCMS	mg/L	<0.010	<0.001	<0.001	0.26
Date Analysed	iALK1WATI		14/11/2023	13/11/2023	13/11/2023	13/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	iEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		28/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		28/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA		16/11/2023			
	iPH1WASE		1/11/2023	1/11/2023	1/11/2023	1/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold

LAB ID			057	058	059	060
Client ID^			5T1	5T2	5T3	5T4
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	4700	274	79	24
Aluminium	iMET1WCICP	mg/L	6.4	0.38	0.17	0.006
Antimony	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Arsenic	iMET1WCMS	mg/L	0.019	<0.010	0.024	<0.001
Barium	iMET1WCMS	mg/L	0.0034	<0.0010	<0.0010	0.0015
Beryllium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Boron	iMET1WCMS	mg/L	0.065	0.078	0.10	0.040
Cadmium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	0.0003
Calcium	iMET1WCICP	mg/L	6.4	2.2	<1.0	0.8
Chloride	iCO1WCDA	mg/L	10	10	11	10
Chromium	iMET1WCMS	mg/L	<0.0050	<0.0050	<0.0050	0.0016
Cobalt	iMET1WCMS	mg/L	0.013	0.017	0.028	0.035
Copper	iMET1WCMS	mg/L	0.0015	0.0012	0.0029	0.0044
Electrical Conductivity	iEC1WZSE	mS/m	2120	76.9	29.3	14.4
Fluoride	iF1WASE	mg/L	2.7	2.4	2.3	1.6
Iron	iMET1WCICP	mg/L	0.76	0.10	<0.050	0.039
Lanthanum	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	0.0001
Lead	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Lithium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	0.0016
Magnesium	iMET1WCICP	mg/L	<1.0	<1.0	<1.0	0.7
Manganese	iMET1WCMS	mg/L	<0.0010	<0.0010	0.0021	0.017
Mercury	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.010	<0.010	<0.010	0.004
Nickel	iMET1WCMS	mg/L	0.033	0.033	0.036	0.035
Nitrogen, total	iNP1WTFIA	mg/L	1.4	1.6	3.1	0.87
pH	iPH1WASE		13.0	11.6	10.6	9.4
Phosphorus	iMET1WCICP	mg/L	<1.0	<1.0	<1.0	<0.1
Potassium	iMET1WCICP	mg/L	2640	185	60.1	11.9
Selenium	iMET1WCMS	mg/L	<0.010	<0.010	<0.010	<0.001
Silicon	iMET1WCICP	mg/L	47	24	8.4	6.4
Silver	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Sodium	iMET1WCICP	mg/L	39.0	22.4	17.8	21.3
Strontium	iMET1WCMS	mg/L	0.040	0.0076	0.0023	0.0042
Sulphate (from S)	iMET1WCICP	mg/L	15.8	21.6	23.7	29.6
TDS (calculated)	iSOL1WDCA	mg/L	12000	420	160	79
Thallium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Tin	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0050	<0.0050	<0.0050	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0010	<0.0010	<0.0010	<0.0001
Vanadium	iMET1WCMS	mg/L	0.028	0.016	0.0050	0.0004
Yttrium*	iMET1WCMS	mg/L	<0.0020	<0.0020	<0.0020	0.0009
Zinc	iMET1WCMS	mg/L	0.014	0.015	0.023	0.23
Date Analysed	iALK1WATI		14/11/2023	14/11/2023	14/11/2023	14/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	iEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		28/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023

LAB ID			057	058	059	060
Client ID^						
Sampled^						
Analyte	Method	Unit				
Date Analysed	iNP1WTFIA		16/11/2023	16/11/2023	16/11/2023	16/11/2023
	iPH1WASE		1/11/2023	2/11/2023	3/11/2023	3/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold
LAB ID			061	062	063	064
Client ID^			5T5	5T6	5T7	5T8
Sampled^						
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	5	6	1	<1
Aluminium	iMET1WCICP	mg/L	0.009	0.005	0.013	0.13
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	0.001	<0.001
Barium	iMET1WCMS	mg/L	0.0004	0.0005	0.0018	0.012
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0004
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L		0.08		0.08
Boron	iMET1WCMS	mg/L	0.043		0.054	
Cadmium	iMET1WCMS	mg/L	0.0005	0.0003	<0.0001	0.0017
Calcium	iMET1WCICP	mg/L	0.4	0.5	3.1	15.3
Chloride	iCO1WCDA	mg/L	10	9	10	9
Chromium	iMET1WCMS	mg/L	0.0009	0.0012	<0.0005	0.0010
Cobalt	iMET1WCMS	mg/L	0.035	0.037	0.043	0.031
Copper	iMET1WCMS	mg/L	0.0070	0.0049	0.0019	0.0007
Electrical Conductivity	iEC1WZSE	mS/m	11.3	10.1	19.6	42.4
Fluoride	iF1WASE	mg/L	1.1	0.72	0.09	0.07
Iron	iMET1WCICP	mg/L	0.062	0.067	0.18	0.23
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	0.0001	0.0002	<0.0001	<0.0001
Lithium	iMET1WCMS	mg/L	0.0036	0.0049	0.016	0.018
Magnesium	iMET1WCICP	mg/L	0.3	0.4	2.7	12.6
Manganese	iMET1WCMS	mg/L	0.017	0.0091	0.017	0.11
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	0.002	<0.001	<0.001	<0.001
Nickel	iMET1WCMS	mg/L	0.034	0.030	0.025	0.017
Nitrogen, total	iNP1WTFIA	mg/L	1.0			
pH	iPH1WASE		7.9	7.1	5.2	4.0
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.6	2.5	5.0	8.3
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	7.1	8.2	11	16
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	20.2	20.1	28.5	31.9
Strontium	iMET1WCMS	mg/L	0.0022	0.0025	0.016	0.075
Sulphate (from S)	iMET1WCICP	mg/L	28.7	26.4	24.2	14.9
TDS (calculated)	iSOL1WDCA	mg/L	62	55	110	230
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001

LAB ID			061	062	063	064
Client ID^			5T5	5T6	5T7	5T8
Sampled^						
Analyte	Method	Unit				
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0003
Vanadium	iMET1WCMS	mg/L	0.0002	<0.0001	<0.0001	<0.0001
Yttrium*	iMET1WCMS	mg/L	0.0008	0.0006	<0.0002	<0.0002
Zinc	iMET1WCMS	mg/L	0.27	0.25	0.006	0.036
Date Analysed	iALK1WATI		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iCO1WCDA		10/11/2023	10/11/2023	10/11/2023	10/11/2023
	IEC1WZSE		13/11/2023	13/11/2023	13/11/2023	13/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		28/11/2023	28/11/2023	28/11/2023	28/11/2023
	iMET1WCMS		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iNP1WTFIA		16/11/2023			
	iPH1WASE		1/11/2023	1/11/2023	1/11/2023	7/11/2023
	iSOL1WDCA		4/12/2023	4/12/2023	4/12/2023	4/12/2023
Sample Condition			Cold	Cold	Cold	Cold

LAB ID 065
Client ID^ 5T9

Sampled^

Analyte	Method	Unit	
Alkalinity as CaCO3	iALK1WATI	mg/L	<1
Aluminium	iMET1WCICP	mg/L	1.1
Antimony	iMET1WCMS	mg/L	<0.0001
Arsenic	iMET1WCMS	mg/L	0.002
Barium	iMET1WCMS	mg/L	0.078
Beryllium	iMET1WCMS	mg/L	0.0058
Bismuth*	iMET1WCMS	mg/L	0.0023
Boron	iMET1WCICP	mg/L	0.09
Cadmium	iMET1WCMS	mg/L	0.0068
Calcium	iMET1WCICP	mg/L	55.6
Chloride	iCO1WCDA	mg/L	9
Chromium	iMET1WCMS	mg/L	0.012
Cobalt	iMET1WCMS	mg/L	0.046
Copper	iMET1WCMS	mg/L	0.0098
Electrical Conductivity	IEC1WZSE	mS/m	637
Fluoride	iF1WASE	mg/L	0.15
Iron	iMET1WCICP	mg/L	1.1
Lanthanum	iMET1WCMS	mg/L	0.0010
Lead	iMET1WCMS	mg/L	0.0056
Lithium	iMET1WCMS	mg/L	0.033
Magnesium	iMET1WCICP	mg/L	45.7
Manganese	iMET1WCMS	mg/L	0.82
Mercury	iMET1WCMS	mg/L	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.001
Nickel	iMET1WCMS	mg/L	0.042
pH	iPH1WASE		2.1
Phosphorus	iMET1WCICP	mg/L	<0.1
Potassium	iMET1WCICP	mg/L	13.6
Selenium	iMET1WCMS	mg/L	<0.001
Silicon	iMET1WCICP	mg/L	41

LAB ID 065
Client ID^ 5T9

Sampled^

Analyte	Method	Unit	
Silver	iMET1WCMS	mg/L	<0.0001
Sodium	iMET1WCICP	mg/L	36.4
Strontium	iMET1WCMS	mg/L	0.28
Sulphate (from S)	iMET1WCICP	mg/L	6.4
TDS (calculated)	iSOL1WDCA	mg/L	3500
Thallium	iMET1WCMS	mg/L	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001
Titanium	iMET1WCMS	mg/L	0.0083
Uranium	iMET1WCMS	mg/L	0.010
Vanadium	iMET1WCMS	mg/L	0.0012
Yttrium*	iMET1WCMS	mg/L	0.0022
Zinc	iMET1WCMS	mg/L	0.49
Date Analysed	iALK1WATI		13/11/2023
	iCO1WCDA		10/11/2023
	IEC1WZSE		13/11/2023
	iF1WASE		27/11/2023
	iMET1WCICP		28/11/2023
	iMET1WCMS		27/11/2023
	iPH1WASE		1/11/2023
Sample Condition	iSOL1WDCA		4/12/2023
			Cold

Method	Method Description
iALK1WATI	Alkalinity (as CaCO ₃) and constituents by acid titration.
iCO1WCDA	Colourimetric analysis by DA (Discrete Autoanalyser).
IEC1WZSE	Electrical conductivity in water compensated to 25C.
iF1WASE	Fluoride in water by ion specific electrode (ISE).
iMET1WCICP	Total dissolved metals by ICPAES.
iMET1WCMS	Total dissolved metals by ICPMS.
iNP1WTFIA	Total Nitrogen by persulphate digestion and analysis by FIA.
iPH1WASE	pH in water by pH meter.
iSOL1WDCA	Total Dissolved Solids (TDS) calculated (ECond * 5.5)

Five solid materials were extracted following the LEAF Extraction Procedure 1313, and the data from the generated pH solutions is contained in this report.

N_{total} has only been analysed on samples above pH of 8 due to HNO₃ being added to all solutions below pH 8.

These results apply only to the sample(s) as received. Unless arrangements are made to the contrary, these samples will be disposed of after 30 days of the issue of this report.

This report may only be reproduced in full.

*Analysis not covered by scope of ChemCentre's NATA accreditation.

^Information provided by client, unless otherwise stated.



Hannah Burton
Team Leader
SSD Inorganic Chemistry
4-Dec-2023



Barry Price
Senior Scientist
SSD Inorganic Chemistry



WORLD RECOGNISED
ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing, Accreditation No. 8

Purchase Order: 9000000315

ChemCentre Reference: 23S1010 R1

HanRoy Iron Ore Projects Pty Ltd
28-42 Ventnor Avenue
West Perth WA 6005

Attention: Colleen Burgers

ChemCentre
Scientific Services Division
Report of Examination



Resources and Chemistry Precinct
Cnr Manning Road and Townsing Drive
Bentley
WA 6102
T +61 8 9422 9800
F +61 8 9422 9801
www.chemcentre.wa.gov.au
ABN 40 991 885 705

Report on: 34 samples received on 18/09/2023, 1 sample received on 09/11/2023

<u>LAB ID</u>	<u>Material</u>	<u>Client ID and Description</u>
23S1010 / 001	leachate	1T08 + 1T09 22S4297/001
23S1010 / 002	leachate	1T06 + 1T07 22S4297/001
23S1010 / 003	leachate	1T04 + 1T05 22S4297/001
23S1010 / 004	leachate	1T03 22S4297/001
23S1010 / 005	leachate	1T02 22S4297/001
23S1010 / 006	leachate	1T01 22S4297/001
23S1010 / 007	leachate	Blank-1 22S4297/001
23S1010 / 008	leachate	2T08 + 2T09 22S4297/011
23S1010 / 009	leachate	2T06 + 2T07 22S4297/011
23S1010 / 010	leachate	2T04 + 2T05 22S4297/011
23S1010 / 011	leachate	2T03 22S4297/011
23S1010 / 012	leachate	2T02 22S4297/011
23S1010 / 013	leachate	2T01 22S4297/011
23S1010 / 014	leachate	Blank-2 22S4297/011
23S1010 / 015	leachate	3T08 + 3T09 22S4297/013
23S1010 / 016	leachate	3T06 + 3T07 22S4297/013
23S1010 / 017	leachate	3T04 + 3T05 22S4297/013
23S1010 / 018	leachate	3T03 22S4297/013
23S1010 / 019	leachate	3T02 22S4297/013
23S1010 / 020	leachate	3T01 22S4297/013
23S1010 / 021	leachate	Blank-3 22S4297/013
23S1010 / 022	leachate	4T08 + 4T09 22S4297/045
23S1010 / 023	leachate	4T06 + 4T07 22S4297/045
23S1010 / 024	leachate	4T04 + 4T05 22S4297/045
23S1010 / 025	leachate	4T03 22S4297/045
23S1010 / 026	leachate	4T02 22S4297/045
23S1010 / 027	leachate	4T01 22S4297/045
23S1010 / 028	leachate	Blank-4 22S4297/045
23S1010 / 029	leachate	5T08 + 5T09 22S4297/092
23S1010 / 030	leachate	5T06 + 5T07 22S4297/092
23S1010 / 031	leachate	5T04 + 5T05 22S4297/092
23S1010 / 032	leachate	5T03 22S4297/092
23S1010 / 033	leachate	5T02 22S4297/092
23S1010 / 034	leachate	5T01 22S4297/092
23S1010 / 035	leachate	Blank - 5 22S4297/092

LAB ID			001	002	003	004
Client ID			1T08 + 1T09	1T06 + 1T07	1T04 + 1T05	1T03
Sampled			19/11/2023	13/11/2023	10/11/2023	09/11/2023
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	9	14	25	46
Aluminium	iMET1WCICP	mg/L	0.018	0.059	0.025	0.029
Antimony	iMET1WCMS	mg/L	0.0002	0.0003	0.0004	0.0004
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCMS	mg/L	0.0013	0.0016	0.0031	0.0080
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
* Bismuth	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L		0.09	0.20	0.46
Boron	iMET1WCMS	mg/L	0.048			
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	0.3	0.5	0.9	3.4
Chloride	iCO1WCDA	mg/L	1	1	2	4
Chromium	iMET1WCMS	mg/L	<0.0005	0.0008	0.0006	0.0015
Cobalt	iMET1WCMS	mg/L	<0.0001	0.0001	0.0003	0.0010
Electrical Conductivity	iEC1WZSE	mS/m	2.6	3.6	7.1	14.8
Copper	iMET1WCMS	mg/L	0.0005	0.0026	0.0008	0.0009
Fluoride	iF1WASE	mg/L	0.30	0.56	1.7	6.4
Iron	iMET1WCICP	mg/L	0.014	0.042	0.030	0.038
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCMS	mg/L	0.0008	0.0014	0.0022	0.0039
Magnesium	iMET1WCICP	mg/L	0.1	0.2	0.5	1.7
Manganese	iMET1WCMS	mg/L	0.0006	0.0014	0.0024	0.0031
Mercury	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	0.004	0.009	0.008	0.004
Nickel	iMET1WCMS	mg/L	<0.001	0.002	0.001	0.001
pH	iPH1WASE		7.2	7.4	7.4	7.5
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	0.6	0.8	1.4	2.9
* Sample volume	iVOLUME	mL	3700	2200	760	360
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	11	13	14	15
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	4.6	7.3	13.3	26.2
Strontium	iMET1WCMS	mg/L	0.0020	0.0027	0.0066	0.024
Sulphate (from S)	iMET1WCICP	mg/L	0.7	1.3	2.8	6.5
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	0.0006
TDS (calculated)	iSOL1WDCA	mg/L	14	20	39	81
Nitrogen, total	iNP1WTFIA	mg/L	0.08	0.08	0.10	0.11
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.0002	0.0003	0.0002	0.0002
* Yttrium	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCMS	mg/L	0.001	0.004	0.003	0.002
	iALK1WATI		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iCO1WCDA		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iEC1WZSE		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	28/11/2023

LAB ID		001	002	003	004
Client ID					
Sampled					
Analyte	Method	Unit			
	iMET1WCICP		07/02/2024	07/02/2024	07/02/2024
	iMET1WCMS		11/12/2023	11/12/2023	11/12/2023
	iNP1WTFIA		27/11/2023	27/11/2023	27/11/2023
	iPH1WASE		23/11/2023	23/11/2023	23/11/2023
	iSOL1WDCA		24/11/2023	24/11/2023	24/11/2023
	iVOLUME		21/11/2023	21/11/2023	21/11/2023
	iALK1WATI		Cold	Cold	Cold

LAB ID			005	006	007	008
Client ID			1T02	1T01	Blank-1	2T08 + 2T09
Sampled			08/11/2023	08/11/2023	08/11/2023	19/11/2023
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	80	185	<1	18
Aluminium	iMET1WCICP	mg/L	0.006	0.009	0.005	0.019
Antimony	iMET1WCMS	mg/L	0.0004	0.0007	<0.0001	0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	<0.002	<0.001	0.007
Barium	iMET1WCMS	mg/L	0.025	0.056	<0.0001	0.014
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0002	<0.0001	<0.0001
* Bismuth	iMET1WCMS	mg/L	<0.0001	<0.0002	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.85	1.5		
Boron	iMET1WCMS	mg/L			<0.005	0.045
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0004	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	41.7	476	<0.1	1.8
Chloride	iCO1WCDA	mg/L	13	1650	<1	<1
Chromium	iMET1WCMS	mg/L	0.0010	0.0027	<0.0005	<0.0005
Cobalt	iMET1WCMS	mg/L	0.0018	0.081	<0.0001	0.0004
Electrical Conductivity	iEC1WZSE	mS/m	54.4	1210	<0.2	4.0
Copper	iMET1WCMS	mg/L	0.0015	0.011	<0.0001	0.0003
Fluoride	iF1WASE	mg/L	3.6	1.0	<0.05	0.21
Iron	iMET1WCICP	mg/L	<0.005	0.014	<0.005	<0.005
Lanthanum	iMET1WCMS	mg/L	<0.0001	0.0010	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	<0.0001	0.0004	<0.0001	<0.0001
Lithium	iMET1WCMS	mg/L	0.0076	0.14	<0.0001	0.0005
Magnesium	iMET1WCICP	mg/L	11.1	919	<0.1	0.9
Manganese	iMET1WCMS	mg/L	0.0074	0.47	<0.0001	0.0005
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0002	<0.0001	0.0001
Molybdenum	iMET1WCMS	mg/L	0.005	0.017	<0.001	<0.001
Nickel	iMET1WCMS	mg/L	0.001	0.021	<0.001	<0.001
pH	iPH1WASE		7.5	6.9	5.7	7.6
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	6.2	84.5	<0.1	3.9
* Sample volume	iVOLUME	mL	220	140	200	3700
Selenium	iMET1WCMS	mg/L	<0.001	0.023	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	15	19	<0.05	10
Silver	iMET1WCMS	mg/L	<0.0001	<0.0002	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	53.5	1770	<0.1	2.8
Strontium	iMET1WCICP	mg/L		5.3		
Strontium	iMET1WCMS	mg/L	0.25		<0.0001	0.012

LAB ID			005	006	007	008
Client ID			1T02	1T01	Blank-1	2T08 + 2T09
Sampled			08/11/2023	08/11/2023	08/11/2023	19/11/2023
Analyte	Method	Unit				
Sulphate (from S)	iMET1WCICP	mg/L	158	5070	<0.1	1.6
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0002	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0002	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0002	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0010	<0.0005	<0.0005
TDS (calculated)	iSOL1WDCA	mg/L	300	6600	<5	22
Nitrogen, total	iNP1WTFIA	mg/L	0.45	30	<0.01	0.03
Uranium	iMET1WCMS	mg/L	0.0001	0.0003	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.0002	0.0003	<0.0001	0.0082
* Yttrium	iMET1WCMS	mg/L	<0.0002	0.0008	<0.0002	<0.0002
Zinc	iMET1WCMS	mg/L	0.002	0.018	<0.001	<0.001
	iALK1WATI		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iCO1WCDA		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iEC1WZSE		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iF1WASE		28/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		07/02/2024	07/02/2024	07/02/2024	07/02/2024
	iMET1WCMS		11/12/2023	11/12/2023	05/12/2023	11/12/2023
	iNP1WTFIA		27/11/2023	30/11/2023	30/11/2023	30/11/2023
	iPH1WASE		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iSOL1WDCA		24/11/2023	24/11/2023	24/11/2023	24/11/2023
	iVOLUME		21/11/2023	21/11/2023	21/11/2023	21/11/2023
	iALK1WATI		Cold	Cold	Cold	Cold

LAB ID			009	010	011	012
Client ID			2T06 + 2T07	2T04 + 2T05	2T03	2T02
Sampled			13/11/2023	10/11/2023	09/11/2023	08/11/2023
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	36	66	110	194
Aluminium	iMET1WCICP	mg/L	0.018	0.014	0.019	0.056
Antimony	iMET1WCMS	mg/L	0.0003	0.0004	0.0007	0.0009
Arsenic	iMET1WCMS	mg/L	0.008	0.005	0.003	0.002
Barium	iMET1WCMS	mg/L	0.016	0.015	0.0084	0.010
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
* Bismuth	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.10	0.17	0.26	
Boron	iMET1WCMS	mg/L				0.59
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	2.4	2.8	3.8	6.8
Chloride	iCO1WCDA	mg/L	<1	<1	<1	1
Chromium	iMET1WCMS	mg/L	0.0006	0.0011	0.0026	0.0026
Cobalt	iMET1WCMS	mg/L	0.0012	0.0025	0.0051	0.012
Electrical Conductivity	iEC1WZSE	mS/m	8.3	15.0	25.3	41.6
Copper	iMET1WCMS	mg/L	0.0004	0.0008	0.0015	0.0032
Fluoride	iF1WASE	mg/L	0.79	1.8	4.7	3.8
Iron	iMET1WCICP	mg/L	<0.005	<0.005	0.006	0.079
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	iMET1WCMS	mg/L	0.0016	0.0014	0.0027	0.0042

LAB ID			009	010	011	012
Client ID			2T06 + 2T07	2T04 + 2T05	2T03	2T02
Sampled			13/11/2023	10/11/2023	09/11/2023	08/11/2023
Analyte	Method	Unit				
Magnesium	iMET1WCICP	mg/L	1.3	1.7	2.4	4.2
Manganese	iMET1WCMS	mg/L	0.0008	0.0010	0.0027	0.0043
Mercury	iMET1WCMS	mg/L	0.0002	0.0003	0.0002	0.0002
Molybdenum	iMET1WCMS	mg/L	0.002	0.005	0.013	0.017
Nickel	iMET1WCMS	mg/L	<0.001	<0.001	0.003	0.004
pH	iPH1WASE		7.9	8.2	8.3	8.5
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	5.8	7.2	9.8	13.8
* Sample volume	iVOLUME	mL	2400	750	380	240
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	14	15	17	18
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	10.1	22.4	44.0	75.2
Strontium	iMET1WCMS	mg/L	0.016	0.020	0.027	0.048
Sulphate (from S)	iMET1WCICP	mg/L	3.6	6.5	12.5	23.7
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
TDS (calculated)	iSOL1WDCA	mg/L	46	83	140	230
Nitrogen, total	iNP1WTFIA	mg/L	0.04	0.09	0.07	0.14
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.0068	0.0043	0.0028	0.0022
* Yttrium	iMET1WCMS	mg/L	<0.0002	0.0003	0.0004	0.0005
Zinc	iMET1WCMS	mg/L	0.001	0.001	0.003	0.005
	iALK1WATI		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iCO1WCDA		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iEC1WZSE		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iF1WASE		27/11/2023	27/11/2023	28/11/2023	28/11/2023
	iMET1WCICP		07/02/2024	07/02/2024	07/02/2024	07/02/2024
	iMET1WCMS		11/12/2023	11/12/2023	11/12/2023	11/12/2023
	iNP1WTFIA		30/11/2023	30/11/2023	30/11/2023	30/11/2023
	iPH1WASE		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iSOL1WDCA		24/11/2023	24/11/2023	24/11/2023	24/11/2023
	iVOLUME		21/11/2023	21/11/2023	21/11/2023	21/11/2023
	iALK1WATI		Cold	Cold	Cold	Cold

LAB ID			013	014	015	016
Client ID			2T01	Blank-2	3T08 + 3T09	3T06 + 3T07
Sampled			08/11/2023	08/11/2023	19/11/2023	13/11/2023
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	379	<1	5	5
Aluminium	iMET1WCICP	mg/L	0.088	<0.005	0.013	0.007
Antimony	iMET1WCMS	mg/L	0.0011	<0.0001	<0.0001	0.0001
Arsenic	iMET1WCMS	mg/L	0.002	<0.001	<0.001	<0.001
Barium	iMET1WCMS	mg/L	0.027	<0.0001	0.0034	0.0026
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
* Bismuth	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001

LAB ID			013	014	015	016
Client ID			2T01	Blank-2	3T08 + 3T09	3T06 + 3T07
Sampled			08/11/2023	08/11/2023	19/11/2023	13/11/2023
Analyte	Method	Unit				
Boron	iMET1WCMS	mg/L	0.70	<0.005	0.027	0.032
Cadmium	iMET1WCMS	mg/L	0.0002	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	168	<0.1	1.0	1.0
Chloride	iCO1WCDA	mg/L	323	<1	<1	<1
Chromium	iMET1WCMS	mg/L	0.0037	<0.0005	<0.0005	<0.0005
Cobalt	iMET1WCMS	mg/L	0.075	<0.0001	0.0033	0.0071
Electrical Conductivity	iEC1WZSE	mS/m	298	<0.2	1.3	1.8
Copper	iMET1WCMS	mg/L	0.011	<0.0001	0.0008	0.0043
Fluoride	iF1WASE	mg/L	1.3	<0.05	0.23	0.35
Iron	iMET1WCICP	mg/L	0.010	<0.005	0.011	0.012
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	iMET1WCMS	mg/L	0.017	<0.0001	0.0012	0.0018
Magnesium	iMET1WCICP	mg/L	135	<0.1	0.6	0.6
Manganese	iMET1WCMS	mg/L	0.080	<0.0001	0.0076	0.0074
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	0.005	<0.001	<0.001	<0.001
Nickel	iMET1WCMS	mg/L	0.044	<0.001	<0.001	0.001
pH	iPH1WASE		7.9	5.8	7.0	7.0
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	45.4	<0.1	1.1	1.5
* Sample volume	iVOLUME	mL	170	200	4500	2700
Selenium	iMET1WCMS	mg/L	0.016	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	20	<0.05	6.7	7.8
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	295	<0.1	0.2	1.4
Strontium	iMET1WCMS	mg/L	1.2	<0.0001	0.0069	0.0060
Sulphate (from S)	iMET1WCICP	mg/L	735	<0.1	1.0	3.4
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0003	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
TDS (calculated)	iSOL1WDCA	mg/L	1600	<5	7	10
Nitrogen, total	iNP1WTFIA	mg/L	28	<0.01	0.04	0.14
Uranium	iMET1WCMS	mg/L	0.0025	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.0019	<0.0001	<0.0001	<0.0001
* Yttrium	iMET1WCMS	mg/L	0.0007	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCMS	mg/L	0.003	<0.001	0.002	0.004
	iALK1WATI		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iCO1WCDA		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iEC1WZSE		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		07/02/2024	07/02/2024	07/02/2024	07/02/2024
	iMET1WCMS		11/12/2023	05/12/2023	11/12/2023	11/12/2023
	iNP1WTFIA		30/11/2023	30/11/2023	30/11/2023	30/11/2023
	iPH1WASE		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iSOL1WDCA		24/11/2023	24/11/2023	24/11/2023	24/11/2023
	iVOLUME		21/11/2023	21/11/2023	21/11/2023	21/11/2023
	iALK1WATI		Cold	Cold	Cold	Cold

LAB ID			017	018	019	020
Client ID			3T04 + 3T05	3T03	3T02	3T01
Sampled			10/11/2023	09/11/2023	08/11/2023	08/11/2023
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	9	14	20	66
Aluminium	iMET1WCICP	mg/L	0.042	0.023	0.010	0.066
Antimony	iMET1WCMS	mg/L	0.0003	0.0003	0.0003	0.0005
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCMS	mg/L	0.021	0.0030	0.0069	0.034
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
* Bismuth	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.08	0.11	0.13	0.20
Cadmium	iMET1WCMS	mg/L	0.0001	0.0003	0.0004	0.0005
Calcium	iMET1WCICP	mg/L	1.2	1.5	4.7	28.5
Chloride	iCO1WCDA	mg/L	<1	<1	4	64
Chromium	iMET1WCMS	mg/L	0.0007	0.0012	0.0006	0.0006
Cobalt	iMET1WCICP	mg/L		0.18		
Cobalt	iMET1WCMS	mg/L	0.048		0.58	1.8
Electrical Conductivity	iEC1WZSE	mS/m	4.3	7.6	19.7	84.1
Copper	iMET1WCMS	mg/L	0.0073	0.017	0.032	0.053
Fluoride	iF1WASE	mg/L	0.55	0.51	0.44	0.25
Iron	iMET1WCICP	mg/L	0.10	0.25	0.41	0.78
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lead	iMET1WCMS	mg/L	0.0005	0.0007	0.0008	0.0007
Lithium	iMET1WCMS	mg/L	0.0037	0.0033	0.0060	0.024
Magnesium	iMET1WCICP	mg/L	0.7	0.8	2.4	16.0
Manganese	iMET1WCMS	mg/L	0.017	0.038	0.066	0.15
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Nickel	iMET1WCMS	mg/L	0.005	0.019	0.068	0.27
pH	iPH1WASE		7.1	6.9	7.3	6.8
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	2.3	2.9	4.9	15.0
* Sample volume	iVOLUME	mL	900	470	290	190
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	0.004
Silicon	iMET1WCICP	mg/L	11	9.8	11	13
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	7.0	12.6	28.3	118
Strontium	iMET1WCMS	mg/L	0.0075	0.0087	0.025	0.17
Sulphate (from S)	iMET1WCICP	mg/L	18.3	27.7	65.5	219
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	0.0002
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
TDS (calculated)	iSOL1WDCA	mg/L	23	42	110	460
Nitrogen, total	iNP1WTFIA	mg/L	0.32	0.71	1.5	4.5
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.0003	0.0001	<0.0001	0.0001
* Yttrium	iMET1WCMS	mg/L	0.0003	0.0003	0.0003	0.0003
Zinc	iMET1WCMS	mg/L	0.017	0.043	0.13	0.15
	iALK1WATI		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iCO1WCDA		23/11/2023	23/11/2023	23/11/2023	23/11/2023

LAB ID		017	018	019	020
Client ID					
Sampled					
Analyte	Method	Unit			
	iEC1WZSE	23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iF1WASE	27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP	07/02/2024	07/02/2024	07/02/2024	07/02/2024
	iMET1WCMS	11/12/2023	11/12/2023	11/12/2023	11/12/2023
	iNP1WTFIA	30/11/2023	27/11/2023	27/11/2023	27/11/2023
	iPH1WASE	23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iSOL1WDCA	24/11/2023	24/11/2023	24/11/2023	24/11/2023
	iVOLUME	21/11/2023	21/11/2023	21/11/2023	21/11/2023
	iALK1WATI	Cold	Cold	Cold	Cold

LAB ID			021	022	023	024
Client ID			Blank-3	4T08 + 4T09	4T06 + 4T07	4T04 + 4T05
Sampled			08/11/2023	19/11/2023	13/11/2023	10/11/2023
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	<1	4	4	8
Aluminium	iMET1WCICP	mg/L	0.011	0.046	0.12	0.029
Antimony	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001	0.002	0.001	<0.001
Barium	iMET1WCMS	mg/L	0.0002	0.0020	0.0016	0.0025
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
* Bismuth	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L		0.09	0.10	0.20
Boron	iMET1WCMS	mg/L	<0.005			
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	<0.1	0.1	0.2	0.3
Chloride	iCO1WCDA	mg/L	<1	<1	<1	<1
Chromium	iMET1WCMS	mg/L	<0.0005	0.0007	0.0008	0.0012
Cobalt	iMET1WCMS	mg/L	<0.0001	0.0001	0.0001	0.0003
Electrical Conductivity	iEC1WZSE	mS/m	<0.2	1.6	2.0	3.7
Copper	iMET1WCMS	mg/L	0.0002	0.0004	0.0006	0.0005
Fluoride	iF1WASE	mg/L	<0.05	0.89	0.91	0.98
Iron	iMET1WCICP	mg/L	0.054	0.022	0.064	0.016
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCMS	mg/L	<0.0001	0.0007	0.0008	0.0012
Magnesium	iMET1WCICP	mg/L	<0.1	<0.1	0.1	0.2
Manganese	iMET1WCMS	mg/L	0.0005	0.0016	0.0023	0.0027
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.001	0.004	0.003	0.003
Nickel	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
pH	iPH1WASE		5.5	6.9	6.9	7.1
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	<0.1	1.2	1.4	1.9
* Sample volume	iVOLUME	mL	200	3700	2300	760
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	<0.05	16	15	18
Silver	iMET1WCMS	mg/L	0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	<0.1	2.5	3.2	5.1

LAB ID			021	022	023	024
Client ID			Blank-3	4T08 + 4T09	4T06 + 4T07	4T04 + 4T05
Sampled			08/11/2023	19/11/2023	13/11/2023	10/11/2023
Analyte	Method	Unit				
Strontium	iMET1WCMS	mg/L	0.0001	0.0010	0.0010	0.0017
Sulphate (from S)	iMET1WCICP	mg/L	<0.1	1.8	2.9	5.1
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
TDS (calculated)	iSOL1WDCA	mg/L	<5	9	11	20
Nitrogen, total	iNP1WTFIA	mg/L	<0.01	0.16	0.11	0.17
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	<0.0001	0.0021	0.0017	0.0011
* Yttrium	iMET1WCMS	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Zinc	iMET1WCMS	mg/L	0.002	0.001	<0.001	0.001
	iALK1WATI		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iCO1WCDA		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iEC1WZSE		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iF1WASE		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iMET1WCICP		07/02/2024	07/02/2024	07/02/2024	07/02/2024
	iMET1WCMS		05/12/2023	11/12/2023	11/12/2023	11/12/2023
	iNP1WTFIA		27/11/2023	27/11/2023	27/11/2023	27/11/2023
	iPH1WASE		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iSOL1WDCA		24/11/2023	24/11/2023	24/11/2023	24/11/2023
	iVOLUME		21/11/2023	21/11/2023	21/11/2023	21/11/2023
	iALK1WATI		Cold	Cold	Cold	Cold

LAB ID			025	026	027	028
Client ID			4T03	4T02	4T01	Blank-4
Sampled			09/11/2023	08/11/2023	08/11/2023	08/11/2023
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	12	17	92	<1
Aluminium	iMET1WCICP	mg/L	0.030	0.020	0.007	0.010
Antimony	iMET1WCMS	mg/L	0.0001	0.0001	0.0005	<0.0001
Arsenic	iMET1WCMS	mg/L	0.001	0.001	<0.001	<0.001
Barium	iMET1WCMS	mg/L	0.0039	0.022	0.19	0.0001
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
* Bismuth	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L	0.30	0.40	0.45	
Boron	iMET1WCMS	mg/L				<0.005
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	<0.0001
Calcium	iMET1WCICP	mg/L	0.8	8.8	264	<0.1
Chloride	iCO1WCDA	mg/L	<1	5	895	<1
Chromium	iMET1WCMS	mg/L	0.0006	<0.0005	0.0008	<0.0005
Cobalt	iMET1WCMS	mg/L	0.0008	0.0036	0.074	<0.0001
Electrical Conductivity	iEC1WZSE	mS/m	6.8	31.7	384	<0.2
Copper	iMET1WCMS	mg/L	0.0008	0.0022	0.0019	0.0002
Fluoride	iF1WASE	mg/L	0.77	iss	iss	<0.05
Iron	iMET1WCICP	mg/L	0.025	0.015	<0.005	0.005
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0009	<0.0001
Lead	iMET1WCMS	mg/L	<0.0001	0.0001	<0.0001	<0.0001

LAB ID			025	026	027	028
Client ID			4T03	4T02	4T01	Blank-4
Sampled			09/11/2023	08/11/2023	08/11/2023	08/11/2023
Analyte	Method	Unit				
Lithium	iMET1WCMS	mg/L	0.0021	0.0057	0.036	<0.0001
Magnesium	iMET1WCICP	mg/L	0.7	7.2	225	<0.1
Manganese	iMET1WCMS	mg/L	0.0082	0.064	1.8	0.0001
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	0.002	<0.001	<0.001	<0.001
Nickel	iMET1WCMS	mg/L	<0.001	0.003	0.051	<0.001
pH	iPH1WASE		7.4	7.4	7.7	5.7
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	3.5	11.1	57.2	<0.1
* Sample volume	iVOLUME	mL	360	110	77	200
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	0.005	<0.001
Silicon	iMET1WCICP	mg/L	24	25	27	<0.05
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	9.7	33.9	197	<0.1
Strontium	iMET1WCMS	mg/L	0.0052	0.052	1.4	0.0001
Sulphate (from S)	iMET1WCICP	mg/L	14.0	106	752	<0.1
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
TDS (calculated)	iSOL1WDCA	mg/L	38	170	2100	<5
Nitrogen, total	iNP1WTFIA	mg/L	0.19	0.97	12	<0.01
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.0007	0.0005	0.0005	<0.0001
* Yttrium	iMET1WCMS	mg/L	<0.0002	<0.0002	0.0010	<0.0002
Zinc	iMET1WCMS	mg/L	0.002	0.003	0.009	<0.001
	iALK1WATI		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iCO1WCDA		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iEC1WZSE		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iF1WASE		27/11/2023	28/11/2023	28/11/2023	27/11/2023
	iMET1WCICP		07/02/2024	07/02/2024	07/02/2024	07/02/2024
	iMET1WCMS		11/12/2023	11/12/2023	11/12/2023	05/12/2023
	iNP1WTFIA		27/11/2023	27/11/2023	30/11/2023	30/11/2023
	iPH1WASE		23/11/2023	23/11/2023	23/11/2023	23/11/2023
	iSOL1WDCA		24/11/2023	24/11/2023	24/11/2023	24/11/2023
	iVOLUME		21/11/2023	21/11/2023	21/11/2023	21/11/2023
	iALK1WATI		Cold	Cold	Cold	Cold

LAB ID			029	030	031	032
Client ID			5T08 + 5T09	5T06 + 5T07	5T04 + 5T05	5T03
Sampled			23/01/2024	16/01/2024	12/01/2024	11/01/2024
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	12	12	20	28
Aluminium	iMET1WCICP	mg/L	0.092	0.085	0.021	0.049
Antimony	iMET1WCMS	mg/L	0.0003	0.0004	0.0004	0.0007
Arsenic	iMET1WCMS	mg/L	0.019	0.026	0.016	0.011
Barium	iMET1WCMS	mg/L	0.0042	0.0041	0.0066	0.0073
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001

LAB ID			029	030	031	032
Client ID			5T08 + 5T09	5T06 + 5T07	5T04 + 5T05	5T03
Sampled			23/01/2024	16/01/2024	12/01/2024	11/01/2024
Analyte	Method	Unit				
* Bismuth	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L		0.07	0.12	0.24
Boron	iMET1WCMS	mg/L	0.046			
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	iMET1WCICP	mg/L	0.2	0.4	0.4	0.9
Chloride	iCO1WCDA	mg/L	<1	<1	<1	2
Chromium	iMET1WCMS	mg/L	0.0006	0.0007	<0.0005	<0.0005
Cobalt	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0001	0.0004
Electrical Conductivity	iEC1WZSE	mS/m	3.9	5.0	8.2	13.1
Copper	iMET1WCMS	mg/L	0.0010	0.0005	0.0010	0.0022
Fluoride	iF1WASE	mg/L	0.26	0.48	1.7	<0.05
Iron	iMET1WCICP	mg/L	<0.005	0.009	0.012	<0.005
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lithium	iMET1WCMS	mg/L	0.0004	0.0004	0.0007	0.0011
Magnesium	iMET1WCICP	mg/L	0.1	0.1	0.3	0.5
Manganese	iMET1WCMS	mg/L	0.0009	0.0007	0.0011	0.0021
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	0.003	0.003	0.006	0.011
Nickel	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
pH	iPH1WASE		7.4	7.4	7.2	7.3
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	1.5	1.6	2.2	3.2
* Sample volume	iVOLUME	mL	1800	2700	880	440
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	26	29	32	32
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	7.2	8.6	14.8	23.3
Strontium	iMET1WCMS	mg/L	0.0016	0.0019	0.0034	0.0065
Sulphate (from S)	iMET1WCICP	mg/L	6.1	8.4	13.8	22.8
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
TDS (calculated)	iSOL1WDCA	mg/L	21	28	45	72
Nitrogen, total	iNP1WTFIA	mg/L	<0.01	0.02	0.10	0.05
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.025	0.026	0.016	0.011
* Yttrium	iMET1WCMS	mg/L	<0.0002	<0.0002	0.0003	0.0007
Zinc	iMET1WCMS	mg/L	0.002	0.001	0.004	0.002
	iALK1WATI		29/01/2024	19/01/2024	19/01/2024	19/01/2024
	iCO1WCDA		25/01/2024	18/01/2024	18/01/2024	18/01/2024
	iEC1WZSE		29/01/2024	19/01/2024	19/01/2024	19/01/2024
	iF1WASE		02/02/2024	22/01/2024	22/01/2024	22/01/2024
	iMET1WCICP		07/02/2024	07/02/2024	07/02/2024	07/02/2024
	iMET1WCMS		01/02/2024	01/02/2024	01/02/2024	01/02/2024
	iNP1WTFIA		25/01/2024	25/01/2024	25/01/2024	25/01/2024
	iPH1WASE		29/01/2024	19/01/2024	19/01/2024	19/01/2024
	iSOL1WDCA		30/01/2024	22/01/2024	22/01/2024	22/01/2024
	iVOLUME		25/01/2024	22/01/2024	22/01/2024	22/01/2024

LAB ID			029	030	031	032
Client ID						
Sampled						
Analyte	Method	Unit				
	iALK1WATI		Cold	Cold	Cold	Cold
LAB ID			033	034	035	
Client ID			5T02	5T01	Blank - 5	
Sampled			10/01/2024	10/01/2024	10/01/2024	
Analyte	Method	Unit				
Alkalinity as CaCO3	iALK1WATI	mg/L	48	171	<1	
Aluminium	iMET1WCICP	mg/L	0.018	0.037	<0.005	
Antimony	iMET1WCMS	mg/L	0.0011	0.0013	<0.0001	
Arsenic	iMET1WCMS	mg/L	0.005	0.003	<0.001	
Barium	iMET1WCMS	mg/L	0.0089	0.030	<0.0001	
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	
* Bismuth	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	
Boron	iMET1WCICP	mg/L	0.41	0.41		
Boron	iMET1WCMS	mg/L			<0.005	
Cadmium	iMET1WCMS	mg/L	<0.0001	0.0005	<0.0001	
Calcium	iMET1WCICP	mg/L	1.9	50.8	<0.1	
Chloride	iCO1WCDA	mg/L	<1	95	<1	
Chromium	iMET1WCMS	mg/L	0.0010	0.0027	<0.0005	
Cobalt	iMET1WCMS	mg/L	0.0028	0.017	<0.0001	
Electrical Conductivity	iEC1WZSE	mS/m	20.8	113	<0.2	
Copper	iMET1WCMS	mg/L	0.0053	0.012	<0.0001	
Fluoride	iF1WASE	mg/L	1.7	0.87	<0.05	
Iron	iMET1WCICP	mg/L	<0.005	<0.005	<0.005	
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	
Lead	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	
Lithium	iMET1WCMS	mg/L	0.0018	0.0053	<0.0001	
Magnesium	iMET1WCICP	mg/L	1.4	34.5	<0.1	
Manganese	iMET1WCMS	mg/L	0.0076	0.15	<0.0001	
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	
Molybdenum	iMET1WCMS	mg/L	0.029	0.021	<0.001	
Nickel	iMET1WCMS	mg/L	0.002	0.012	<0.001	
pH	iPH1WASE		7.3	7.3	5.8	
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	
Potassium	iMET1WCICP	mg/L	4.6	16.0	<0.1	
* Sample volume	iVOLUME	mL	240	180	200	
Selenium	iMET1WCMS	mg/L	<0.001	0.003	<0.001	
Silicon	iMET1WCICP	mg/L	30	32	<0.05	
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	
Sodium	iMET1WCICP	mg/L	35.3	126	<0.1	
Strontium	iMET1WCMS	mg/L	0.016	0.33	<0.0001	
Sulphate (from S)	iMET1WCICP	mg/L	38.3	201	<0.1	
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	
Titanium	iMET1WCMS	mg/L	<0.0005	<0.0005	<0.0005	
TDS (calculated)	iSOL1WDCA	mg/L	110	620	<5	
Nitrogen, total	iNP1WTFIA	mg/L	0.13	6.9	<0.01	

LAB ID			033	034	035
Client ID			5T02	5T01	Blank - 5
Sampled			10/01/2024	10/01/2024	10/01/2024
Analyte	Method	Unit			
Uranium	iMET1WCMS	mg/L	<0.0001	0.0005	<0.0001
Vanadium	iMET1WCMS	mg/L	0.0066	0.0038	<0.0001
* Yttrium	iMET1WCMS	mg/L	0.0009	0.0013	<0.0002
Zinc	iMET1WCMS	mg/L	0.006	0.029	<0.001
	iALK1WATI		19/01/2024	19/01/2024	19/01/2024
	iCO1WCDA		18/01/2024	18/01/2024	18/01/2024
	IEC1WZSE		19/01/2024	19/01/2024	19/01/2024
	iF1WASE		22/01/2024	22/01/2024	22/01/2024
	iMET1WCICP		07/02/2024	07/02/2024	07/02/2024
	iMET1WCMS		01/02/2024	01/02/2024	01/02/2024
	iNP1WTFIA		25/01/2024	25/01/2024	25/01/2024
	iPH1WASE		19/01/2024	19/01/2024	19/01/2024
	iSOL1WDCA		22/01/2024	22/01/2024	22/01/2024
	iVOLUME		22/01/2024	22/01/2024	22/01/2024
	iALK1WATI		Cold	Cold	Cold

Method	Method Description
iALK1WATI	Alkalinity (as CaCO ₃) and constituents by acid titration.
iCO1WCDA	Colourimetric analysis by DA (Discrete Autoanalyser).
IEC1WZSE	Electrical conductivity in water compensated to 25C.
iF1WASE	Fluoride in water by ion specific electrode (ISE).
iMET1WCICP	Total dissolved metals by ICPAES.
iMET1WCMS	Total dissolved metals by ICPMS.
iNP1WTFIA	Total Nitrogen by persulphate digestion and analysis by FIA.
iPH1WASE	pH in water by pH meter.
iSOL1WDCA	Total Dissolved Solids (TDS) calculated (ECond * 5.5)
iVOLUME	Sample volume.

Five solid materials were extracted following the LEAF Extraction Procedure 1314, and the data from the solutions generated over time is contained in this report.

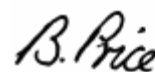
Fine solids passed through the column filter which will impact results for 23S1010/26 and 27 in an unpredictable manner. Collection 23S1010/29 stopped early due to column completely resisting eluant flow (L/S ratio of 7 instead of 10).

These results apply only to the sample(s) as received. Unless arrangements are made to the contrary, these samples will be disposed of after 30 days of the issue of this report.
This report may only be reproduced in full.

*Analysis not covered by scope of ChemCentre's NATA accreditation.



Michael Hall
Chemist and Research Officer
SSD Inorganic Chemistry
7-Feb-2024



Barry Price
Senior Scientist
SSD Inorganic Chemistry



WORLD RECOGNISED
ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing, Accreditation No. 8

Purchase Order: None

ChemCentre Reference: 23S1451 R0

HanRoy Iron Ore Projects Pty Ltd
28-42 Ventnor Avenue
West Perth WA 6005

Attention: Colleen Burgers

ChemCentre

Scientific Services Division

Report of Examination



Resources and Chemistry Precinct
Cnr Manning Road and Townsling Drive
Bentley
WA 6102
T +61 8 9422 9800
F +61 8 9422 9801
www.chemcentre.wa.gov.au
ABN 40 991 885 705

Report on: 7 samples received on 23/10/2023

LAB ID	Material	Client ID and Description
23S1451 / 001	rock	MDRC0973_34-46 #13
23S1451 / 002	rock	MDRC1339_88-112 #27
23S1451 / 003	rock	MDRC1348_94-100 #31
23S1451 / 004	rock	MDRC1397_82-88 #55
23S1451 / 005	rock	MDRC1486_86-94 #97
23S1451 / 006	rock	MDRC1549_56-62 #132
23S1451 / 007	rock	MDRC1415_98-104 #70

LAB ID	001	002	003	004
Client ID^	MDRC0973_34-46	MDRC1339_88-112	MDRC1348_94-100	MDRC1397_82-88

Sampled^

Analyte	Method	Unit				
Aluminium	iMET2SAICP	mg/kg	9720	14500	13100	42800
Antimony	iMET2SAMS	mg/kg	0.25	0.63	0.21	0.20
Arsenic	iMET2SAMS	mg/kg	12	36	12	20
Barium	iMET2SAICP	mg/kg	13	1.1	0.1	2.9
Beryllium	iMET2SAMS	mg/kg	0.50	1.4	0.53	1.8
Bismuth*	iMET2SAMS	mg/kg	0.12	0.18	0.14	0.59
Cadmium	iMET2SAMS	mg/kg	<0.05	0.08	0.14	<0.05
Calcium	iMET2SAICP	mg/kg	36	970	910	750
Chromium	iMET2SAICP	mg/kg	31	52	39	120
Cobalt	iMET2SAMS	mg/kg	5.2	32	20	26
Copper	iMET2SAMS	mg/kg	9.9	64	13	39
Iron	iMET2SAICP	mg/kg	240000	150000	190000	180000
Lanthanum*	iMET2SAICP	mg/kg	1.8	7.9	7.3	9.4
Lead	iMET2SAMS	mg/kg	5.9	5.0	2.6	8.7
Lithium	iMET2SAICP	mg/kg	0.7	6.6	5.1	42
Magnesium	iMET2SAICP	mg/kg	160	8900	15000	48000
Manganese	iMET2SAICP	mg/kg	170	4800	10000	640
Mercury	iMET2SAMS	mg/kg	0.04	0.09	0.04	0.22
Molybdenum	iMET2SAMS	mg/kg	0.90	1.7	1.1	0.94
Nickel	iMET2SAMS	mg/kg	9.1	70	47	130
Phosphorus	iMET2SAICP	mg/kg	98	400	37	310
Potassium	iMET2SAICP	mg/kg	170	95	34	210
Selenium	iMET2SAMS	mg/kg	0.50	0.92	0.41	1.3
Silver	iMET2SAMS	mg/kg	<0.05	0.06	<0.05	0.05
Sodium	iMET2SAICP	mg/kg	98	110	34	160

LAB ID			001	002	003	004
Client ID^			MDRC0973_34-4 6	MDRC1339_88- 112	MDRC1348_94- 100	MDRC1397_82- 88
Sampled^						
Analyte	Method	Unit				
Strontium	iMET2SAICP	mg/kg	1.3	1.7	<0.2	5.3
Sulfur	iMET2SAICP	mg/kg	140	14000	7100	11000
Thallium	iMET2SAMS	mg/kg	0.10	0.08	<0.05	0.12
Thorium	iMET2SAMS	mg/kg	2.0	1.5	1.3	3.1
Tin	iMET2SAMS	mg/kg	<0.5	<0.5	<0.5	0.7
Titanium	iMET2SAICP	mg/kg	350	87	29	160
Uranium	iMET2SAMS	mg/kg	0.89	0.98	0.17	1.2
Vanadium	iMET2SAICP	mg/kg	35	40	28	99
Yttrium*	iMET2SAMS	mg/kg	2.3	9.7	6.7	14
Zinc	iMET2SAICP	mg/kg		230	180	300
Zinc	iMET2SAMS	mg/kg	24			
Nitrogen	(total)	%	<0.005	0.006	0.009	0.014
Date Analysed	(total)		1/11/2023	1/11/2023	1/11/2023	1/11/2023
	iMET2SAICP		15/11/2023	15/11/2023	15/11/2023	15/11/2023
	iMET2SAMS		17/11/2023	17/11/2023	17/11/2023	17/11/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			005	006	007
Client ID^			MDRC1486_86-9 4	MDRC1549_56- 62	MDRC1415_98- 104
Sampled^					
Analyte	Method	Unit			
Outsourced to Microanalysis*	SUPP				1
Aluminium	iMET2SAICP	mg/kg	23200	19300	
Antimony	iMET2SAMS	mg/kg	0.28	0.26	
Arsenic	iMET2SAMS	mg/kg	56	5.6	
Barium	iMET2SAICP	mg/kg	38	140	
Beryllium	iMET2SAMS	mg/kg	3.0	0.92	
Bismuth*	iMET2SAMS	mg/kg	0.36	0.45	
Cadmium	iMET2SAMS	mg/kg	0.35	0.23	
Calcium	iMET2SAICP	mg/kg	520	1400	
Chromium	iMET2SAICP	mg/kg	86	63	
Cobalt	iMET2SAMS	mg/kg	37	11	
Copper	iMET2SAMS	mg/kg	27	16	
Iron	iMET2SAICP	mg/kg	210000	150000	
Lanthanum*	iMET2SAICP	mg/kg	3.4	14	
Lead	iMET2SAMS	mg/kg	3.3	21	
Lithium	iMET2SAICP	mg/kg	32	19	
Magnesium	iMET2SAICP	mg/kg	16000	4600	
Manganese	iMET2SAICP	mg/kg	11000	4800	
Mercury	iMET2SAMS	mg/kg	0.16	0.12	
Molybdenum	iMET2SAMS	mg/kg	2.5	0.23	
Nickel	iMET2SAMS	mg/kg	160	55	
Phosphorus	iMET2SAICP	mg/kg	340	51	
Potassium	iMET2SAICP	mg/kg	1000	700	
Selenium	iMET2SAMS	mg/kg	0.48	0.21	
Silver	iMET2SAMS	mg/kg	<0.05	<0.05	
Sodium	iMET2SAICP	mg/kg	170	430	

LAB ID	005	006	007
Client ID^	MDRC1486_86-9 4	MDRC1549_56- 62	MDRC1415_98- 104

Sampled^

Analyte	Method	Unit		
Strontium	iMET2SAICP	mg/kg	26	17
Sulfur	iMET2SAICP	mg/kg	10000	180
Thallium	iMET2SAMS	mg/kg	1.3	0.19
Thorium	iMET2SAMS	mg/kg	1.8	5.8
Tin	iMET2SAMS	mg/kg	<0.5	1.0
Titanium	iMET2SAICP	mg/kg	85	290
Uranium	iMET2SAMS	mg/kg	1.1	1.0
Vanadium	iMET2SAICP	mg/kg	62	78
Yttrium*	iMET2SAMS	mg/kg	16	12
Zinc	iMET2SAICP	mg/kg	470	250
Nitrogen	(total)	%	0.008	<0.005
Date Analysed	(total)		1/11/2023	1/11/2023
	iMET2SAICP		15/11/2023	15/11/2023
	iMET2SAMS		17/11/2023	17/11/2023
	SUPP			24/11/2023
Sample Condition			Ambient	Ambient

Method	Method Description
(total)	Total nitrogen, Kjeldhal digestion by in house method S10 (Method 7A2a; Rayment & Lyons (2011)).
iMET2SAICP	Acid digestable metals (dry wt basis) by digestion and ICPAES.
iMET2SAMS	Acid digestable metals (dry wt basis) by ICPMS.
SUPP	Analysis outsourced to external laboratories

These results apply only to the sample(s) as received. Unless arrangements are made to the contrary, these samples will be disposed of after 30 days of the issue of this report.

B, Si, Cl & F was subcontracted to Intertek Genalysis. A copy of their report is attached.
XRD analysis for sample 7 was subcontracted to Microanalysis. A copy of their report is attached.

This report may only be reproduced in full.

*Analysis not covered by scope of ChemCentre's NATA accreditation.

^Information provided by client, unless otherwise stated.



Geoffrey Firns
Team Leader
SSD Inorganic Chemistry
28-Nov-2023



Barry Price
Senior Scientist
SSD Inorganic Chemistry



WORLD RECOGNISED
ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing, Accreditation No. 8

Purchase Order: 9000000315

ChemCentre Reference: 23S2214 R0

HanRoy Iron Ore Projects Pty Ltd
28-42 Ventnor Avenue
West Perth WA 6005

Attention: Colleen Burgers

ChemCentre

Scientific Services Division

Report of Examination



Resources and Chemistry Precinct
Cnr Manning Road and Townsing Drive
Bentley
WA 6102
T +61 8 9422 9800
F +61 8 9422 9801
www.chemcentre.wa.gov.au
ABN 40 991 885 705

Report on: 5 samples received on 19/12/2023

LAB ID	Material	Client ID and Description
23S2214 / 001	leachate	1T1 22S4297/054 L/S 10
23S2214 / 002	leachate	1T2 22S4297/054 L/S 5
23S2214 / 003	leachate	1T3 22S4297/054 L/S 2
23S2214 / 004	leachate	1T4 22S4297/054 L/S 1
23S2214 / 005	leachate	blank

LAB ID	001	002	003	004
Client ID^	1T1	1T2	1T3	1T4

Sampled^

Analyte	Method	Unit				
Alkalinity as CaCO ₃	iALK1WATI	mg/L	3	4	6	11
Aluminium	iMET1WCICP	mg/L	0.006	0.011	0.020	0.017
Antimony	iMET1WCMS	mg/L	<0.0001	0.0001	0.0002	0.0003
Arsenic	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	iMET1WCMS	mg/L	0.0020	0.0050	0.0066	0.0052
Beryllium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Boron	iMET1WCICP	mg/L		0.07	0.08	0.11
Boron	iMET1WCMS	mg/L	0.053			
Cadmium	iMET1WCMS	mg/L	<0.0001	<0.0001	0.0002	0.0004
Calcium	iMET1WCICP	mg/L	1.1	1.7	4.8	10.7
Chloride	iCO1WCDA	mg/L	7	14	33	72
Chromium	iMET1WCMS	mg/L	<0.0005	0.0009	0.0013	0.0022
Cobalt	iMET1WCMS	mg/L	0.0005	0.0010	0.0026	0.0043
Copper	iMET1WCICP	mg/L				0.072
Copper	iMET1WCMS	mg/L	0.014	0.019	0.043	
Electrical Conductivity	iEC1WZSE	mS/m	6.2	10.5	24.5	47.8
Fluoride	iF1WASE	mg/L	0.35	0.44	0.46	0.41
Iron	iMET1WCICP	mg/L	0.017	0.021	0.065	0.073
Lanthanum	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Lead	iMET1WCMS	mg/L	0.0004	0.0005	0.0013	0.0018
Lithium	iMET1WCMS	mg/L	0.0082	0.014	0.023	0.038
Magnesium	iMET1WCICP	mg/L	0.6	1.2	3.6	8.1
Manganese	iMET1WCMS	mg/L	0.0017	0.0030	0.0096	0.017
Mercury	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Nickel	iMET1WCMS	mg/L	0.004	0.003	0.011	0.015

LAB ID			001	002	003	004
Client ID^			1T1	1T2	1T3	1T4
Sampled^						
Analyte	Method	Unit				
Nitrogen, total	iNP1WTFIA	mg/L	0.37	0.67	1.4	2.5
pH	iPH1WASE		6.7	6.6	6.6	6.5
Phosphorus	iMET1WCICP	mg/L	<0.1	<0.1	<0.1	<0.1
Potassium	iMET1WCICP	mg/L	2.2	3.4	6.5	10.1
Selenium	iMET1WCMS	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon	iMET1WCICP	mg/L	2.5	4.1	6.7	10
Silver	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	iMET1WCICP	mg/L	7.5	13.5	31.0	58.7
Strontium	iMET1WCICP	mg/L				0.052
Strontium	iMET1WCMS	mg/L	0.0057	0.011	0.025	
Sulphate (from S)	iMET1WCICP	mg/L	8.7	16.4	39.9	74.8
TDS (calculated)	iSOL1WDCA	mg/L	34	58	130	260
Thallium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	iMET1WCMS	mg/L	0.0012	0.0005	<0.0005	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	iMET1WCMS	mg/L	0.0004	0.0004	0.0005	0.0005
Yttrium*	iMET1WCMS	mg/L	0.0040	0.0055	0.0081	0.012
Zinc	iMET1WCICP	mg/L			0.080	0.14
Zinc	iMET1WCMS	mg/L	0.027	0.032		
Date Analysed	iALK1WATI		22/12/2023	22/12/2023	22/12/2023	22/12/2023
	iCO1WCDA		22/12/2023	22/12/2023	22/12/2023	22/12/2023
	iEC1WZSE		22/12/2023	22/12/2023	22/12/2023	22/12/2023
	iF1WASE		28/12/2023	28/12/2023	28/12/2023	28/12/2023
	iMET1WCICP		8/1/2024	8/1/2024	8/1/2024	8/1/2024
	iMET1WCMS		5/1/2024	5/1/2024	5/1/2024	5/1/2024
	iNP1WTFIA		8/1/2024	8/1/2024	8/1/2024	8/1/2024
	iPH1WASE		22/12/2023	22/12/2023	22/12/2023	22/12/2023
	iSOL1WDCA		22/12/2023	22/12/2023	22/12/2023	22/12/2023
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID 005
Client ID^ blank

Sampled^

Analyte	Method	Unit	
Alkalinity as CaCO3	iALK1WATI	mg/L	<1
Aluminium	iMET1WCICP	mg/L	<0.005
Antimony	iMET1WCMS	mg/L	<0.0001
Arsenic	iMET1WCMS	mg/L	<0.001
Barium	iMET1WCMS	mg/L	<0.0001
Beryllium	iMET1WCMS	mg/L	<0.0001
Bismuth*	iMET1WCMS	mg/L	<0.0001
Boron	iMET1WCMS	mg/L	<0.005
Cadmium	iMET1WCMS	mg/L	<0.0001
Calcium	iMET1WCICP	mg/L	<0.1
Chloride	iCO1WCDA	mg/L	<1
Chromium	iMET1WCMS	mg/L	<0.0005
Cobalt	iMET1WCMS	mg/L	<0.0001
Copper	iMET1WCMS	mg/L	<0.0001

LAB ID 005
Client ID^ blank

Sampled^

Analyte	Method	Unit	
Electrical Conductivity	iEC1WZSE	mS/m	<0.2
Fluoride	iF1WASE	mg/L	<0.05
Iron	iMET1WCICP	mg/L	<0.005
Lanthanum	iMET1WCMS	mg/L	<0.0001
Lead	iMET1WCMS	mg/L	<0.0001
Lithium	iMET1WCMS	mg/L	<0.0001
Magnesium	iMET1WCICP	mg/L	<0.1
Manganese	iMET1WCMS	mg/L	<0.0001
Mercury	iMET1WCMS	mg/L	<0.0001
Molybdenum	iMET1WCMS	mg/L	<0.001
Nickel	iMET1WCMS	mg/L	<0.001
Nitrogen, total	iNP1WTFIA	mg/L	0.03
pH	iPH1WASE		5.6
Phosphorus	iMET1WCICP	mg/L	<0.1
Potassium	iMET1WCICP	mg/L	<0.1
Selenium	iMET1WCMS	mg/L	<0.001
Silicon	iMET1WCICP	mg/L	<0.05
Silver	iMET1WCMS	mg/L	<0.0001
Sodium	iMET1WCICP	mg/L	<0.1
Strontium	iMET1WCMS	mg/L	<0.0001
Sulphate (from S)	iMET1WCICP	mg/L	<0.1
TDS (calculated)	iSOL1WDCA	mg/L	<5
Thallium	iMET1WCMS	mg/L	<0.0001
Thorium	iMET1WCMS	mg/L	<0.0001
Tin	iMET1WCMS	mg/L	<0.0001
Titanium	iMET1WCMS	mg/L	<0.0005
Uranium	iMET1WCMS	mg/L	<0.0001
Vanadium	iMET1WCMS	mg/L	<0.0001
Yttrium*	iMET1WCMS	mg/L	<0.0002
Zinc	iMET1WCMS	mg/L	<0.001
Date Analysed	iALK1WATI		22/12/2023
	iCO1WCDA		22/12/2023
	iEC1WZSE		22/12/2023
	iF1WASE		28/12/2023
	iMET1WCICP		8/1/2024
	iMET1WCMS		5/1/2024
	iNP1WTFIA		8/1/2024
	iPH1WASE		22/12/2023
	iSOL1WDCA		22/12/2023
Sample Condition			Ambient

Method	Method Description
iALK1WATI	Alkalinity (as CaCO3) and constituents by acid titration.
iCO1WCDA	Colourimetric analysis by DA (Discrete Autoanalyser).
iEC1WZSE	Electrical conductivity in water compensated to 25C.
iF1WASE	Fluoride in water by ion specific electrode (ISE).
iMET1WCICP	Total dissolved metals by ICPAES.
iMET1WCMS	Total dissolved metals by ICPMS.
iNP1WTFIA	Total Nitrogen by persulphate digestion and analysis by FIA.
iPH1WASE	pH in water by pH meter.
iSOL1WDCA	Total Dissolved Solids (TDS) calculated (ECond * 5.5)

One solid material was extracted with DI water following the LEAF Extraction Procedure 1316, and the data from the generated solutions is contained in this report. Insufficient sample was received for a 0.5:1 Liquid/Solid ratio sample.

These results apply only to the sample(s) as received. Unless arrangements are made to the contrary, these samples will be disposed of after 30 days of the issue of this report.

This report may only be reproduced in full.

*Analysis not covered by scope of ChemCentre's NATA accreditation.

^Information provided by client, unless otherwise stated.



Geoffrey Firms
Team Leader
SSD Inorganic Chemistry
12-Jan-2024



Barry Price
Senior Scientist
SSD Inorganic Chemistry

MINERALS TEST REPORT

CLIENT

CHEMISTRY CENTRE (WA)

PO Box 1250
BENTLEY DELIVERY CENTRE, W.A. 6983
AUSTRALIA

JOB INFORMATION

JOB CODE : 396.0/2320270
NO. SAMPLES : 6
NO. ELEMENTS : 4
CLIENT ORDER NO. : 23S1451 (Job 1 of 1)
SAMPLE SUBMISSION NO. : 23S1451
PROJECT :
SAMPLE TYPE : Pulp
DATE RECEIVED : 24/10/2023
DATE TESTED : 26/10/2023 - 31/10/2023
DATE REPORTED : 31/10/2023
DATE PRINTED : 31/10/2023

REPORT NOTES

TESTED BY

Intertek
544 Bickley Road, Maddington 6109, Western Australia
PO Box 144, Gosnells 6990, Western Australia
Tel: +61 8 9263 0100
Email: min.aus.per@intertek.com

APPROVED SIGNATURE FOR



Andrew RILEY
Regional Manager
Geochemistry Western Australia

This report relates specifically to the sample(s) tested that were drawn and/or provided by the client or their nominated third party to Intertek. The reported result(s) provide no warranty or verification on the sample(s) representing any specific goods and/or shipment. This report was prepared solely for the use of the client named in this report. Intertek accepts no responsibility for any loss, damage or liability suffered by a third party as a result of any reliance upon or use of this report. The results provided are not intended for commercial settlement purposes.

Except where explicitly agreed in writing, all work and services performed by Intertek is subject to our standard Terms and Conditions which can be obtained at our website: [intertek.com/terms/](https://www.intertek.com/terms/)

In nominating Intertek for this work, you hereby undertake that the performance of such work will not constitute a breach of, or cause Intertek to be in breach of, any applicable sanctions or other legislation.



SIGNIFICANT FIGURES

It is common practice to report data derived from analytical instrumentation to a maximum of two or three significant figures. Some data reported herein may show more figures than this. The reporting of more than two or three figures in no way implies that figures beyond the least significant digit have significance.

For more information on the uncertainty on individual reported values, please contact the laboratory.

MEASUREMENT OF UNCERTAINTY

Measurement of uncertainty estimates are available for most tests upon request.

SAMPLE STORAGE

All solid samples (assay pulps, bulk pulps and residues) will be stored for 60 days without charge. Following this samples will be stored at a daily rate until clients written advice regarding return, collection or disposal is received. If storage information is not supplied on the submission, or arranged with the laboratory in writing the default will be to store the samples with the applicable charges. Storage is charged at \$4.00 per m3 per day, expenses related to the return or disposal of samples will also be charged. Current disposal costs including packaging in a Class2 waste disposal facility is charged at \$175.00 per m3.

Samples received as liquids, waters or solutions will be held for 60 days free of charge then disposed of, unless written advice for return or collection is received.

LEGEND	X	= Less than Detection Limit	NA	= Not Analysed
	SNR	= Sample Not Received	UA	= Unable to Assay
	LNR	= Lab Not Received	>	= Value beyond Limit of Method
	DTF	= Result still to come	+	= Extra Sample Received Not Listed
	I/S	= Insufficient Sample for Analysis		

UNITS	ppm for Solid Samples	= mg/Kg
	ppb for Solid Samples	= µg/Kg
	ppm for Liquid Samples	= mg/L
	ppb for Liquid Samples	= µg/L



ELEMENTS	B	Cl	F	Si
UNITS	ppm	%	ppm	%
DETECTION LIMIT	50	0.02	50	0.1
DIGEST	FP1/	CL1/	FC7/	FP1/
ANALYTICAL FINISH	OE	COL	SIE	OE
SAMPLE NUMBERS				
0001 23S1451/001	X	X	74	19.8
0002 23S1451/002	X	X	501	24.2
0003 23S1451/003	X	X	213	18.7
0004 23S1451/004	X	X	2227	15.8
0005 23S1451/005	X	X	1162	6.5
0006 23S1451/006	159	X	1175	15.0
CHECKS				
0001 23S1451/002	X	X	425	25.3
STANDARDS				
0001 AMIS0342			1078	
0002 0.5%NaCl-1		0.32		
0003 AMIS0341			3502	
0004 AMIS0343			2319	
0005 SO-2	X			24.1
0006 OREAS 20a	X			30.8
BLANKS				
0001 Control Blank	X	X	X	X

**METHOD CODE DESCRIPTION**

Method Code Date Tested	Analysing Laboratory NATA Laboratory Accreditation	NATA Scope of Accreditation
CL1/COL 26/10/23 08:11	Intertek Genalysis Perth 3244 3237 Carbonate leach specific for Chlorine. Analysed by UV-Visible Spectrometry.	ENV_W014
FC7/SIE 26/10/23 09:25	Intertek Genalysis Perth 3244 3237 Alkaline fusion (Nickel crucible) specific for Fluorine. Analysed by Specific Ion Electrode.	ENV_W012
FP1/OE 27/10/23 05:26	Intertek Genalysis Perth 3244 3237 Sodium peroxide fusion (Zirconia crucibles) and Hydrochloric acid to dissolve the melt. Analysed by Inductively Coupled Plasma Optical (Atomic) Emission Spectrometry.	MPL_W011, MS_IM_001

* Denotes not on Scope of Accreditation

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_001
Client ID: 23S1007/001
Analysis: Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

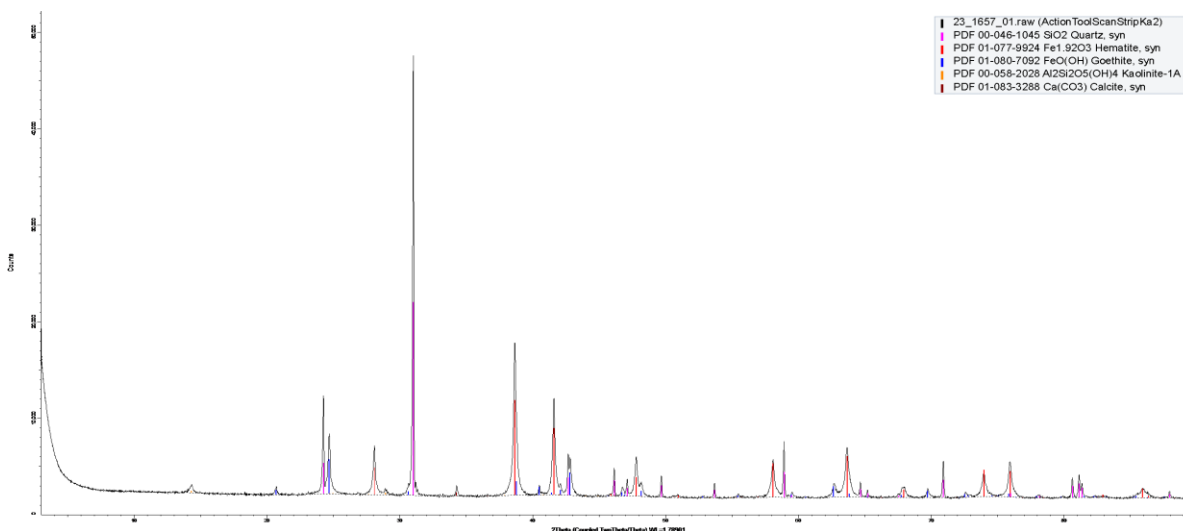
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	55	High
Hematite, syn (Fe _{1.92} O ₃)	29	High
Goethite, syn (FeO(OH))	12	Medium
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	2	Medium
Calcite, syn (Ca(CO ₃))	1	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sruthy Balakrishnan, Ph.D. Physics
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_002
Client ID: 23S1007/002
Analysis: Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

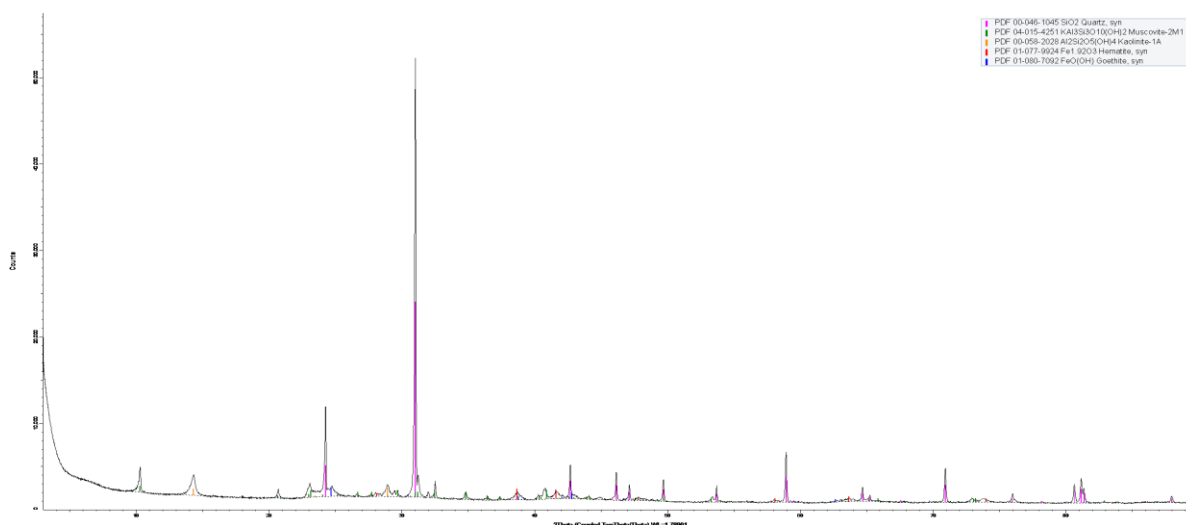
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	60	High
Muscovite-2M1 (KAl ₃ Si ₃ O ₁₀ (OH) ₂)	24	Medium
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	9	Medium
Hematite, syn (Fe _{1.92} O ₃)	4	High
Goethite, syn (FeO(OH))	3	Medium

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sruthy Balakrishnan, Ph.D. Physics
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_003
Client ID: 23S1007/006
Analysis: Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

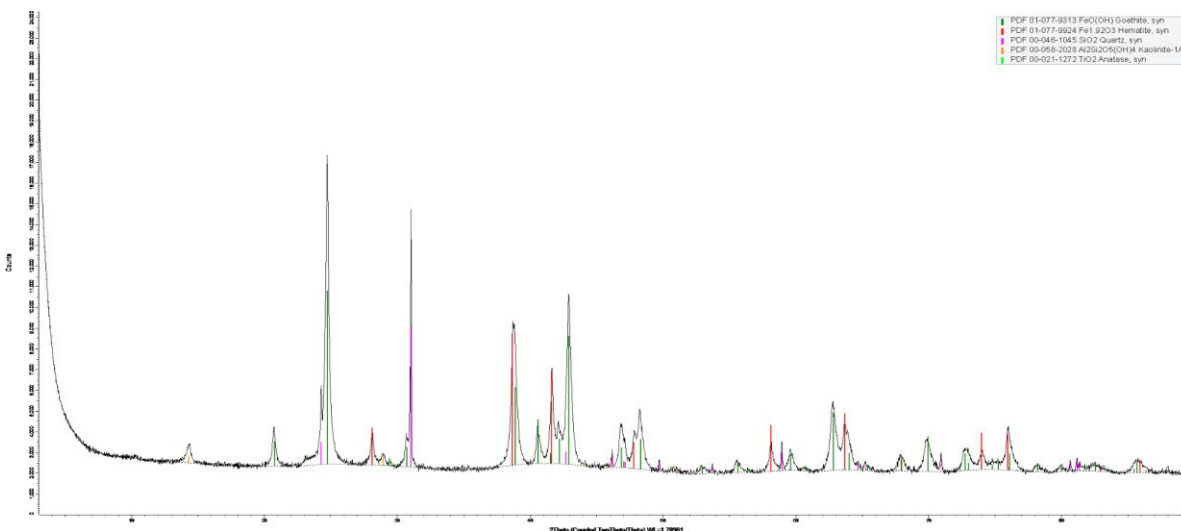
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Goethite, syn (FeO(OH))	42	High
Hematite, syn (Fe _{1.92} O ₃)	26	High
Quartz, syn (SiO ₂)	25	High
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	6	Medium
Anatase, syn (TiO ₂)	1	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_004
Client ID: 23S1007/007
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

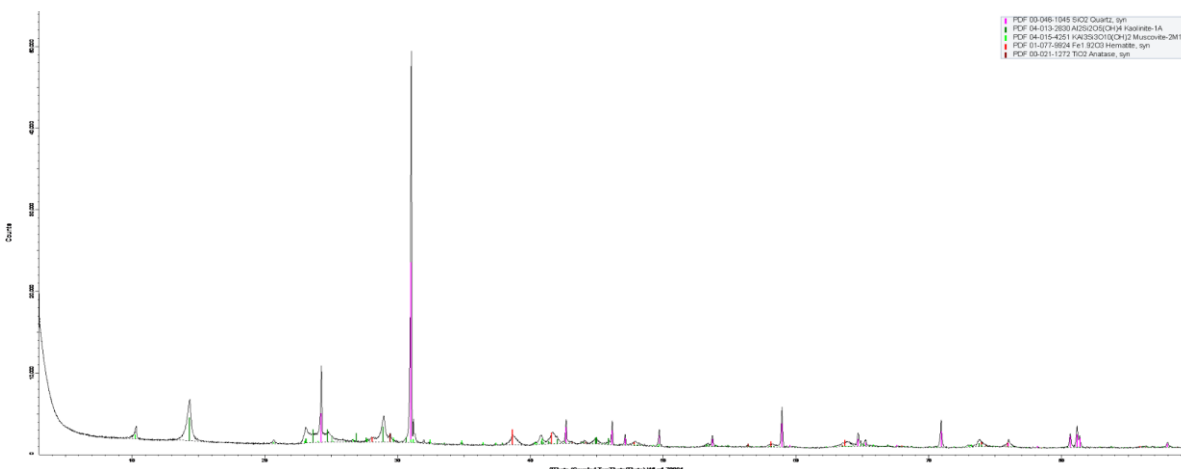
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	54	High
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	24	Medium
Muscovite-2M1 (KAl ₃ Si ₃ O ₁₀ (OH) ₂)	15	Medium
Hematite, syn (Fe _{1.92} O ₃)	5	Medium
Anatase, syn (TiO ₂)	3	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_005
Client ID: 23S1007/008
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

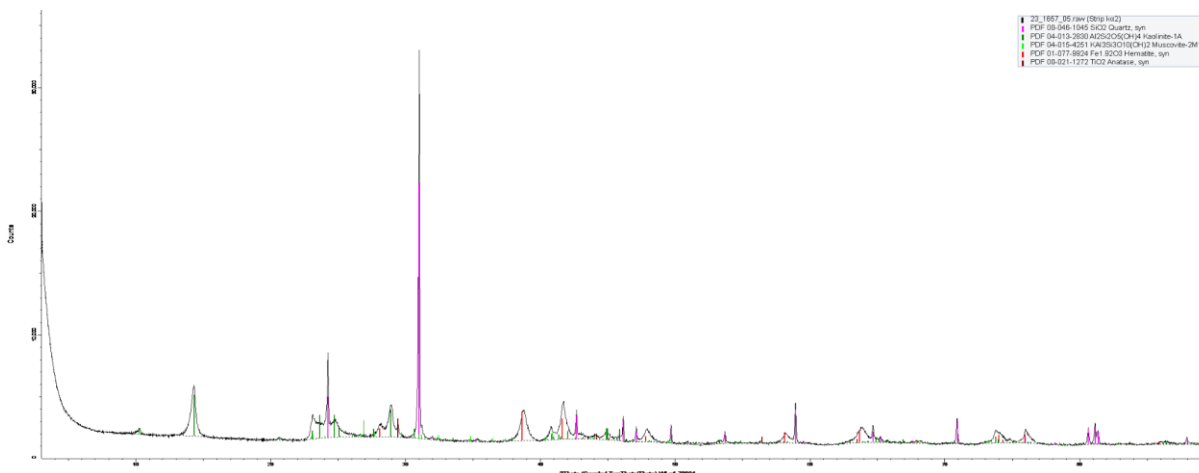
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	50	High
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	28	Medium
Muscovite-2M1 (KAl ₃ Si ₃ O ₁₀ (OH) ₂)	11	Medium
Hematite, syn (Fe _{1.92} O ₃)	7	Medium
Anatase, syn (TiO ₂)	4	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_006
Client ID: 23S1007/009
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

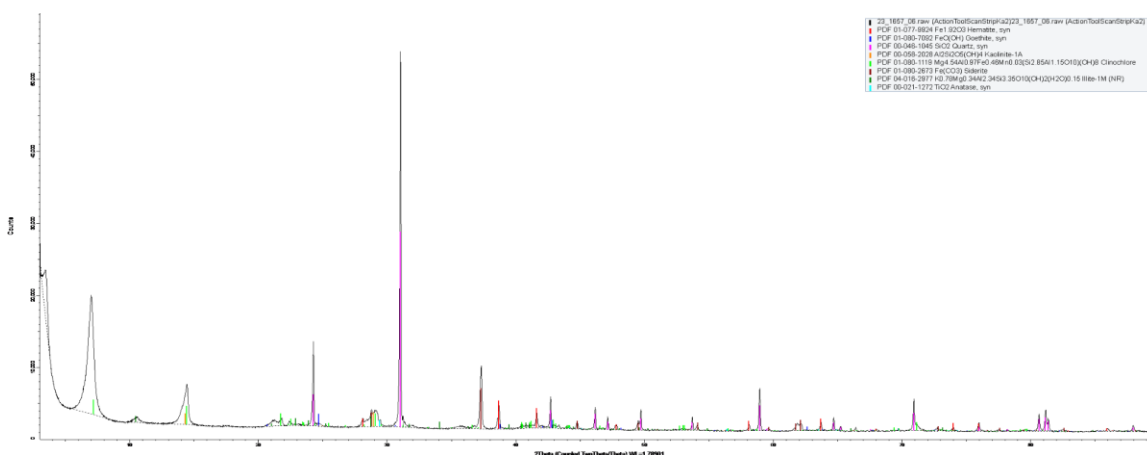
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	41	High
Clinocllore (Mg _{4.54} Al _{0.97} Fe _{0.46} Mn _{0.03} [Si _{2.85} Al _{1.15} O ₁₀](OH) ₈)	21	Medium
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	10	Medium
Illite-1M (NR) (K _{0.78} Mg _{0.34} Al _{2.34} Si _{3.35} O ₁₀ (OH) ₂ (H ₂ O) _{0.15})	10	Low
Siderite (Fe(CO ₃))	9	Medium
Hematite, syn (Fe _{1.92} O ₃)	7	Medium
Anatase, syn (TiO ₂)	1	Low
Goethite, syn (FeO(OH))	1	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_007
Client ID: 2351007/010
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

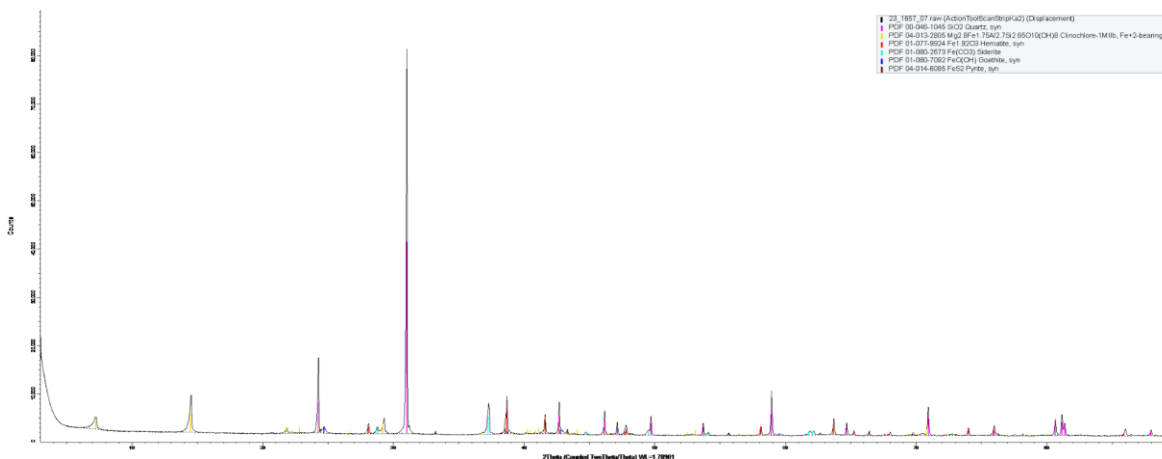
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	62	High
Clinocllore-1Mlib, Fe+2-bearing (Mg _{2.8} Fe _{1.75} Al _{2.75} Si _{2.65} O ₁₀ (OH) ₈)	19	Medium
Hematite, syn (Fe _{1.92} O ₃)	9	Medium
Siderite (Fe(CO ₃))	5	Medium
Goethite, syn (FeO(OH))	3	Low
Pyrite, syn (FeS ₂)	2	Medium

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_008
Client ID: 23S1007/012
Analysis: Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

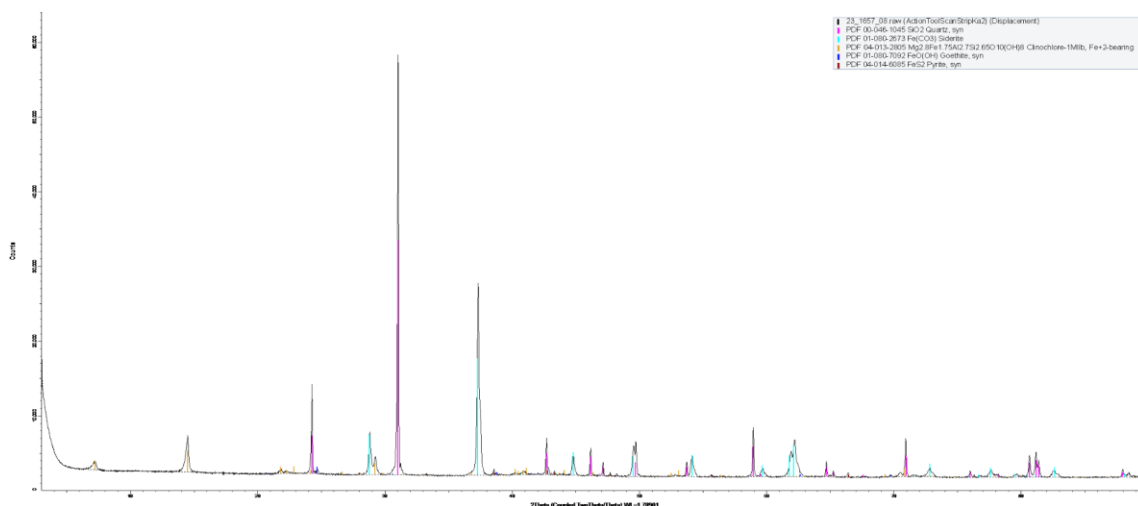
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	55	High
Siderite (Fe(CO ₃))	26	Medium
Clinocllore-1M11b, Fe+2-bearing (Mg _{2.8} Fe _{1.75} Al _{2.75} Si _{2.65} O ₁₀ (OH) ₈)	16	Medium
Goethite, syn (FeO(OH))	2	Low
Pyrite, syn (FeS ₂)	1	Medium

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_009
Client ID: 23S1007/013
Analysis: Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

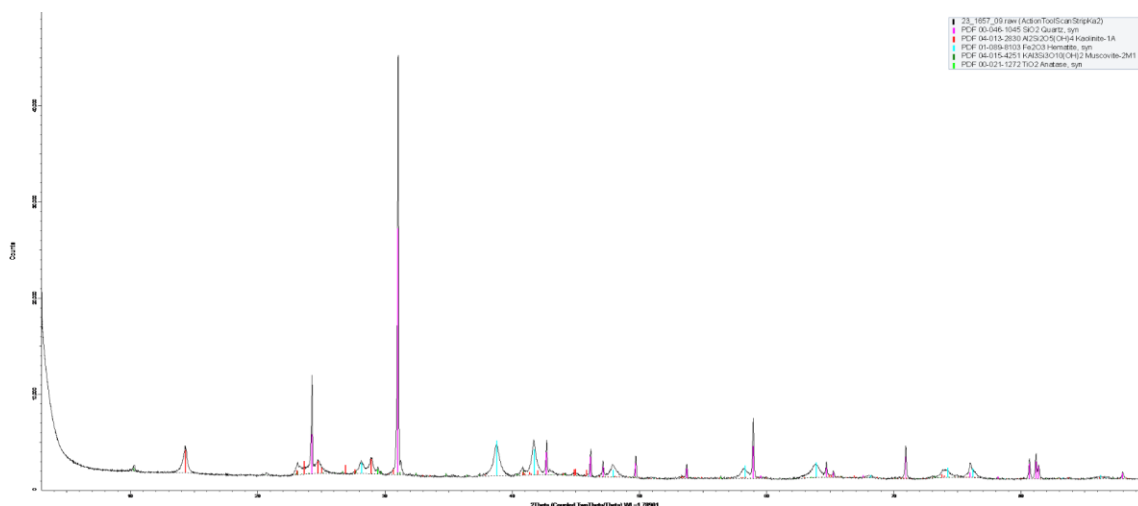
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	61	Major
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	19	Major
Hematite, syn (Fe ₂ O ₃)	9	Major
Muscovite-2M1 (KAl ₃ Si ₃ O ₁₀ (OH) ₂)	9	Major
Anatase, syn (TiO ₂)	1	Minor

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_010
Client ID: 2351007/014
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

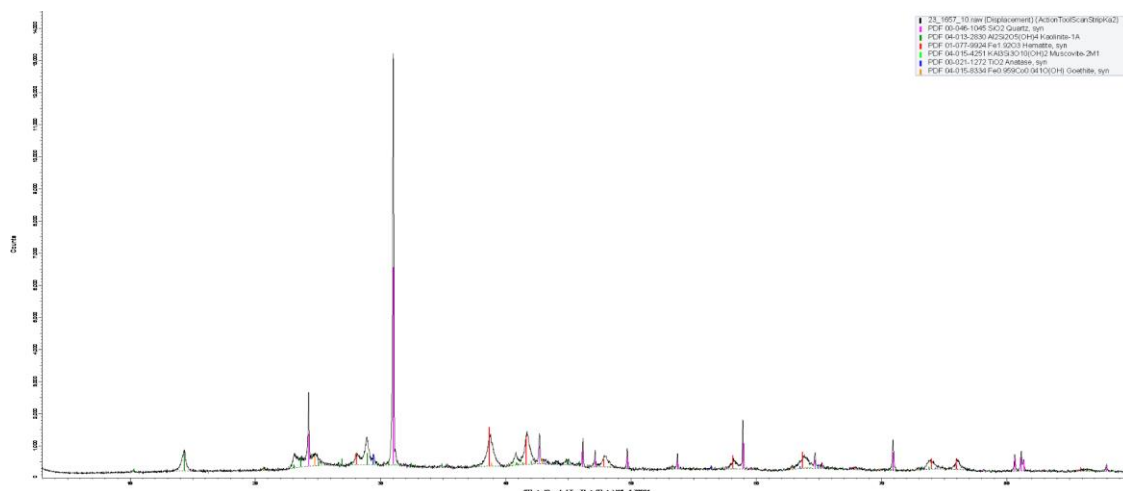
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	58	High
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	17	Medium
Hematite, syn (Fe _{1.92} O ₃)	12	Medium
Muscovite-2M1 (KAl ₃ Si ₃ O ₁₀ (OH) ₂)	6	Low
Anatase, syn (TiO ₂)	3	Low
Goethite, syn (Fe _{0.959} Co _{0.041} O(OH))	3	Minor

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_011
Client ID: 2351007/016
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

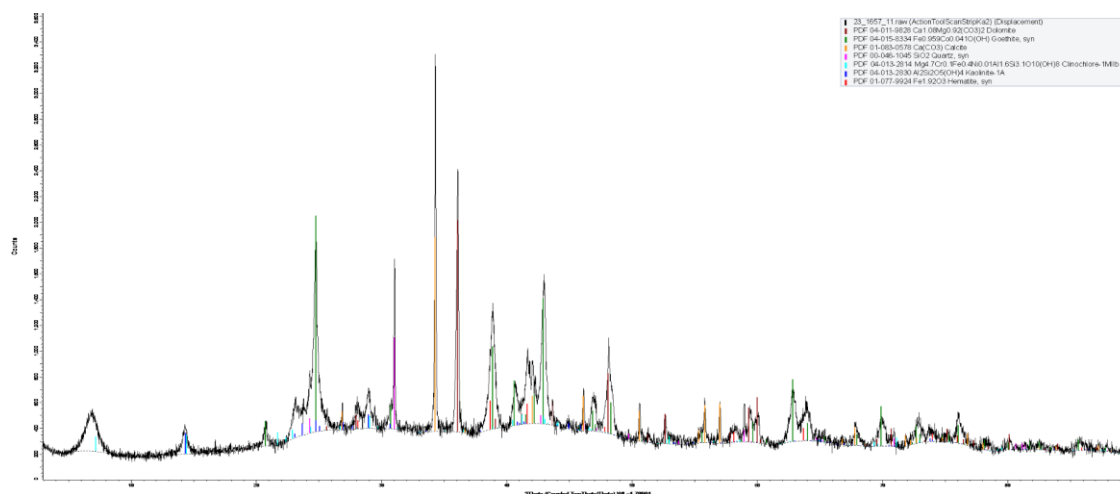
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Dolomite (Ca _{1.08} Mg _{0.92} (CO ₃) ₂)	28	Medium
Goethite, syn (Fe _{0.959} Co _{0.041} O(OH))	24	Medium
Calcite (Ca(CO ₃))	20	High
Quartz, syn (SiO ₂)	9	High
Clinocllore-1M1b (Mg _{4.7} Cr _{0.1} Fe _{0.4} Ni _{0.01} Al _{1.6} Si _{3.1} O ₁₀ (OH) ₈)	9	Medium
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	7	Medium
Hematite, syn (Fe _{1.92} O ₃)	3	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration. **The amorphous content in this sample is high and estimated to be > 40%**



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: 0

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_012
Client ID: 23S1007/017
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

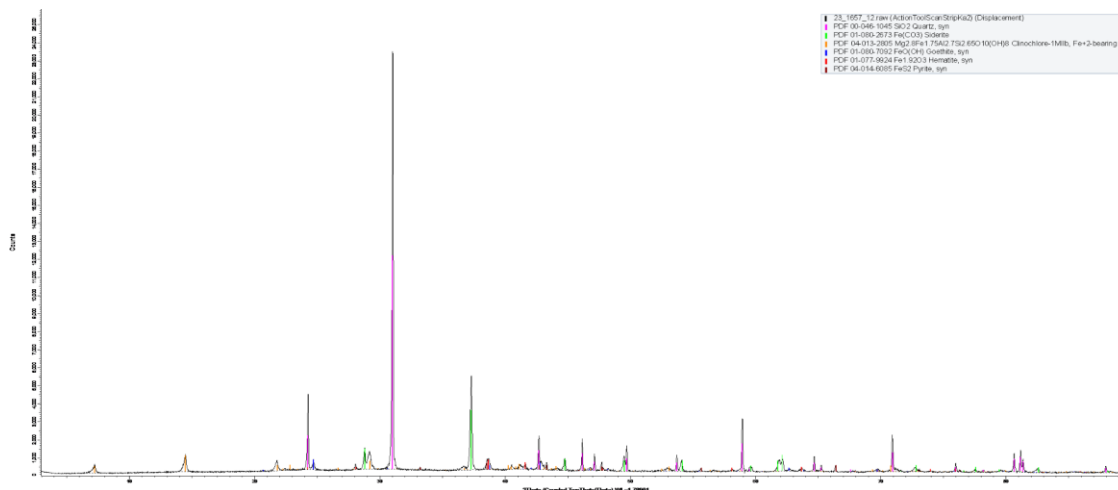
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	60	High
Siderite (FeCO ₃)	16	Medium
Clinocllore-1M1b, Fe+2-bearing (Mg _{2.8} Fe _{1.75} Al _{2.75} Si _{2.65} O ₁₀ (OH) ₈)	14	Medium
Goethite, syn (FeO(OH))	4	Medium
Hematite, syn (Fe _{1.92} O ₃)	3	Low
Pyrite, syn (FeS ₂)	3	Medium

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_013
Client ID: 23S1007/018
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/I_c value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

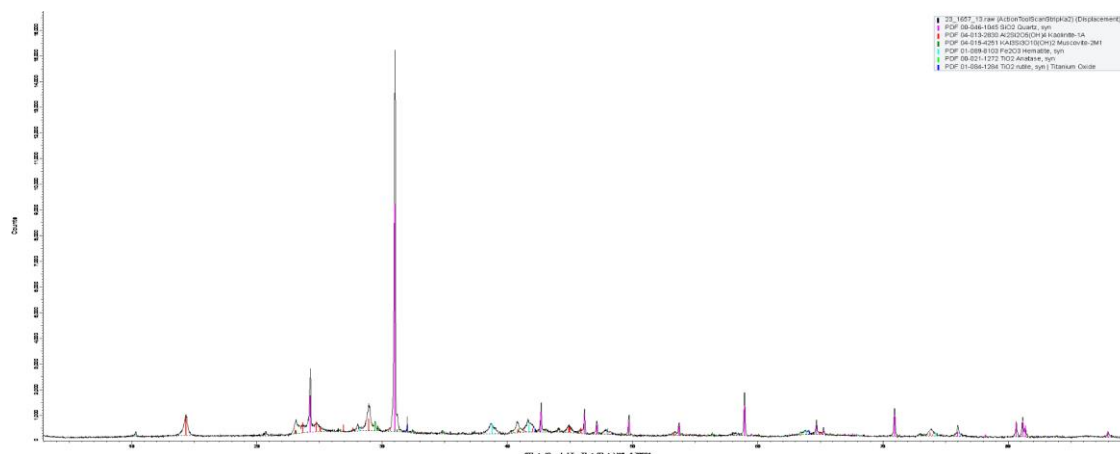
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	66	High
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	18	Medium
Muscovite-2M1 (KAl ₃ Si ₃ O ₁₀ (OH) ₂)	10	Medium
Hematite, syn (Fe ₂ O ₃)	3	Medium
Anatase, syn (TiO ₂)	2	Low
rutile, syn Titanium Oxide (TiO ₂)	2	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_014
Client ID: 23S1007/020
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/I_c value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

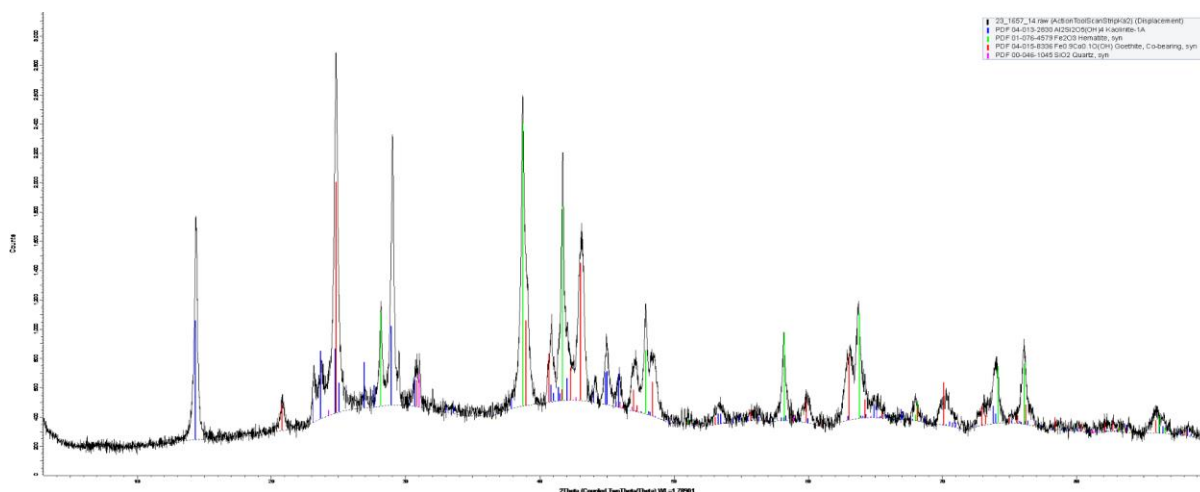
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	38	Medium
Hematite, syn (Fe ₂ O ₃)	33	High
Goethite, Co-bearing, syn (Fe _{0.9} Co _{0.1} O(OH))	26	Medium
Quartz, syn (SiO ₂)	3	Medium

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration. **The amorphous content in this sample is high and estimated to be > 40%**



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_015
Client ID: 23S1007/023
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 μm . Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/I_c value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

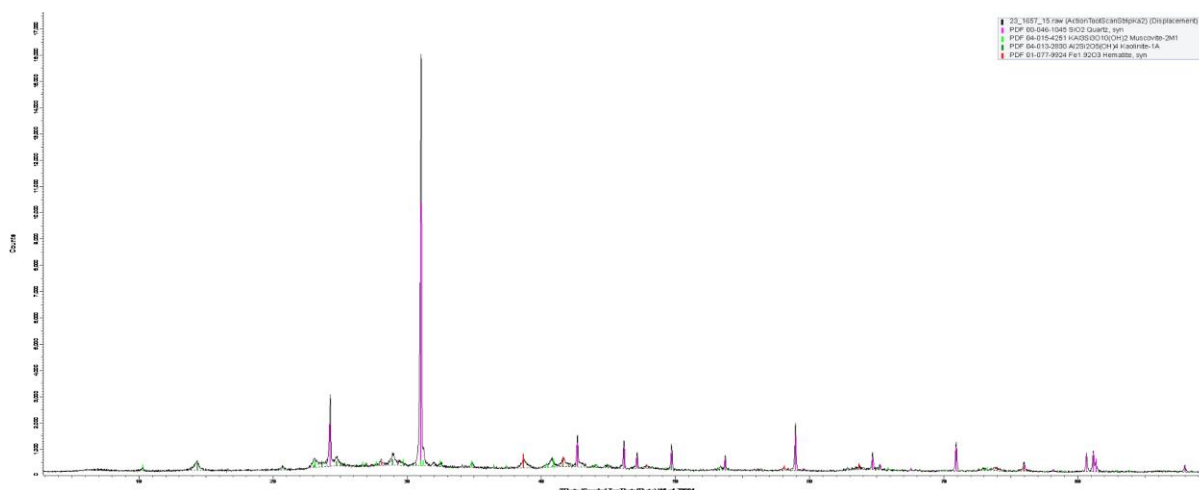
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	69	High
Muscovite-2M1 (KAl ₃ Si ₃ O ₁₀ (OH) ₂)	20	Low
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	8	Medium
Hematite, syn (Fe _{1.92} O ₃)	4	Medium

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_016
Client ID: 23S1007/024
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

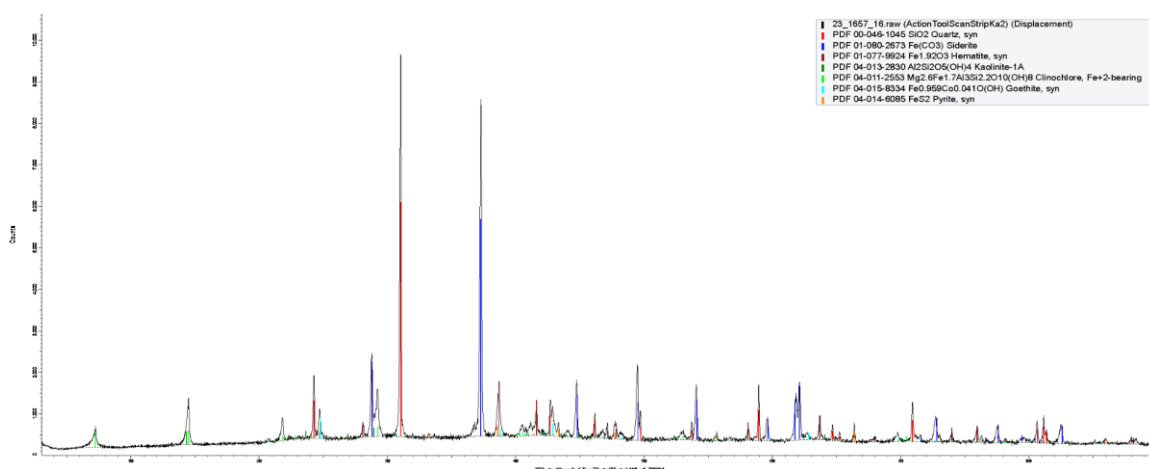
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	38	High
Siderite (FeCO ₃)	34	Medium
Hematite, syn (Fe _{1.92} O ₃)	9	High
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	7	Low
Clinocllore, Fe+2-bearing (Mg _{2.6} Fe _{1.7} Al ₃ Si _{2.2} O ₁₀ (OH) ₈)	7	Medium
Goethite, syn (Fe _{0.959} Co _{0.041} O(OH))	4	Low
Pyrite, syn (FeS ₂)	2	Medium

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_017
Client ID: 23S1007/029
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/c value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

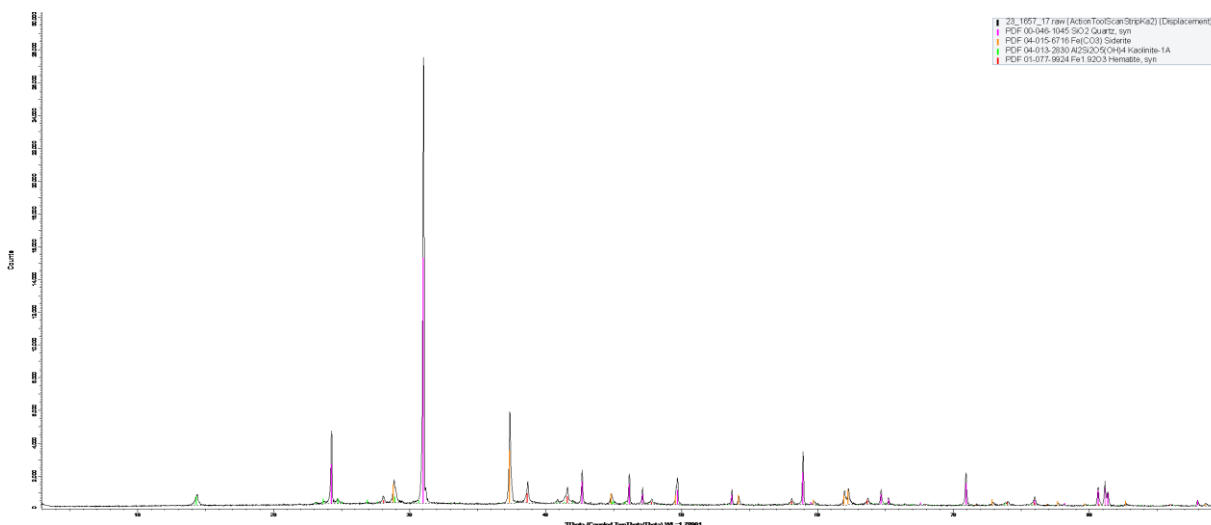
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	73	High
Siderite (Fe(CO ₃))	15	Medium
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	9	Low
Hematite, syn (Fe _{1.92} O ₃)	3	Medium

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_018
Client ID: 23S1007/030
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/c value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

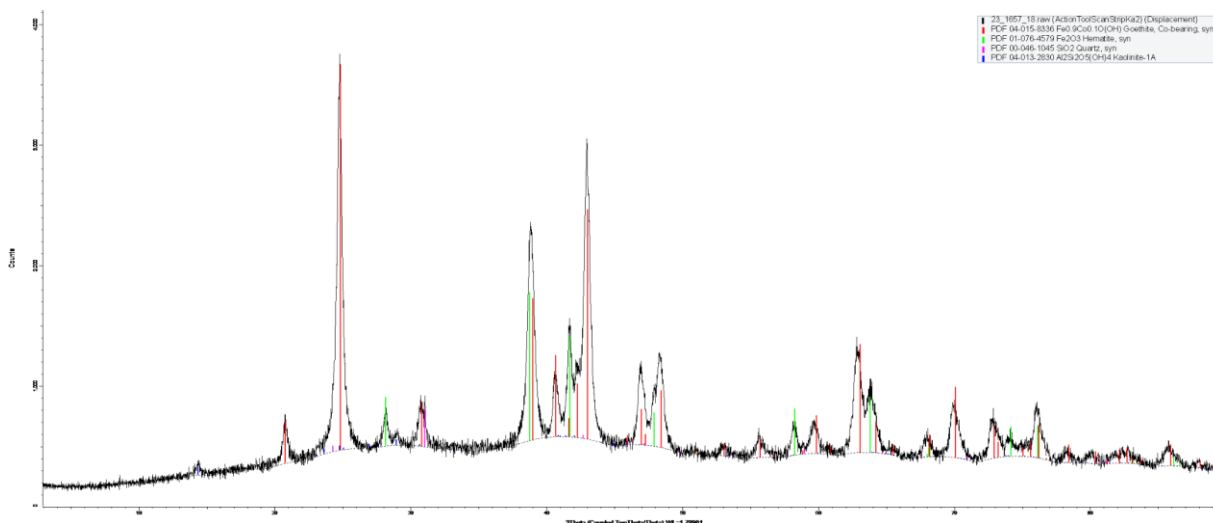
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Goethite, Co-bearing, syn (Fe _{0.9} Co _{0.1} O(OH))	65	Medium
Hematite, syn (Fe ₂ O ₃)	26	Medium
Quartz, syn (SiO ₂)	5	Medium
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	4	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration. **The amorphous content in this sample is high and estimated to be > 40%**



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_019
Client ID: 23S1007/033
Analysis: Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

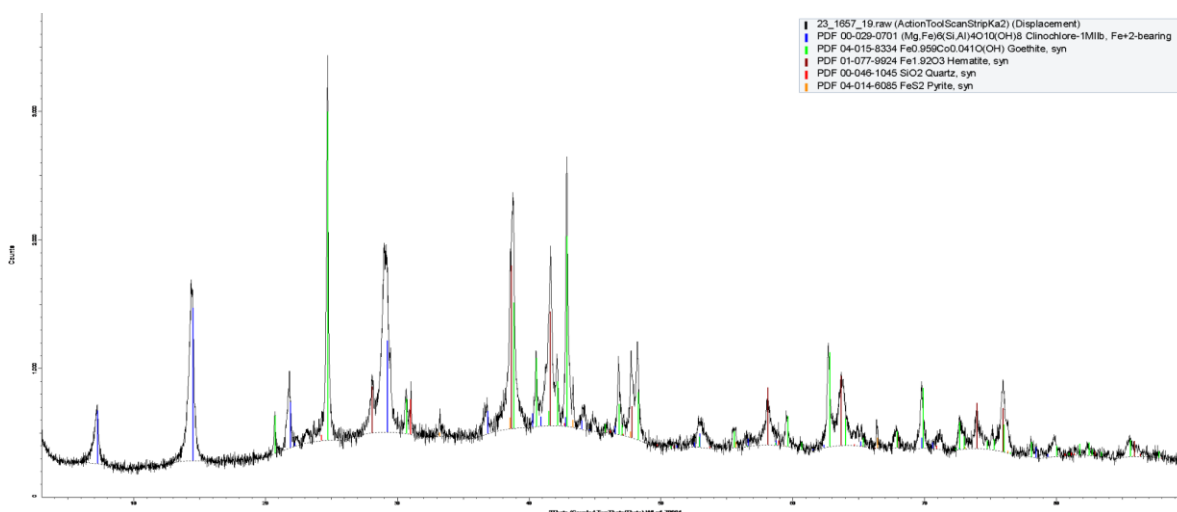
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Clinocllore-1M1lb, Fe+2-bearing ((Mg,Fe)6(Si,Al)4O10(OH)8)	46	Medium
Goethite, syn (Fe0.959Co0.041O(OH))	34	Medium
Hematite, syn (Fe1.92O3)	16	Medium
Quartz, syn (SiO2)	3	Medium
Pyrite, syn (FeS2)	1	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration. **The amorphous content in this sample is high and estimated to be > 40%**



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_020
Client ID: 23S1007/036
Analysis: Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

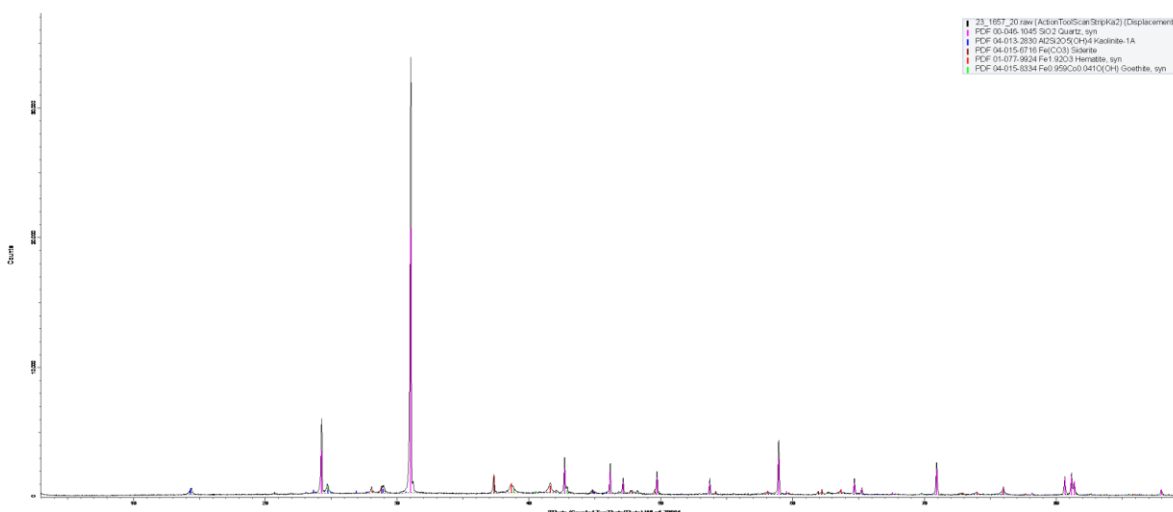
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	83	High
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	6	Low
Siderite (Fe(CO ₃))	5	Medium
Hematite, syn (Fe _{1.92} O ₃)	3	Medium
Goethite, syn (Fe _{0.959} Co _{0.041} O(OH))	2	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_021
Client ID: 23S1007/042
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

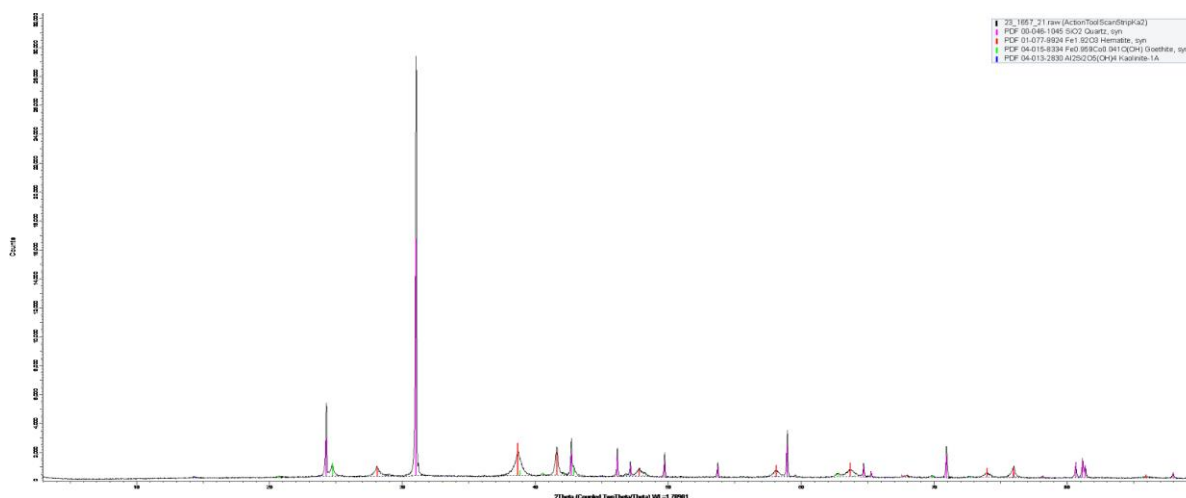
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	81	High
Hematite, syn (Fe _{1.92} O ₃)	12	Medium
Goethite, syn (Fe _{0.959} Co _{0.041} O(OH))	5	Medium
Kaolinite-1A (Al ₂ Si ₂ O ₅ (OH) ₄)	1	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_022
Client ID: 23S1007/043
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

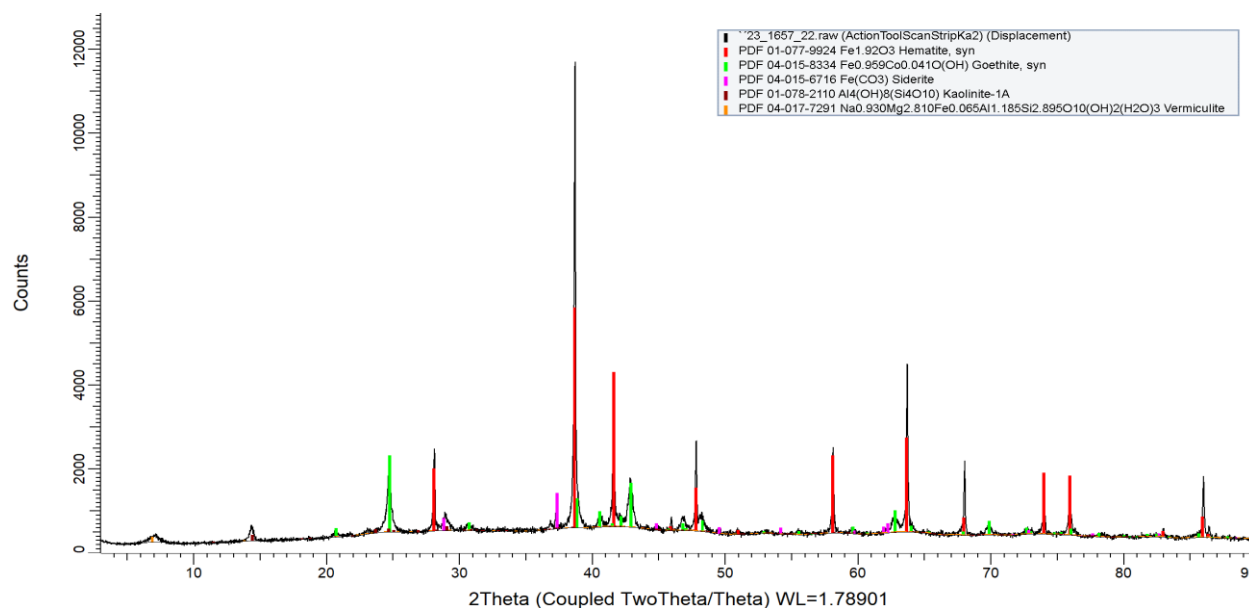
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Hematite, syn (Fe _{1.92} O ₃)	62	High
Goethite, syn (Fe _{0.959} Co _{0.041} O(OH))	23	High
Siderite (Fe(CO ₃))	9	Medium
Kaolinite-1A (Al ₄ (OH) ₈ (Si ₄ O ₁₀))	6	Medium
Vermiculite (Na _{0.930} Mg _{2.810} Fe _{0.065} Al _{1.185} Si _{2.895} O ₁₀ (OH) ₂ (H ₂ O) ₃)	Trace	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Nimue Pendragon, B.Sc.(Nanotechnology)
Reported: Nimue Pendragon, B.Sc.(Nanotechnology)
Approved: Sandy Lam, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_023
Client ID: 23S1007/045
Analysis: Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

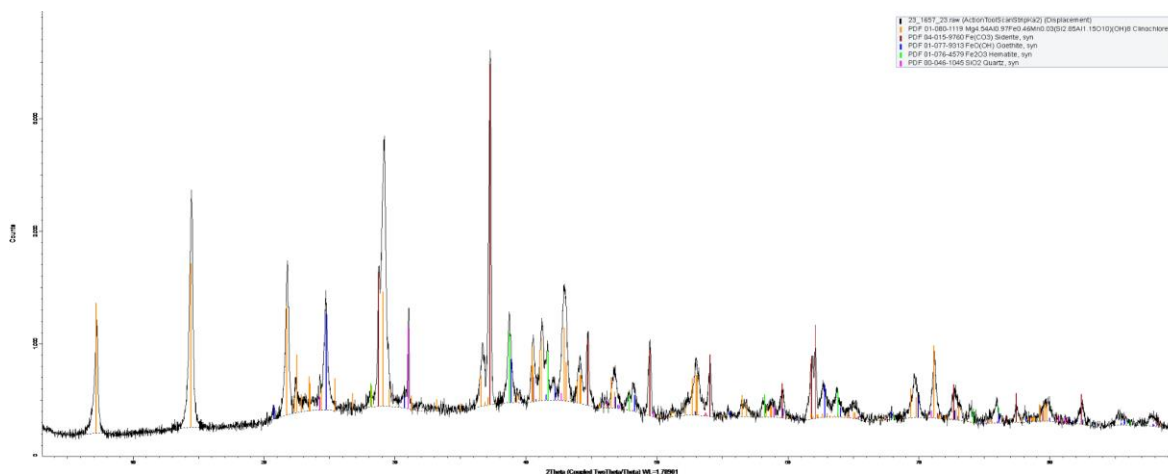
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Clinocllore (Mg ₄ .54Al _{0.97} Fe _{0.46} Mn _{0.03} (Si ₂ .85Al _{1.15} O ₁₀)(OH) ₈)	56	Medium
Siderite, syn (Fe(CO ₃))	24	Medium
Goethite, syn (FeO(OH))	9	Medium
Hematite, syn (Fe ₂ O ₃)	6	Medium
Quartz, syn (SiO ₂)	5	High

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration. **The amorphous content in this sample is high and estimated to be > 30%**



Analyst: Sandy Lam, B.Sc.(Nanotechnology)
Reported: Sandy Lam, B.Sc.(Nanotechnology)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1657
Lab ID: 23_1657_024
Client ID: 23S1007/046
Analysis : Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 21/09/2023
Date analysed: 03/11/2023
Date reported: 03/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 21/09/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

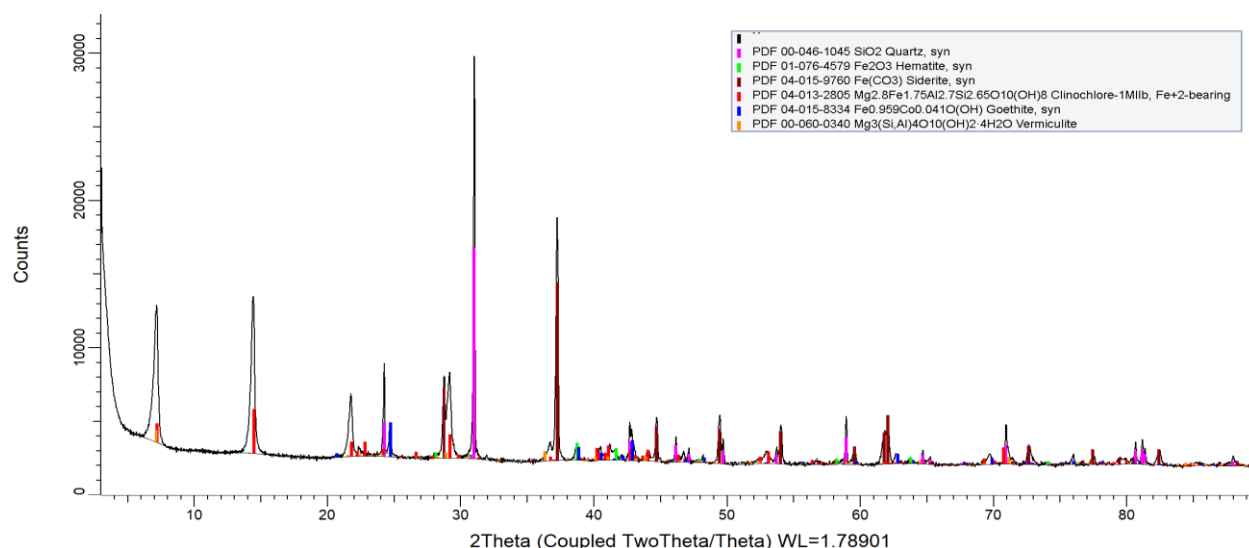
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Quartz, syn (SiO ₂)	33	High
Siderite, syn (Fe(CO ₃))	29	High
Clinocllore-1MIIb, Fe+2-bearing (Mg _{2.8} Fe _{1.75} Al _{2.75} Si _{2.65} O ₁₀ (OH) ₈)	22	Medium
Vermiculite (Mg ₃ (Si,Al) ₄ O ₁₀ (OH) ₂ ·4H ₂ O)	6	Low
Goethite, syn (Fe _{0.959} Co _{0.041} O(OH))	6	Medium

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Nimue Pendragon, B.Sc.(Nanotechnology)
Reported: Nimue Pendragon, B.Sc.(Nanotechnology)
Approved: Sandy Lam, B.Sc.(Nanotechnology)

Client: ChemCentre
Client address: Resource & Chemistry Precinct, South Wing, Building 500 Bentley WA 6102
Job number: 23_1873
Lab ID: 23_1873_001
Client ID: 23S1451/007
Analysis: Semi-quantitative XRD analysis
Revision number: 0
Comments: None

Date received: 24/10/2023
Date analysed: 21/11/2023
Date reported: 21/11/2023

Sample preparation

The sample was supplied by the client to Microanalysis Australia on 24/10/2023 for the above mentioned analyses. A representative sub-sample was removed and lightly ground such that 90% was passing 20 µm. Grinding to this size helps eliminate preferred orientation.

Analysis

Only crystalline material present in the sample will give peaks in the XRD scan. Amorphous (non-crystalline) material will add to the background. The search match software used was Eva 4.3. An up-to-date ICDD card set was used. The X-ray source was cobalt radiation.

No standards were used in the quantification process. The concentrations were calculated using the normalized reference intensity ratio method where the intensity of the 100% peak divided by the published I/Ic value for each mineral phase is summed and the relative percentages of each phase calculated based on the relative contribution to the sum. This method allows for slight attention to be paid to preferred orientation but is limited in considering other factors including but not limited to; variable crystallinity, alteration, fluorescence, substitution and lattice strain.

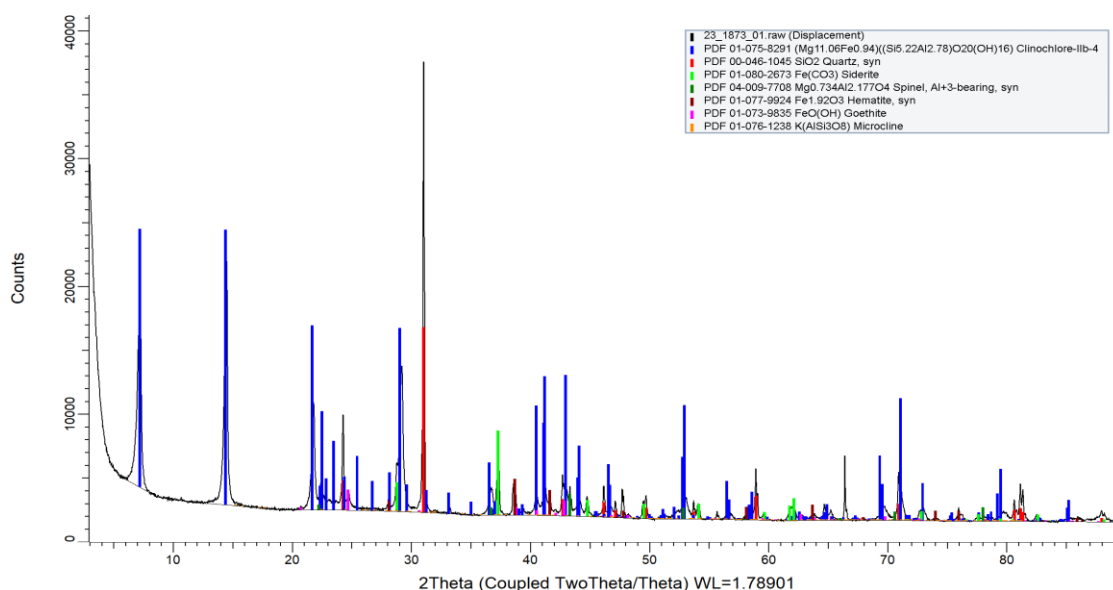
Summary

The phases are listed in order of interpreted concentration:

Crystalline mineral phase	Concentration (wt %)	ICDD match probability
Clinocllore-Ilb-4 ((Mg11.06Fe0.94)((Si5.22Al2.78)O20(OH)16))	78	High
Quartz, syn (SiO2)	11	High
Siderite (Fe(CO3))	5	High
Spinel, Al+3-bearing, syn (Mg0.734Al2.177O4)	3	Low
Hematite, syn (Fe1.92O3)	2	Medium
Goethite (FeO(OH))	2	Medium
Microcline (K(AlSi3O8))	1	Low

The ICDD match probability is reported as an indication as to how well the peak positions and relative intensities for the sample matched those in the published literature (www.icdd.org) for that particular compound.

The table represents the normalised concentrations (wt%) of each phase without considering any amorphous material concentration.



Analyst: Jarvis Lawson, Cert IV (Laboratory Techniques)
Reported: Jarvis Lawson, Cert IV (Laboratory Techniques)
Approved: Nimue Pendragon, B.Sc.(Nanotechnology)

ChemCentre Id	Method Code	Limits of Reporting	Units	23S1419/001	23S1419/002	23S1419/003	23S1419/004	23S1419/005	23S1419/006
Client Id				MDRC0964_06-12 M0	MDRC1348_94-100 M0	MDRC1415_98-104 M0	MDRC1486_86-94 M0	MDRC0964_06-12 M1	MDRC1348_94-100 M1
Description				22S4297/007 Month 0	22S4297/031 Month 0	22S4297/070 Month 0	22S4297/097 Month 0	22S4297/007 Month 1	22S4297/031 Month 1
Sampled				23/10/2023	23/10/2023	23/10/2023	23/10/2023	20/11/2023	20/11/2023
Volume	iVOLUME	0.1	mL	210	270	260	240	200	320
pH	iPH1WASE	0.1		7.6	6.1	4	4.1	7.3	6.7
ECond	iEC1WZSE	0.2	mS/m	170	101	455	445	43.9	136
TDS_calc	iSOL1WDCA	5	mg/L	940	550	2500	2400	240	750
Alkalin	iALK1WATI	1	mg/L	74	8	<1	<1	27	7
Ag	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Al	iMET1WCICP	0.005	mg/L	0.025	0.027	13	8.7	0.011	<0.005
As	iMET1WCMS	0.001	mg/L	0.013	0.003	0.006	0.005	0.02	<0.001
B	iMET1WCMS	0.005	mg/L	0.62	0.042	0.24	0.38	0.51	0.07
Ba	iMET1WCMS	0.0001	mg/L	0.14	0.002	0.073	0.027	0.015	0.0014
Be	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	0.018	0.02	<0.0001	<0.0001
Bi	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ca	iMET1WCICP	0.1	mg/L	56.7	61.2	305	414	10.3	49.4
Cd	iMET1WCMS	0.0001	mg/L	0.0048	0.0001	0.0066	0.0043	0.0012	0.0001
Cl	iCO1WCDA	1	mg/L	224	18	73	39	28	46
Co	iMET1WCMS	0.0001	mg/L	2.3	0.034	2.2	0.89	0.58	0.024
Cr	iMET1WCMS	0.0005	mg/L	0.001	<0.0005	0.0056	0.0078	0.0011	<0.0005
Cu	iMET1WCMS	0.0001	mg/L	0.47	0.0023	0.55	0.69	0.14	0.0012
F	iF1WASE	0.05	mg/L	1.2	0.16	3.1	1.6	5.7	0.33
Fe	iMET1WCICP	0.005	mg/L	0.14	0.012	0.89	0.14	0.025	<0.005
Hg	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
K	iMET1WCICP	0.1	mg/L	33.6	12.3	41.8	94.6	11.5	16.4
La	iMET1WCMS	0.0001	mg/L	0.002	<0.0001	0.017	0.0055	<0.0001	<0.0001
Li	iMET1WCMS	0.0001	mg/L	0.0029	0.041	0.037	0.29	0.0018	0.028
Mg	iMET1WCICP	0.1	mg/L	52.7	73.8	418	361	8.5	129
Mn	iMET1WCMS	0.0001	mg/L	1.1	14	260	130	0.19	28
Mo	iMET1WCMS	0.001	mg/L	0.009	<0.001	<0.001	<0.001	0.017	<0.001
N_total	iNP1WTFIA	0.01	mg/L	15	1.3	1.4	1.6	1.5	1.1
Na	iMET1WCICP	0.1	mg/L	223	31.9	197	184	64.3	35.1
Ni	iMET1WCMS	0.001	mg/L	0.6	0.057	7.2	5.6	0.13	0.038
P	iMET1WCICP	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pb	iMET1WCMS	0.0001	mg/L	0.0042	0.0004	0.0027	0.003	0.0003	<0.0001
SO4_S	iMET1WCICP	0.1	mg/L	358	467	2890	2810	139	710
Sb	iMET1WCMS	0.0001	mg/L	0.0014	0.0001	0.0001	0.0001	0.0012	<0.0001
Se	iMET1WCMS	0.001	mg/L	0.003	0.011	0.15	0.058	<0.001	0.017
Si	iMET1WCICP	0.05	mg/L	25	1	11	23	29	0.98
Sn	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001
Sr	iMET1WCMS	0.0001	mg/L	0.5	0.091	1.2	1.3	0.083	0.08
Th	iMET1WCMS	0.0001	mg/L	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ti	iMET1WCMS	0.0005	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Tl	iMET1WCMS	0.0001	mg/L	0.0002	0.0008	0.0006	0.0002	0.0001	0.0009
U	iMET1WCMS	0.0001	mg/L	0.0002	<0.0001	0.0037	0.0027	0.0002	<0.0001
V	iMET1WCMS	0.0001	mg/L	0.0035	<0.0001	0.0003	0.0001	0.016	<0.0001
Y	iMET1WCMS	0.0002	mg/L	0.039	<0.0002	0.15	0.075	0.0085	<0.0002
Zn	iMET1WCMS	0.001	mg/L	0.15	0.11	8.2	17	0.017	0.031

ChemCentre Id	Method Code	Limits of Reporting	Units	23S1419/007	23S1419/008	23S1419/009	23S1419/010	23S1419/011	23S1419/012	23S1419/013
Client Id				MDRC1415_98-104 M1	MDRC1486_86-94 M1	MDRC0964_06-12 M2	MDRC1348_94-100 M2	MDRC1415_98-104 M2	MDRC1486_86-94 M2	MDRC0964_06-12 M3
Description				22S4297/070 Month 1	22S4297/097 Month 1	22S4297/007 Month 2	22S4297/031 Month 2	22S4297/070 Month 2	22S4297/097 Month 2	22S4297/007 Month 3
Sampled				20/11/2023	20/11/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023	15/01/2024
Volume	iVOLUME	0.1	mL	310	260	200	330	310	270	200
pH	iPH1WASE	0.1		4.3	4.2	7	6.7	4.3	4.1	7.1
ECond	IEC1WZSE	0.2	mS/m	242	175	26.5	72.2	182	172	22.9
TDS_calc	iSOL1WDCA	5	mg/L	1300	960	150	400	1000	950	130
Alkalin	iALK1WATI	1	mg/L	<1	<1	28	5	<1	<1	29
Ag	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Al	iMET1WCICP	0.005	mg/L	1.5	0.76	0.042	<0.005	0.97	1.3	0.009
As	iMET1WCMS	0.001	mg/L	0.002	0.001	0.03	<0.001	<0.001	<0.001	0.034
B	iMET1WCMS	0.005	mg/L	0.14	0.29	0.38	0.036	0.063	0.26	0.32
Ba	iMET1WCMS	0.0001	mg/L	0.04	0.0046	0.012	0.0009	0.03	0.0073	0.017
Be	iMET1WCMS	0.0001	mg/L	0.005	0.0068	<0.0001	<0.0001	0.0031	0.012	<0.0001
Bi	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ca	iMET1WCICP	0.1	mg/L	166	166	5.9	27.4	122	167	5
Cd	iMET1WCMS	0.0001	mg/L	0.0042	0.0015	0.0005	<0.0001	0.0033	0.0024	0.0003
Cl	iCO1WCDA	1	mg/L	56	17	7	16	26	16	3
Co	iMET1WCMS	0.0001	mg/L	0.7	0.26	0.21	0.012	0.53	0.4	0.1
Cr	iMET1WCMS	0.0005	mg/L	0.0006	<0.0005	0.0022	<0.0005	<0.0005	<0.0005	0.0018
Cu	iMET1WCMS	0.0001	mg/L	0.048	0.084	0.051	0.0007	0.028	0.12	0.029
F	iF1WASE	0.05	mg/L	0.67	0.35	3	0.52	0.49	<0.05	5.1
Fe	iMET1WCICP	0.005	mg/L	0.9	0.009	0.033	<0.005	0.74	0.012	0.008
Hg	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
K	iMET1WCICP	0.1	mg/L	15.9	39.8	8.1	6.8	8.8	34.7	7.3
La	iMET1WCMS	0.0001	mg/L	0.0074	0.001	<0.0001	<0.0001	0.0062	0.0018	<0.0001
Li	iMET1WCMS	0.0001	mg/L	0.026	0.14	0.0016	0.018	0.021	0.16	0.0015
Mg	iMET1WCICP	0.1	mg/L	165	91.7	4.7	67.9	115	93.7	3.9
Mn	iMET1WCMS	0.0001	mg/L	240	69	0.26	16	210	110	0.091
Mo	iMET1WCMS	0.001	mg/L	<0.001	<0.001	0.013	<0.001	<0.001	<0.001	0.011
N_total	iNP1WTFIA	0.01	mg/L	0.7	0.36	0.73	0.55	0.39	0.3	0.54
Na	iMET1WCICP	0.1	mg/L	55.6	42.5	40.2	8.4	19.8	25.2	34.1
Ni	iMET1WCMS	0.001	mg/L	2.6	1.5	0.062	0.021	2.1	2.2	0.041
P	iMET1WCICP	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pb	iMET1WCMS	0.0001	mg/L	0.0002	0.0001	0.0001	<0.0001	0.0005	0.0001	0.0001
SO4_S	iMET1WCICP	0.1	mg/L	1500	1020	86.1	349	1100	1030	73.5
Sb	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	0.0009	<0.0001	<0.0001	<0.0001	0.0009
Se	iMET1WCMS	0.001	mg/L	0.086	0.028	<0.001	0.008	0.063	0.028	<0.001
Si	iMET1WCICP	0.05	mg/L	10	17	26	0.64	8.6	18	27
Sn	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Sr	iMET1WCMS	0.0001	mg/L	0.48	0.54	0.045	0.044	0.34	0.71	0.042
Th	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ti	iMET1WCMS	0.0005	mg/L	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Tl	iMET1WCMS	0.0001	mg/L	0.0003	<0.0001	<0.0001	0.0005	0.0002	<0.0001	<0.0001
U	iMET1WCMS	0.0001	mg/L	0.001	0.0004	<0.0001	<0.0001	0.0007	0.0006	<0.0001
V	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	0.031	<0.0001	<0.0001	<0.0001	0.033
Y	iMET1WCMS	0.0002	mg/L	0.053	0.014	0.003	<0.0002	0.039	0.021	0.0017
Zn	iMET1WCMS	0.001	mg/L	2.4	5	0.021	0.015	1.5	7.3	0.009

ChemCentre Id	Method Code	Limits of Reporting	Units	23S1419/014	23S1419/015	23S1419/016	23S1419/017	23S1419/018	23S1419/019	23S1419/020
Client Id				MDRC1348_94-100 M3	MDRC1415_98-104 M3	MDRC1486_86-94 M3	MDRC0964_06-12 M4	MDRC1348_94-100 M4	MDRC1415_98-104 M4	MDRC1486_86-94 M4
Description				22S4297/031 Month 3	22S4297/070 Month 3	22S4297/097 Month 3	22S4297/007 Month 4	22S4297/031 Month 4	22S4297/070 Month 4	22S4297/097 Month 4
Sampled				15/01/2024	15/01/2024	15/01/2024	12/02/2024	12/02/2024	12/02/2024	12/02/2024
Volume	iVOLUME	0.1	mL	330	330	310	190	340	340	430
pH	iPH1WASE	0.1		6.8	4.4	3.9	7.4	6.8	4.4	3.8
ECond	iEC1WZSE	0.2	mS/m	65.2	143	163	18	53.3	90.8	131
TDS_calc	iSOL1WDCA	5	mg/L	360	780	890	99	290	500	720
Alkalin	iALK1WATI	1	mg/L	7	<1	<1	28	4	<1	<1
Ag	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Al	iMET1WCICP	0.005	mg/L	<0.005	0.56	1.6	0.024	<0.005	0.27	1.3
As	iMET1WCMS	0.001	mg/L	<0.001	<0.001	0.001	0.037	<0.001	<0.001	0.002
B	iMET1WCMS	0.005	mg/L	0.035	0.052	0.27	0.35	0.02	0.03	0.23
Ba	iMET1WCMS	0.0001	mg/L	0.0006	0.019	0.01	0.016	0.0004	0.0094	0.01
Be	iMET1WCMS	0.0001	mg/L	<0.0001	0.0022	0.017	<0.0001	<0.0001	0.0012	0.02
Bi	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ca	iMET1WCICP	0.1	mg/L	21.4	80.6	128	3.8	18.8	61.3	94.9
Cd	iMET1WCMS	0.0001	mg/L	<0.0001	0.0025	0.0029	0.0001	<0.0001	0.0012	0.0027
Cl	iCO1WCDA	1	mg/L	10	12	8	4	7	5	5
Co	iMET1WCMS	0.0001	mg/L	0.0077	0.31	0.41	0.05	0.0048	0.15	0.36
Cr	iMET1WCMS	0.0005	mg/L	<0.0005	<0.0005	0.0008	0.0027	<0.0005	<0.0005	0.0007
Cu	iMET1WCMS	0.0001	mg/L	0.0005	0.017	0.14	0.02	0.0005	0.0069	0.14
F	iF1WASE	0.05	mg/L	0.27	0.35	0.52	4.5	0.24	0.2	0.42
Fe	iMET1WCICP	0.005	mg/L	<0.005	0.45	0.025	0.021	0.006	0.19	0.041
Hg	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
K	iMET1WCICP	0.1	mg/L	4.4	5.1	30.3	6.5	2.9	2.6	26.4
La	iMET1WCMS	0.0001	mg/L	<0.0001	0.0042	0.0022	<0.0001	<0.0001	0.0019	0.0018
Li	iMET1WCMS	0.0001	mg/L	0.02	0.02	0.2	0.0017	0.019	0.016	0.16
Mg	iMET1WCICP	0.1	mg/L	56.9	76.3	77	3.1	52.1	43.5	59.7
Mn	iMET1WCMS	0.0001	mg/L	13	170	120	0.17	8.3	98	120
Mo	iMET1WCMS	0.001	mg/L	<0.001	<0.001	<0.001	0.01	<0.001	<0.001	<0.001
N_total	iNP1WTFIA	0.01	mg/L	0.3	0.18	0.3	0.57	0.35	0.11	0.28
Na	iMET1WCICP	0.1	mg/L	4.3	8.7	14.6	29.1	2.1	3.2	9.7
Ni	iMET1WCMS	0.001	mg/L	0.014	1.3	2.2	0.027	0.009	0.63	1.8
P	iMET1WCICP	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pb	iMET1WCMS	0.0001	mg/L	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0037
SO4_S	iMET1WCICP	0.1	mg/L	299	795	914	52.9	261	502	749
Sb	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	0.0009	<0.0001	<0.0001	<0.0001
Se	iMET1WCMS	0.001	mg/L	0.005	0.041	0.018	<0.001	0.004	0.019	0.011
Si	iMET1WCICP	0.05	mg/L	0.52	7	17	25	0.38	3.4	15
Sn	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001
Sr	iMET1WCMS	0.0001	mg/L	0.031	0.2	0.65	0.031	0.022	0.13	0.53
Th	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ti	iMET1WCMS	0.0005	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Tl	iMET1WCMS	0.0001	mg/L	0.0004	0.0001	0.0001	<0.0001	0.0003	<0.0001	0.0002
U	iMET1WCMS	0.0001	mg/L	<0.0001	0.0004	0.001	<0.0001	<0.0001	0.0002	0.001
V	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	0.029	<0.0001	<0.0001	<0.0001
Y	iMET1WCMS	0.0002	mg/L	<0.0002	0.027	0.026	0.001	<0.0002	0.012	0.02
Zn	iMET1WCMS	0.001	mg/L	0.011	0.9	7.9	0.01	0.008	0.43	6.9

ChemCentre Id	Method Code	Limits of Reporting	Units	23S1419/021	23S1419/022	23S1419/023	23S1419/024	23S1419/025	23S1419/026	23S1419/027
Client Id				MDRC0964_06-12 M5	MDRC1348_94-100 M5	MDRC1415_98-104 M5	MDRC1486_86-94 M5	MDRC0964_06-12 M6	MDRC1348_94-100 M6	MDRC1415_98-104 M6
Description				22S4297/007 Month 5	22S4297/031 Month 5	22S4297/070 Month 5	22S4297/097 Month 5	22S4297/007 Month 6	22S4297/031 Month 6	22S4297/070 Month 6
Sampled				11/03/2024	11/03/2024	11/03/2024	11/03/2024	8/04/2024	8/04/2024	8/04/2024
Volume	iVOLUME	0.1	mL	200	340	330	300	210	340	340
pH	iPH1WASE	0.1		7.1	6.9	4.4	3.8	7.5	7	4.5
ECond	iEC1WZSE	0.2	mS/m	14.1	54.7	185	115	10.6	51.7	151
TDS_calc	iSOL1WDCA	5	mg/L	77	300	1000	630	59	280	830
Alkalin	iALK1WATI	1	mg/L	23	6	<1	<1	24	9	<1
Ag	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Al	iMET1WCICP	0.005	mg/L	0.084	<0.005	0.54	1.6	0.068	<0.005	0.47
As	iMET1WCMS	0.001	mg/L	0.044	<0.001	0.001	0.004	0.064	<0.001	0.002
B	iMET1WCMS	0.005	mg/L	0.4	0.011	0.05	0.15	0.36	0.013	0.06
Ba	iMET1WCMS	0.0001	mg/L	0.0051	0.0005	0.012	0.013	0.0033	0.0003	0.011
Be	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	0.0014	0.017	<0.0001	<0.0001	0.0014
Bi	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ca	iMET1WCICP	0.1	mg/L	2	17.1	102	75.7	1	14.6	83.7
Cd	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	0.0035	0.003	<0.0001	<0.0001	0.0023
Cl	iCO1WCDA	1	mg/L	3	6	10	3	2	5	6
Co	iMET1WCMS	0.0001	mg/L	0.029	0.0037	0.35	0.4	0.011	0.002	0.23
Cr	iMET1WCMS	0.0005	mg/L	0.0033	<0.0005	<0.0005	0.0008	0.0034	<0.0005	<0.0005
Cu	iMET1WCMS	0.0001	mg/L	0.015	0.0007	0.011	0.18	0.0094	0.0005	0.0076
F	iF1WASE	0.05	mg/L	4.8	0.23	0.42	0.46	4.2	0.26	0.34
Fe	iMET1WCICP	0.005	mg/L	0.077	<0.005	0.38	0.037	0.041	<0.005	0.19
Hg	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001
K	iMET1WCICP	0.1	mg/L	4.9	2.1	4.8	17.8	3.9	1.4	4
La	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	0.0059	0.0019	<0.0001	<0.0001	0.0042
Li	iMET1WCMS	0.0001	mg/L	0.0024	0.01	0.019	0.11	0.0008	0.011	0.023
Mg	iMET1WCICP	0.1	mg/L	1.6	53.9	116	44.6	0.9	52.9	87
Mn	iMET1WCMS	0.0001	mg/L	0.33	4.9	260	110	0.15	2.1	200
Mo	iMET1WCMS	0.001	mg/L	0.009	<0.001	<0.001	<0.001	0.008	<0.001	<0.001
N_total	iNP1WTFIA	0.01	mg/L	0.54	0.33	0.17	0.15	0.35	0.26	0.07
Na	iMET1WCICP	0.1	mg/L	20.8	1.4	8.5	5	16.7	0.8	4.7
Ni	iMET1WCMS	0.001	mg/L	0.021	0.007	1.5	2	0.011	0.004	0.97
P	iMET1WCICP	0.1	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pb	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	0.0003	0.0004	<0.0001	<0.0001	0.0001
SO4_S	iMET1WCICP	0.1	mg/L	28.4	257	1160	617	13.1	239	893
Sb	iMET1WCMS	0.0001	mg/L	0.0008	<0.0001	<0.0001	<0.0001	0.001	<0.0001	<0.0001
Se	iMET1WCMS	0.001	mg/L	<0.001	0.004	0.05	0.01	<0.001	0.003	0.032
Si	iMET1WCICP	0.05	mg/L	29	0.27	6.1	11	28	0.2	6
Sn	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Sr	iMET1WCMS	0.0001	mg/L	0.013	0.019	0.19	0.5	0.0075	0.013	0.14
Th	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ti	iMET1WCMS	0.0005	mg/L	0.0008	<0.0005	<0.0005	<0.0005	0.0019	<0.0005	<0.0005
Tl	iMET1WCMS	0.0001	mg/L	<0.0001	0.0003	0.0001	0.0001	<0.0001	0.0002	0.0001
U	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	0.0004	0.0013	0.0001	<0.0001	0.0003
V	iMET1WCMS	0.0001	mg/L	0.039	<0.0001	<0.0001	<0.0001	0.053	<0.0001	<0.0001
Y	iMET1WCMS	0.0002	mg/L	0.0006	<0.0002	0.042	0.022	0.0003	<0.0002	0.026
Zn	iMET1WCMS	0.001	mg/L	0.021	0.007	0.83	6.7	0.007	0.005	0.57

ChemCentre Id	Method Code	Limits of Reporting	Units	23S1419/028	23S1419/030	23S1419/031	23S1419/032	23S1419/033	23S1419/034	23S1419/035
Client Id				MDRC1486_86-94 M6	MDRC0964_06-12 M7	MDRC1348_94-100 M7	MDRC1415_98-104 M7	MDRC1486_86-94 M7	MDRC0964_06-12 M8	MDRC1348_94-100 M8
Description				22S4297/097 Month 6	22S4297/007 Month 7	22S4297/031 Month 7	22S4297/070 Month 7	22S4297/097 Month 7	22S4297/007 Month 8	22S4297/031 Month 8
Sampled				8/04/2024	6/05/2024	6/05/2024	6/05/2024	6/05/2024	3/06/2024	3/06/2024
Volume	iVOLUME	0.1	mL	300	240	340	330	310	240	350
pH	iPH1WASE	0.1		3.7	7.7	7.2	4.5	3.7	8	7.5
ECond	IEC1WZSE	0.2	mS/m	153	8.9	48.5	110	131	6.6	52.1
TDS_calc	iSOL1WDCA	5	mg/L	840	49	270	600	720	36	290
Alkalin	iALK1WATI	1	mg/L	<1	25	11	<1	<1	24	13
Ag	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Al	iMET1WCICP	0.005	mg/L	3.6	0.17	<0.005	0.3	3.1	0.15	<0.005
As	iMET1WCMS	0.001	mg/L	0.002	0.058	<0.001	<0.001	0.003	0.071	<0.001
B	iMET1WCMS	0.005	mg/L	0.18	0.3	0.01	0.03	0.14	0.29	0.006
Ba	iMET1WCMS	0.0001	mg/L	0.02	0.0027	0.0001	0.0093	0.019	0.0009	0.0003
Be	iMET1WCMS	0.0001	mg/L	0.033	<0.0001	<0.0001	0.001	0.028	<0.0001	<0.0001
Bi	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ca	iMET1WCICP	0.1	mg/L	98.8	0.5	13.3	74.2	93.2	0.4	12.2
Cd	iMET1WCMS	0.0001	mg/L	0.0047	<0.0001	<0.0001	0.0017	0.0045	<0.0001	<0.0001
Cl	iCO1WCDA	1	mg/L	3	2	5	4	2	<1	5
Co	iMET1WCMS	0.0001	mg/L	0.59	0.0058	0.0011	0.17	0.58	0.0034	0.0007
Cr	iMET1WCMS	0.0005	mg/L	0.0015	0.004	<0.0005	<0.0005	0.0012	0.011	0.0008
Cu	iMET1WCMS	0.0001	mg/L	0.27	0.0069	0.0003	0.0049	0.21	0.0049	0.0005
F	iF1WASE	0.05	mg/L	0.67	3.4	0.26	0.3	0.6	2.8	0.25
Fe	iMET1WCICP	0.005	mg/L	0.12	0.14	<0.005	0.13	0.11	0.15	0.009
Hg	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
K	iMET1WCICP	0.1	mg/L	22.2	3.6	1	2.7	17.5	2.9	0.8
La	iMET1WCMS	0.0001	mg/L	0.0056	<0.0001	<0.0001	0.003	0.0036	<0.0001	<0.0001
Li	iMET1WCMS	0.0001	mg/L	0.21	0.0008	0.012	0.018	0.21	0.0005	0.0096
Mg	iMET1WCICP	0.1	mg/L	59	0.8	55.7	61.5	50.7	0.5	57.7
Mn	iMET1WCMS	0.0001	mg/L	190	0.19	0.9	140	180	0.053	0.43
Mo	iMET1WCMS	0.001	mg/L	<0.001	0.004	<0.001	<0.001	<0.001	0.004	<0.001
N_total	iNP1WTFIA	0.01	mg/L	0.09	0.47	0.31	0.16	0.21	0.49	0.24
Na	iMET1WCICP	0.1	mg/L	5.4	15.9	0.4	2.4	3.7	13.6	0.4
Ni	iMET1WCMS	0.001	mg/L	2.8	0.009	0.003	0.74	2.6	0.005	0.002
P	iMET1WCICP	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Pb	iMET1WCMS	0.0001	mg/L	0.0003	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001
SO4_S	iMET1WCICP	0.1	mg/L	873	10.1	242	681	817	7	246
Sb	iMET1WCMS	0.0001	mg/L	<0.0001	0.0007	<0.0001	<0.0001	<0.0001	0.0008	<0.0001
Se	iMET1WCMS	0.001	mg/L	0.011	<0.001	0.003	0.018	0.008	<0.001	0.003
Si	iMET1WCICP	0.05	mg/L	14	27	0.14	4.6	10	28	0.1
Sn	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Sr	iMET1WCMS	0.0001	mg/L	0.74	0.0065	0.0092	0.12	0.75	0.0033	0.0064
Th	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ti	iMET1WCMS	0.0005	mg/L	<0.0005	0.0023	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Tl	iMET1WCMS	0.0001	mg/L	0.0002	<0.0001	0.0002	<0.0001	0.0002	<0.0001	0.0001
U	iMET1WCMS	0.0001	mg/L	0.0026	0.0001	<0.0001	0.0002	0.0019	<0.0001	<0.0001
V	iMET1WCMS	0.0001	mg/L	<0.0001	0.046	0.0001	<0.0001	0.0001	0.051	<0.0001
Y	iMET1WCMS	0.0002	mg/L	0.048	0.0002	<0.0002	0.016	0.039	<0.0002	<0.0002
Zn	iMET1WCMS	0.001	mg/L	10	0.007	0.003	0.44	9.2	0.003	0.004

ChemCentre Id	Method Code	Limits of Reporting	Units	23S1419/036	23S1419/037	23S1419/038	23S1419/039	23S1419/040	23S1419/041	23S1419/029
Client Id				MDRC1415_98-104 M8	MDRC1486_86-94 M8	MDRC0964_06-12 M9	MDRC1348_94-100 M9	MDRC1415_98-104 M9	MDRC1486_86-94 M9	Blank
Description				22S4297/070 Month 8	22S4297/097 Month 8	22S4297/007 Month 9	22S4297/031 Month 9	22S4297/070 Month 9	22S4297/097 Month 9	
Sampled				3/06/2024	3/06/2024	1/07/2024	1/07/2024	1/07/2024	1/07/2024	23/10/2023
Volume	iVOLUME	0.1	mL	340	320	240	350	350	320	220
pH	iPH1WASE	0.1		4.9	4.1	7.6	7.5	4.6	3.9	5.4
ECond	iEC1WZSE	0.2	mS/m	130	169	7	53.8	87.4	143	<0.2
TDS_calc	iSOL1WDCA	5	mg/L	720	930	39	300	480	780	<5
Alkalin	iALK1WATI	1	mg/L	<1	<1	21	21	<1	<1	<1
Ag	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Al	iMET1WCICP	0.005	mg/L	0.29	6	0.054	0.011	0.26	3.6	<0.005
As	iMET1WCMS	0.001	mg/L	0.002	0.001	0.068	<0.001	<0.001	0.003	<0.001
B	iMET1WCMS	0.005	mg/L	0.028	0.15	0.22	0.008	0.02	0.14	<0.005
Ba	iMET1WCMS	0.0001	mg/L	0.0098	0.021	0.0019	0.0002	0.0085	0.02	<0.0001
Be	iMET1WCMS	0.0001	mg/L	0.0009	0.028	<0.0001	<0.0001	0.0005	0.017	<0.0001
Bi	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ca	iMET1WCICP	0.1	mg/L	74.7	93.5	0.5	11.5	58.8	73.1	<0.1
Cd	iMET1WCMS	0.0001	mg/L	0.0019	0.0059	<0.0001	<0.0001	0.0011	0.0047	<0.0001
Cl	iCO1WCDA	1	mg/L	4	3	1	6	2	3	<1
Co	iMET1WCMS	0.0001	mg/L	0.18	0.78	0.0023	0.0004	0.13	0.7	<0.0001
Cr	iMET1WCMS	0.0005	mg/L	<0.0005	0.0012	0.014	<0.0005	<0.0005	0.0007	<0.0005
Cu	iMET1WCMS	0.0001	mg/L	0.0047	0.22	0.0042	0.0003	0.004	0.14	<0.0001
F	iF1WASE	0.05	mg/L	0.36	0.81	1.9	0.25	0.24	0.65	<0.05
Fe	iMET1WCICP	0.005	mg/L	0.1	0.23	0.038	<0.005	0.066	0.052	<0.005
Hg	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
K	iMET1WCICP	0.1	mg/L	2.8	20.1	2.8	0.7	1.8	17.9	<0.1
La	iMET1WCMS	0.0001	mg/L	0.0029	0.0057	<0.0001	<0.0001	0.0016	0.0043	<0.0001
Li	iMET1WCMS	0.0001	mg/L	0.019	0.33	0.001	0.007	0.012	0.26	<0.0001
Mg	iMET1WCICP	0.1	mg/L	72.2	65.2	0.4	62.6	40.8	50.8	<0.1
Mn	iMET1WCMS	0.0001	mg/L	180	270	0.044	0.22	100	230	<0.0001
Mo	iMET1WCMS	0.001	mg/L	<0.001	<0.001	0.004	<0.001	<0.001	<0.001	<0.001
N_total	iNP1WTFIA	0.01	mg/L	0.12	0.29	0.85	0.28	0.18	0.24	<0.01
Na	iMET1WCICP	0.1	mg/L	3.1	6.5	13	0.4	1.4	5.4	<0.1
Ni	iMET1WCMS	0.001	mg/L	0.91	3.8	0.004	0.001	0.59	2.9	<0.001
P	iMET1WCICP	0.1	mg/L	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Pb	iMET1WCMS	0.0001	mg/L	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
SO4_S	iMET1WCICP	0.1	mg/L	764	1020	5.2	259	482	861	<0.1
Sb	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	0.0008	<0.0001	<0.0001	<0.0001	<0.0001
Se	iMET1WCMS	0.001	mg/L	0.022	0.011	<0.001	0.003	0.014	0.01	<0.001
Si	iMET1WCICP	0.05	mg/L	5	11	26	0.08	3.6	9.5	<0.05
Sn	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Sr	iMET1WCMS	0.0001	mg/L	0.11	0.87	0.0037	0.0047	0.084	0.74	<0.0001
Th	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ti	iMET1WCMS	0.0005	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Tl	iMET1WCMS	0.0001	mg/L	0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001
U	iMET1WCMS	0.0001	mg/L	0.0001	0.0017	<0.0001	<0.0001	<0.0001	0.001	<0.0001
V	iMET1WCMS	0.0001	mg/L	<0.0001	<0.0001	0.042	<0.0001	<0.0001	<0.0001	<0.0001
Y	iMET1WCMS	0.0002	mg/L	0.02	0.061	<0.0002	<0.0002	0.0096	0.043	<0.0002
Zn	iMET1WCMS	0.001	mg/L	0.44	12	0.014	0.002	0.26	9.6	<0.001

Appendix B Leapfrog images showing distribution of samples

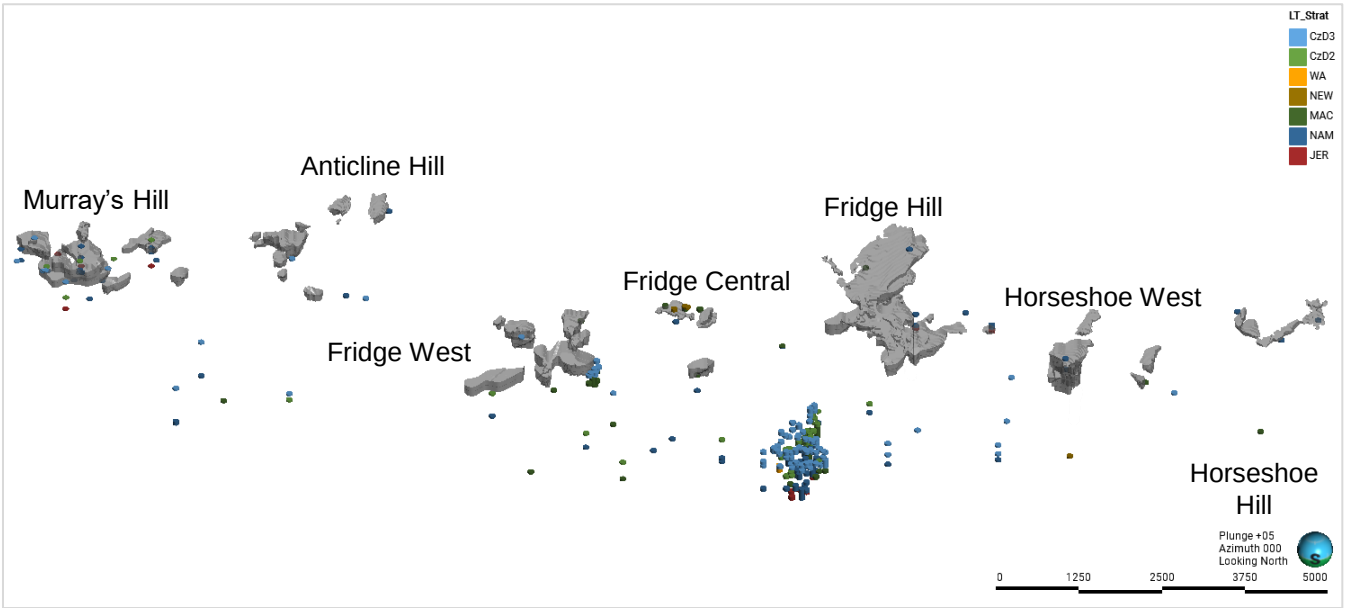
Mulga Downs

Lithology

Drill hole database



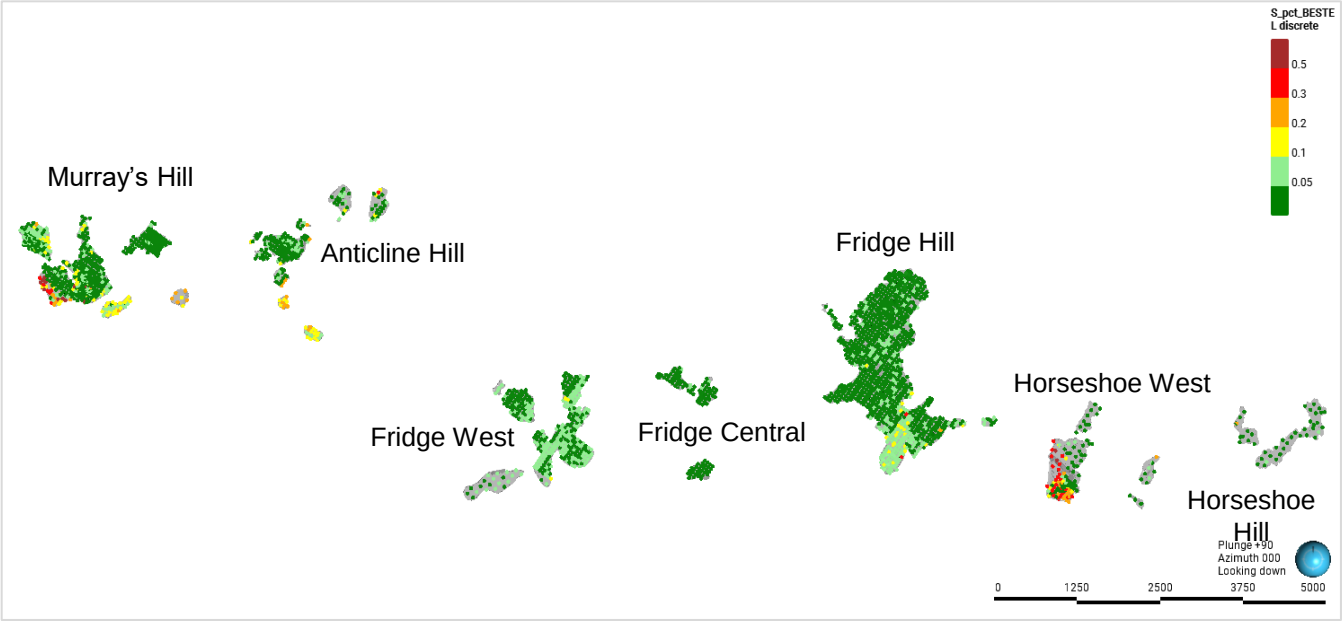
Detailed geochemical assessment



Mulga Downs

Sulfur content

Drill hole database



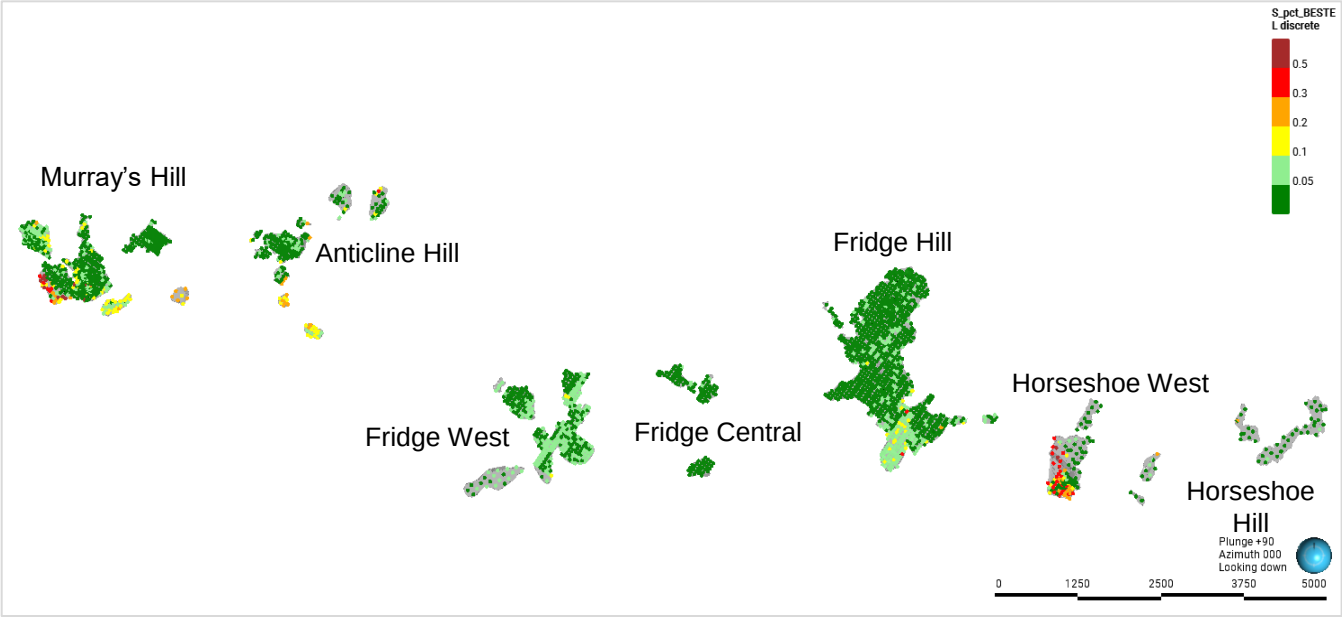
Detailed geochemical assessment



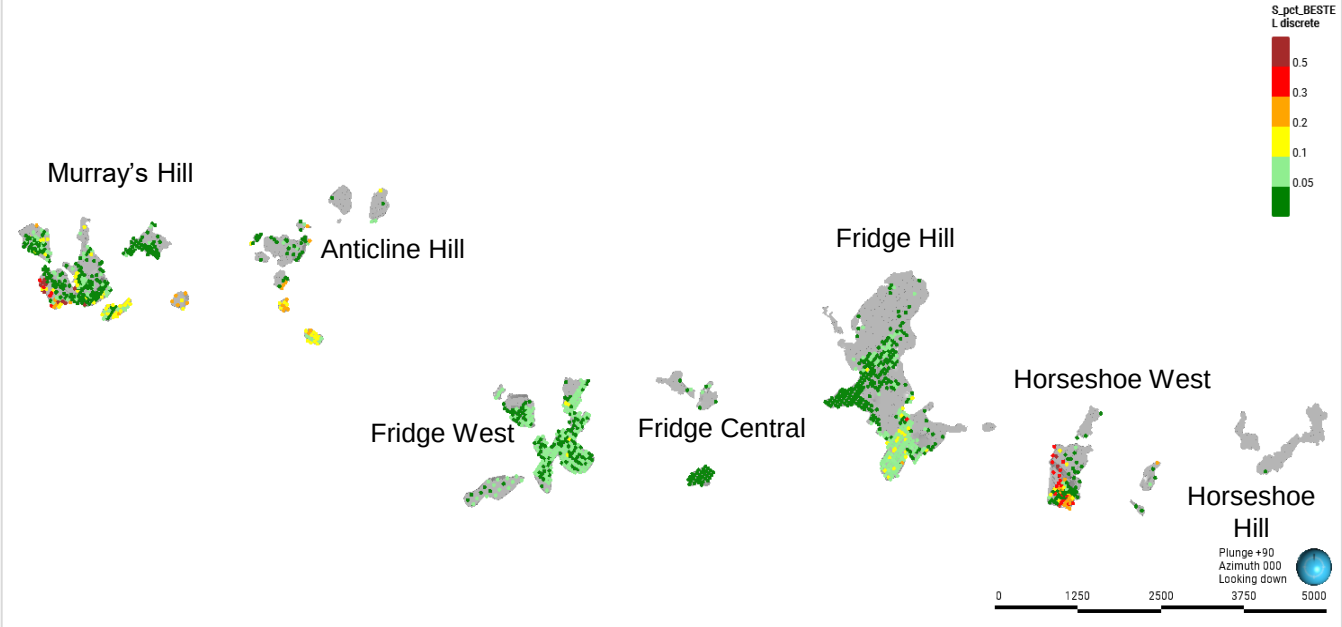
Mulga Downs

Sulfur content

Drill hole database



Drill hole Database – CzD2 and CzD3 lithologies



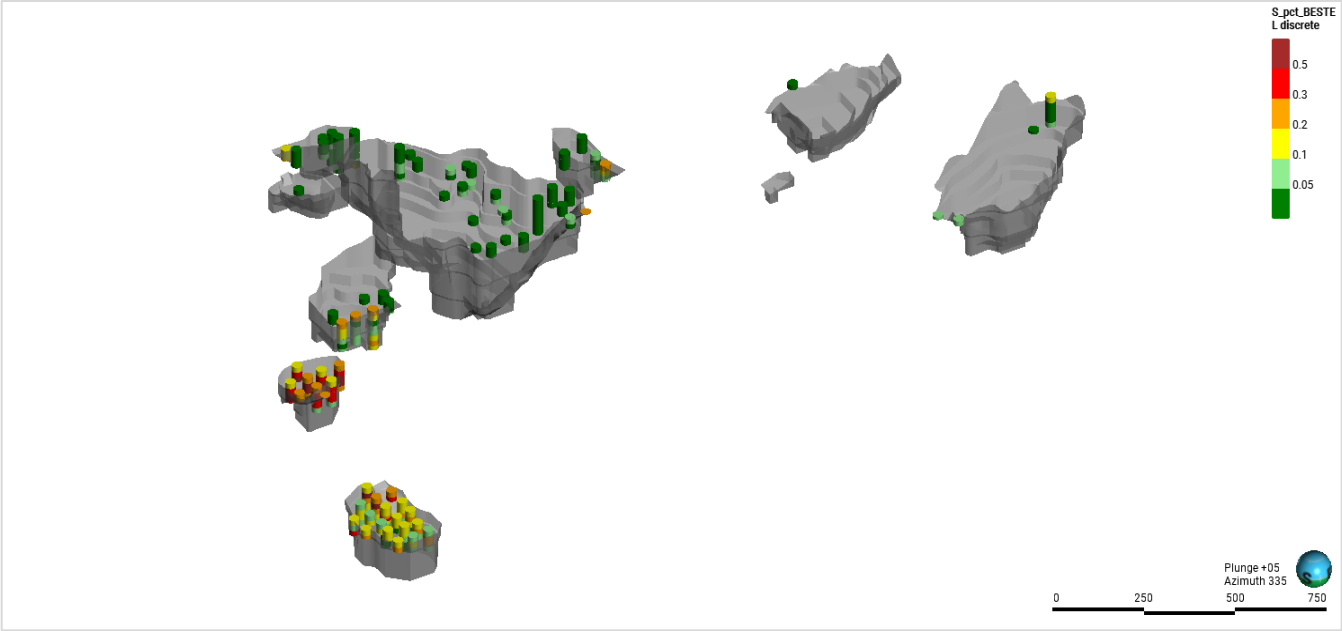
Anticline Hill

Sulfur content

Drill hole database



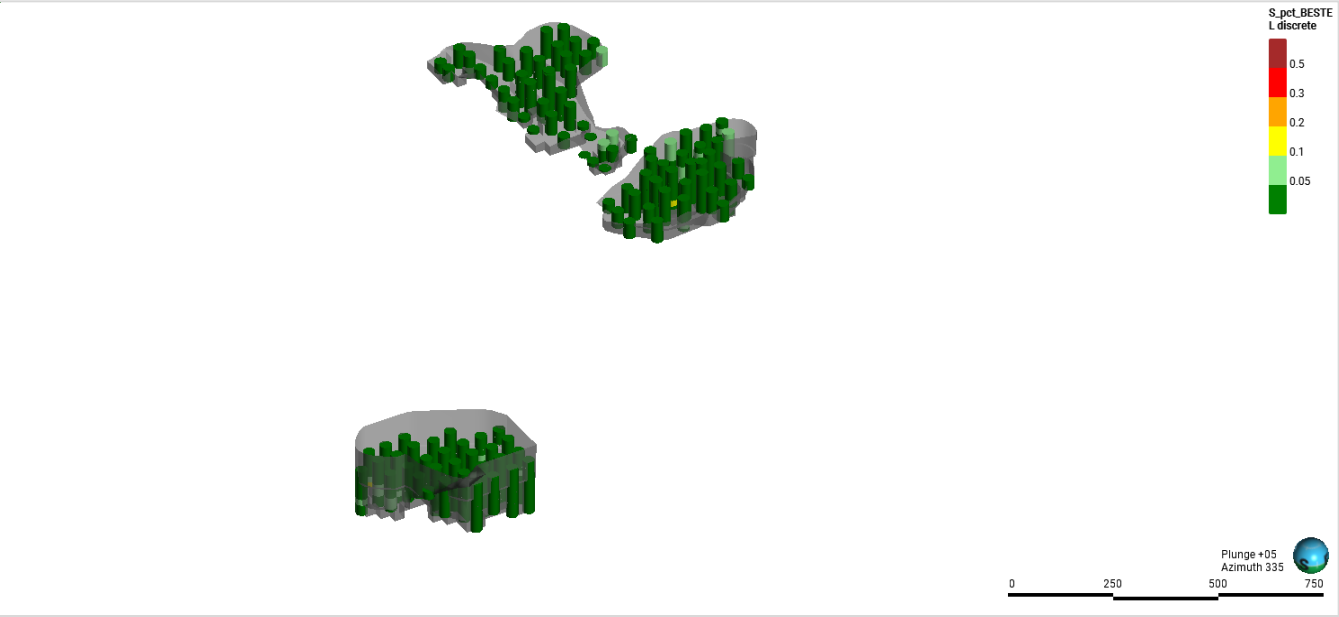
Drill hole Database – CzD2 and CzD3 lithologies



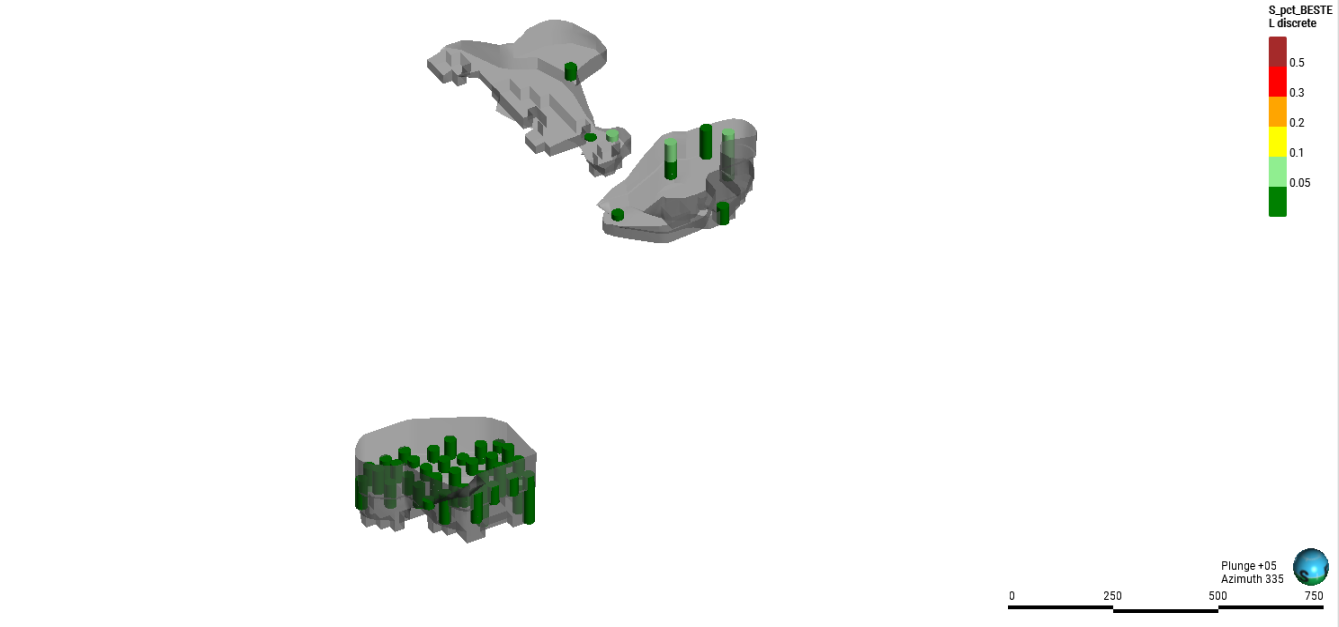
Fridge Central

Sulfur content

Drill hole database



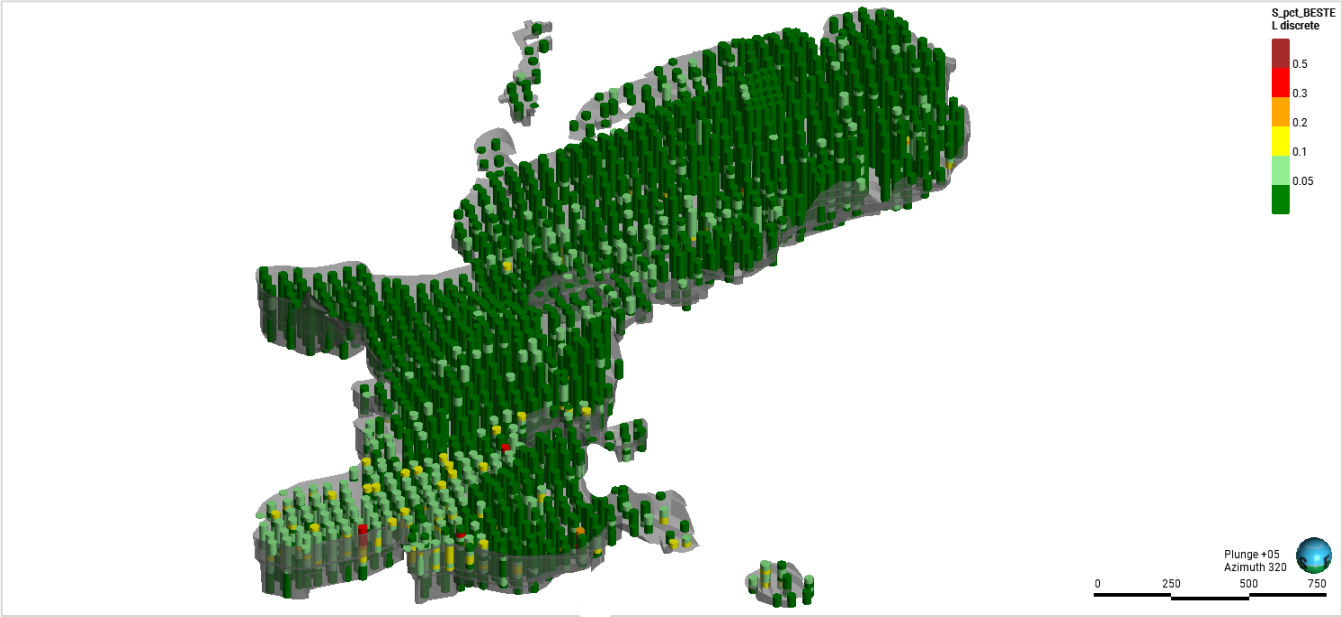
Drill hole Database – CzD2 and CzD3 lithologies



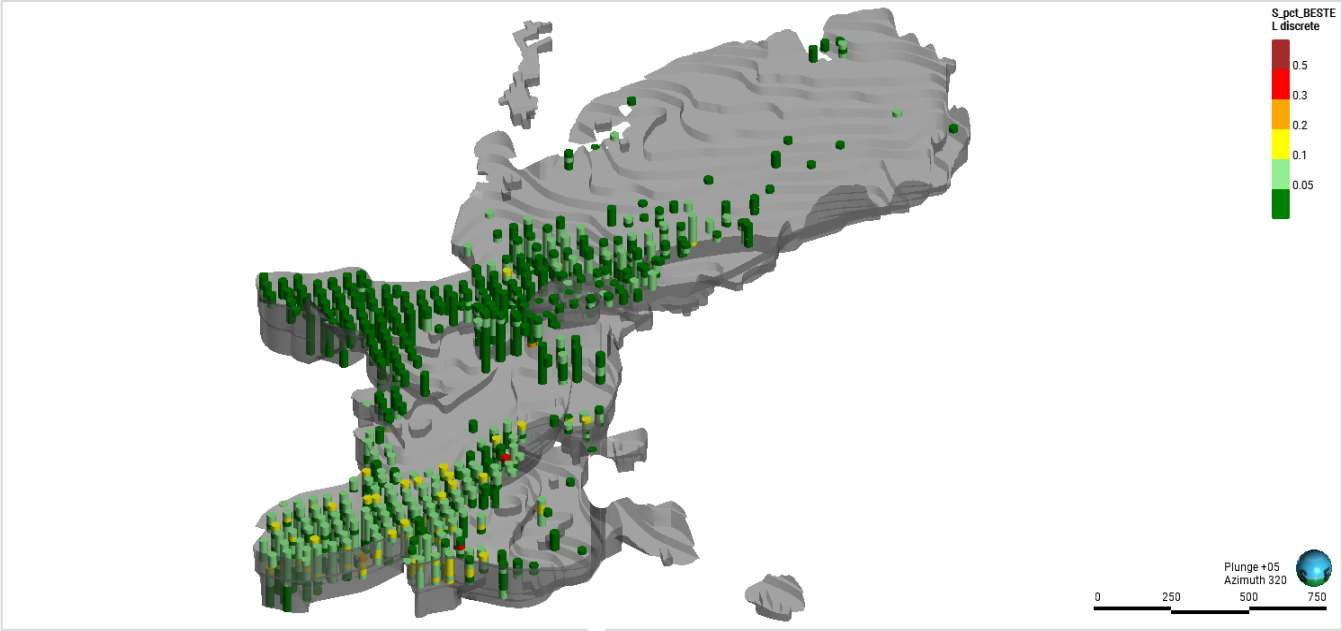
Fridge Hill

Sulfur content

Drill hole database



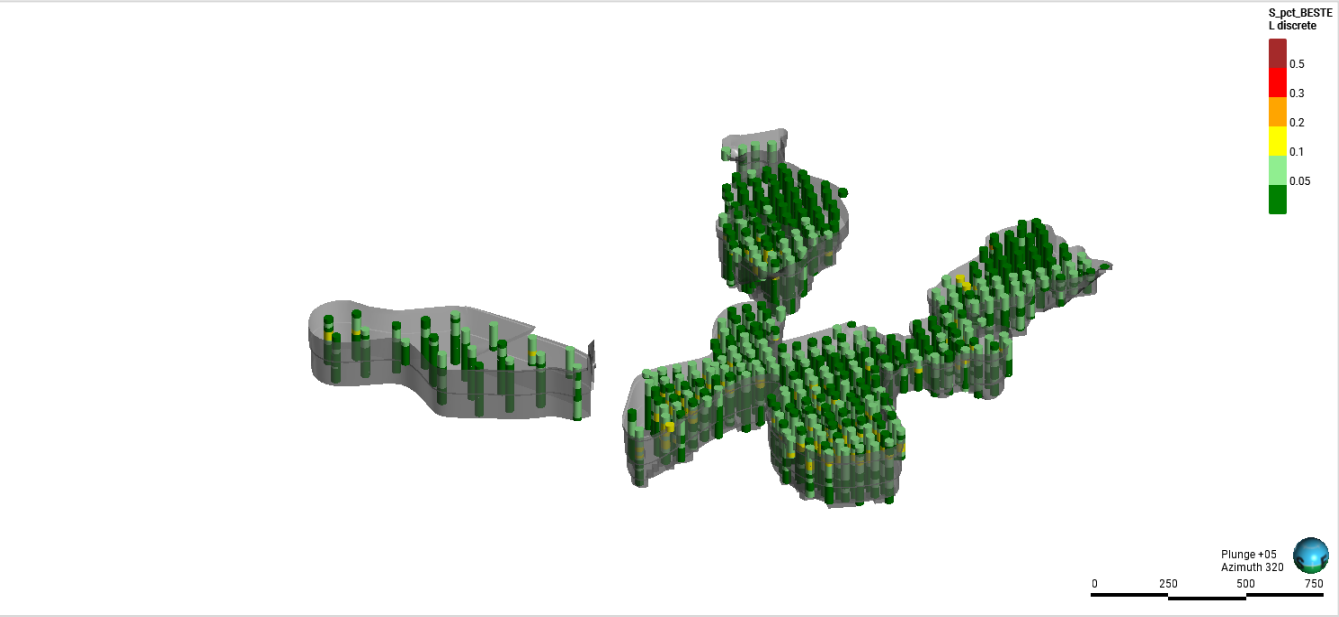
Drill hole Database – CzD2 and CzD3 lithologies



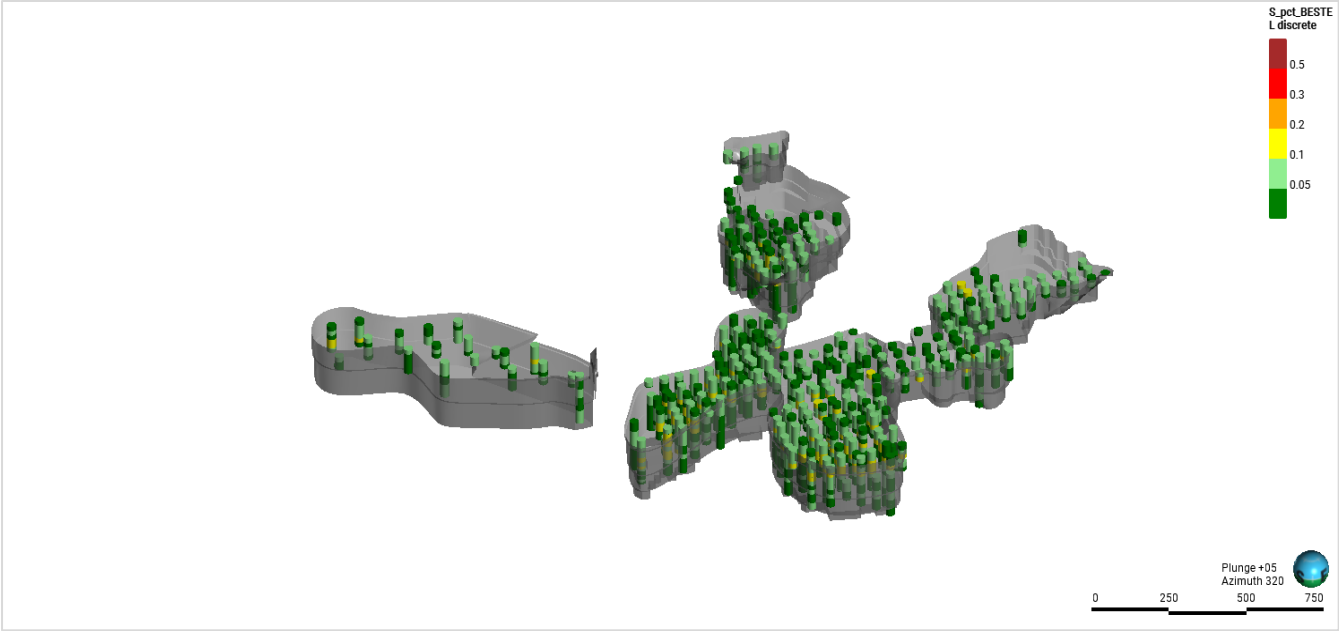
Fridge West

Sulfur content

Drill hole database



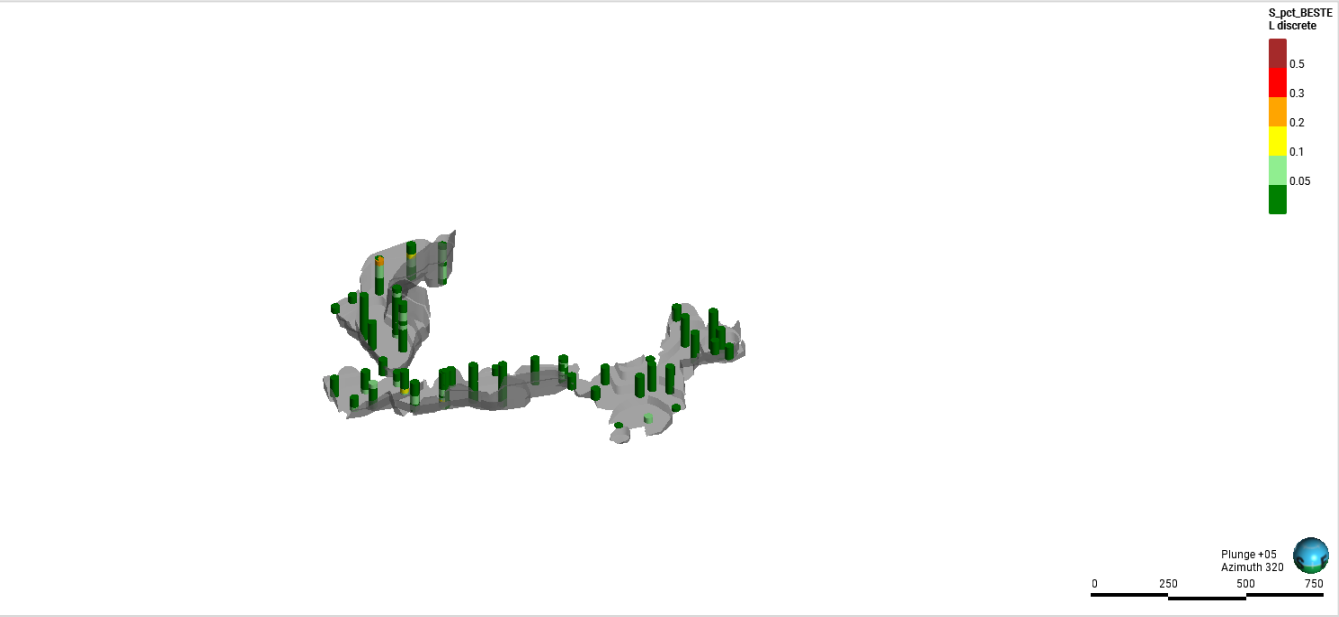
Drill hole Database – CzD2 and CzD3 lithologies



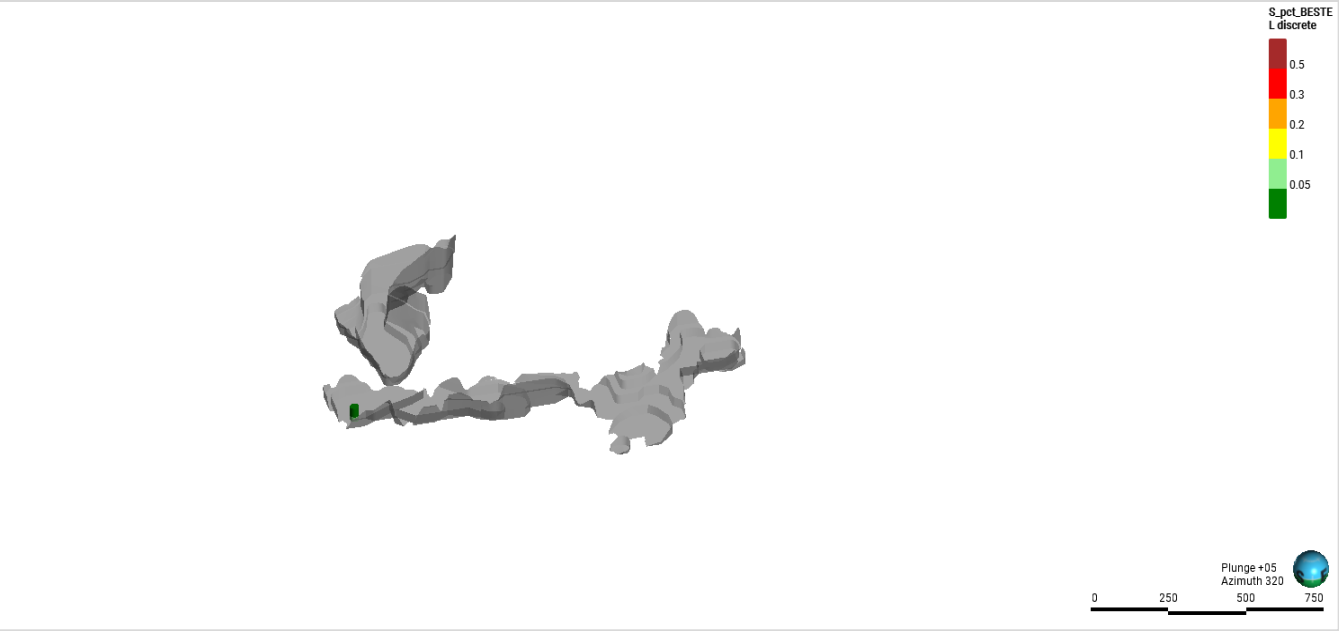
Horseshoe Hill

Sulfur content

Drill hole database



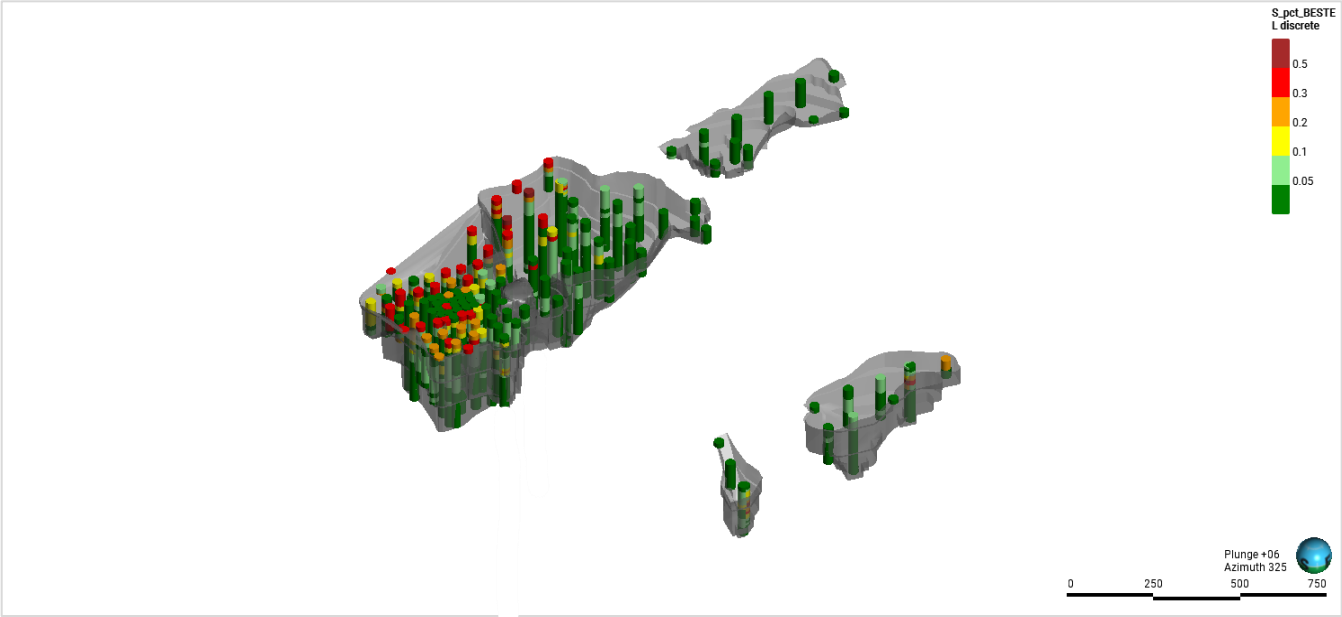
Drill hole Database – CzD2 and CzD3 lithologies



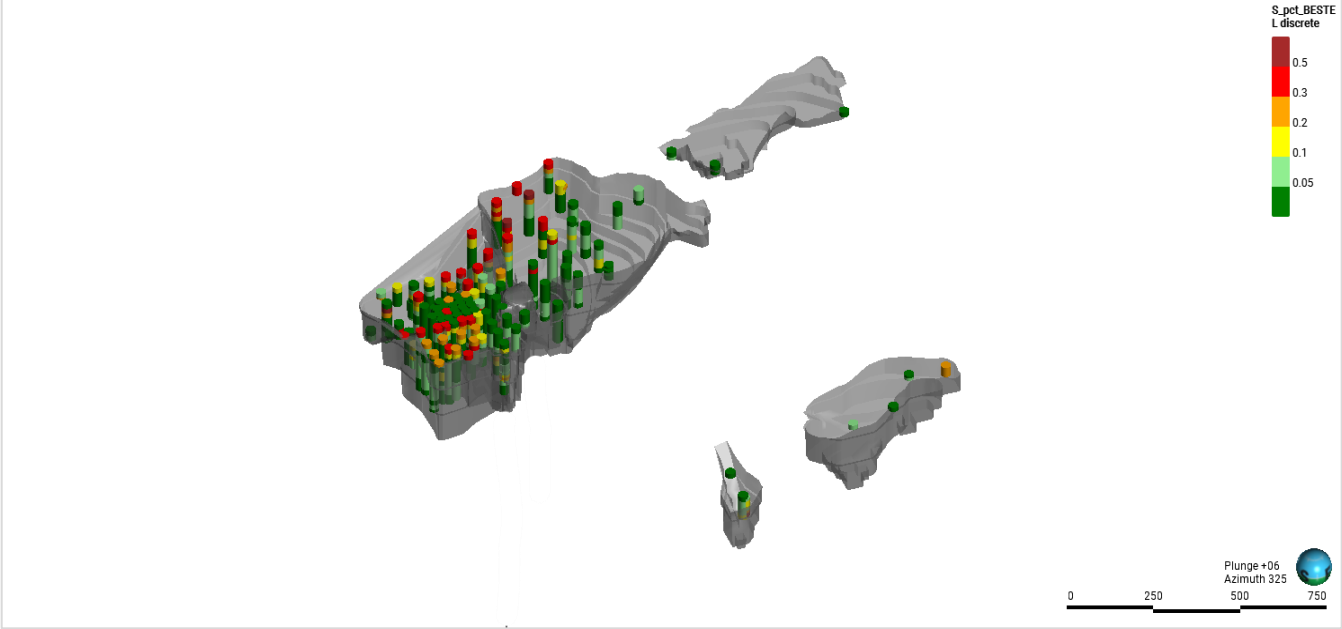
Horseshoe South

Sulfur content

Drill hole database



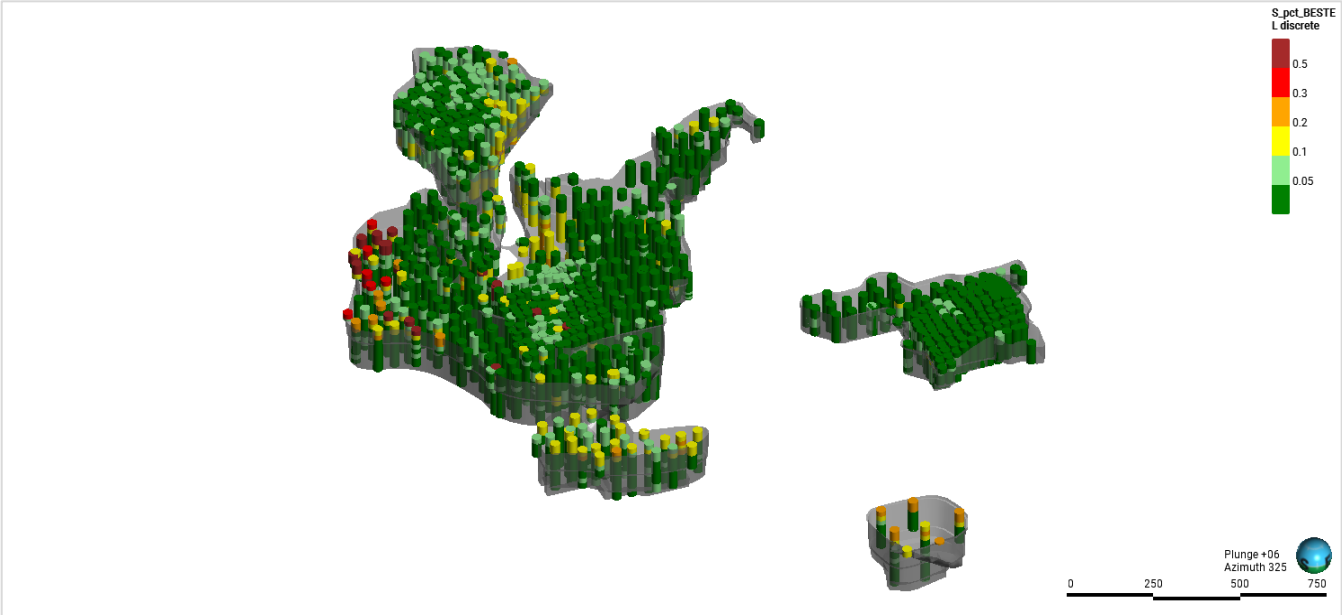
Drill hole Database – CzD2 and CzD3 lithologies



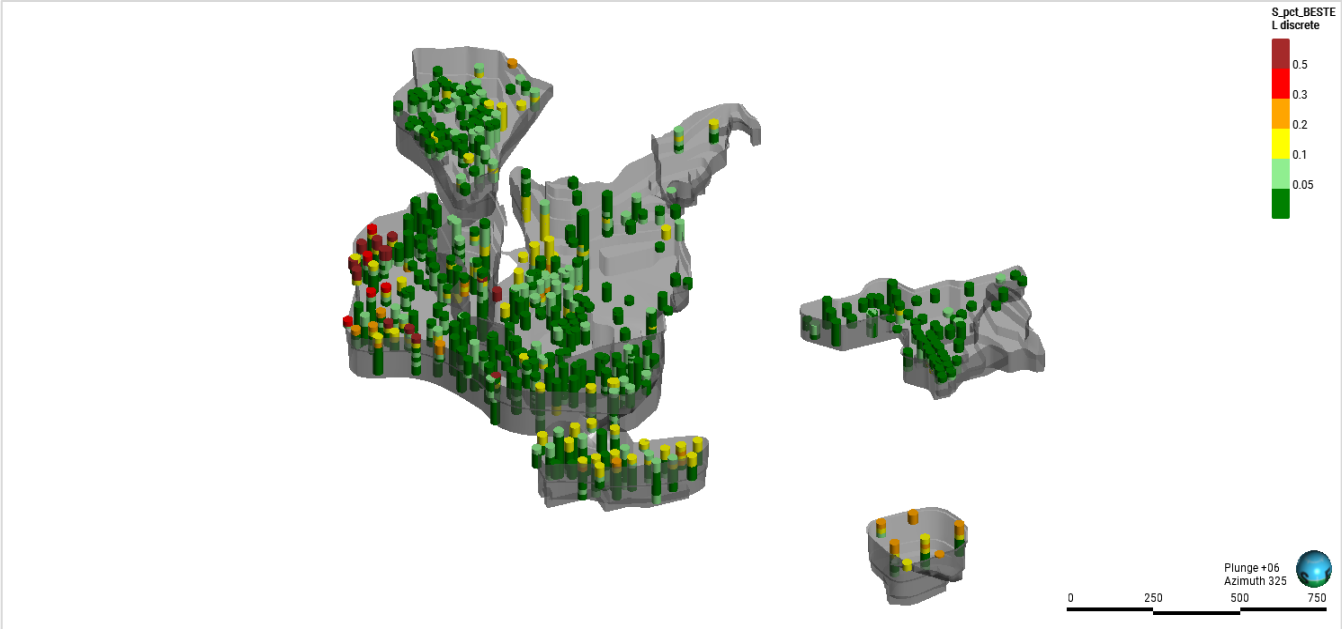
Murray's Hill

Sulfur content

Drill hole database



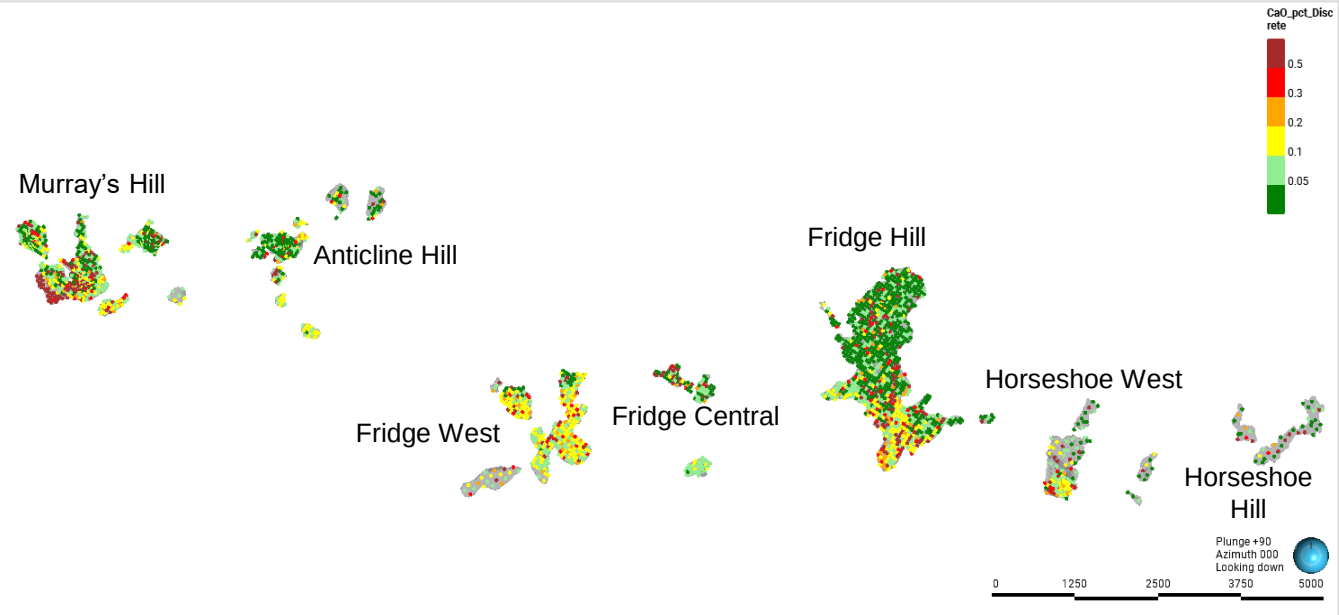
Drill hole Database – CzD2 and CzD3 lithologies



Mulga Downs

Calcium Oxide content

Drill hole database



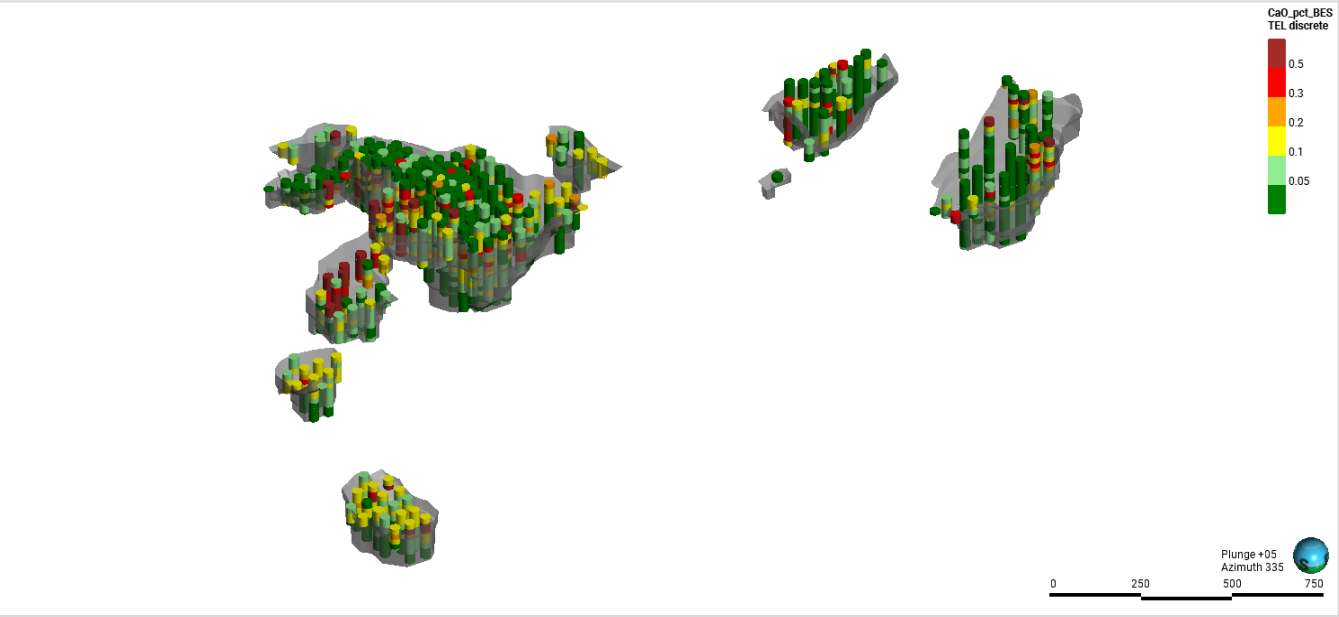
Drill hole Database – CzD2 and CzD3 lithologies



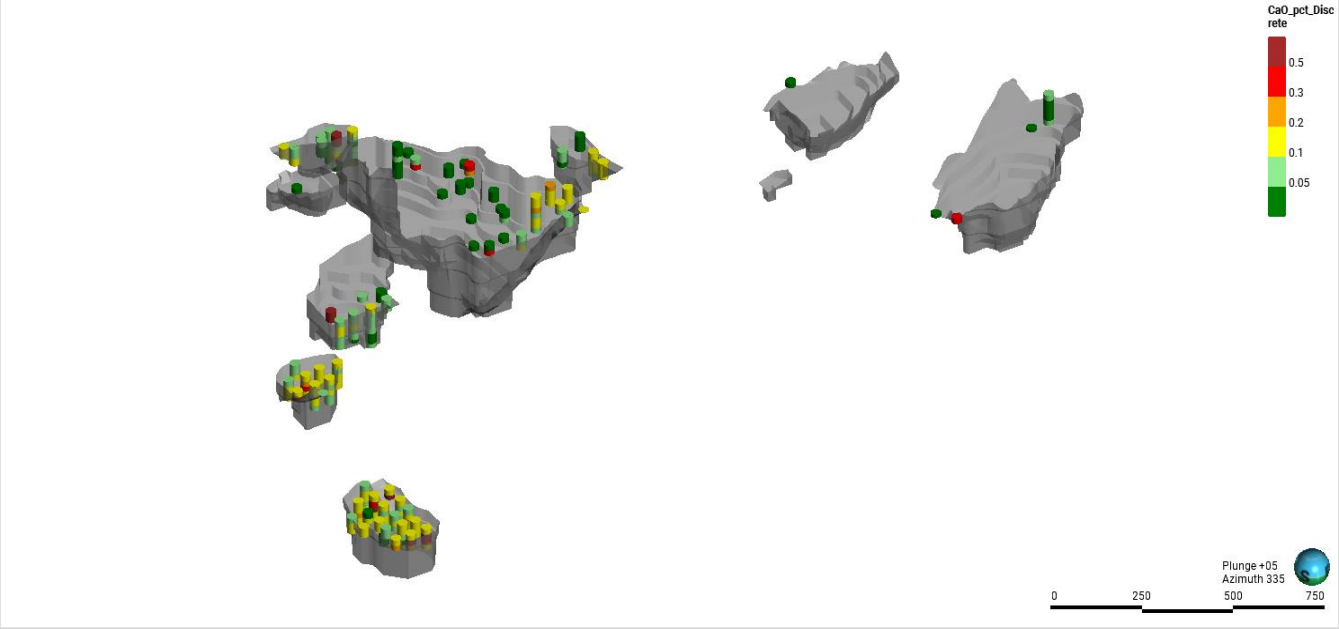
Anticline Hill

Calcium Oxide content

Drill hole database



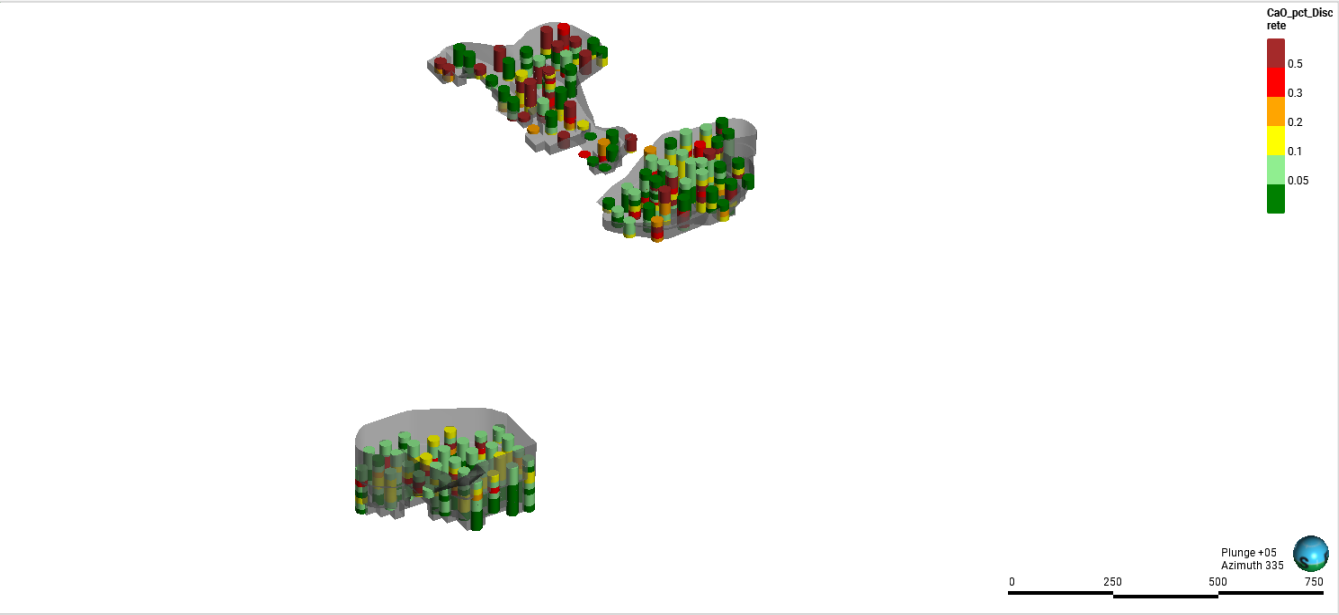
Drill hole Database – CzD2 and CzD3 lithologies



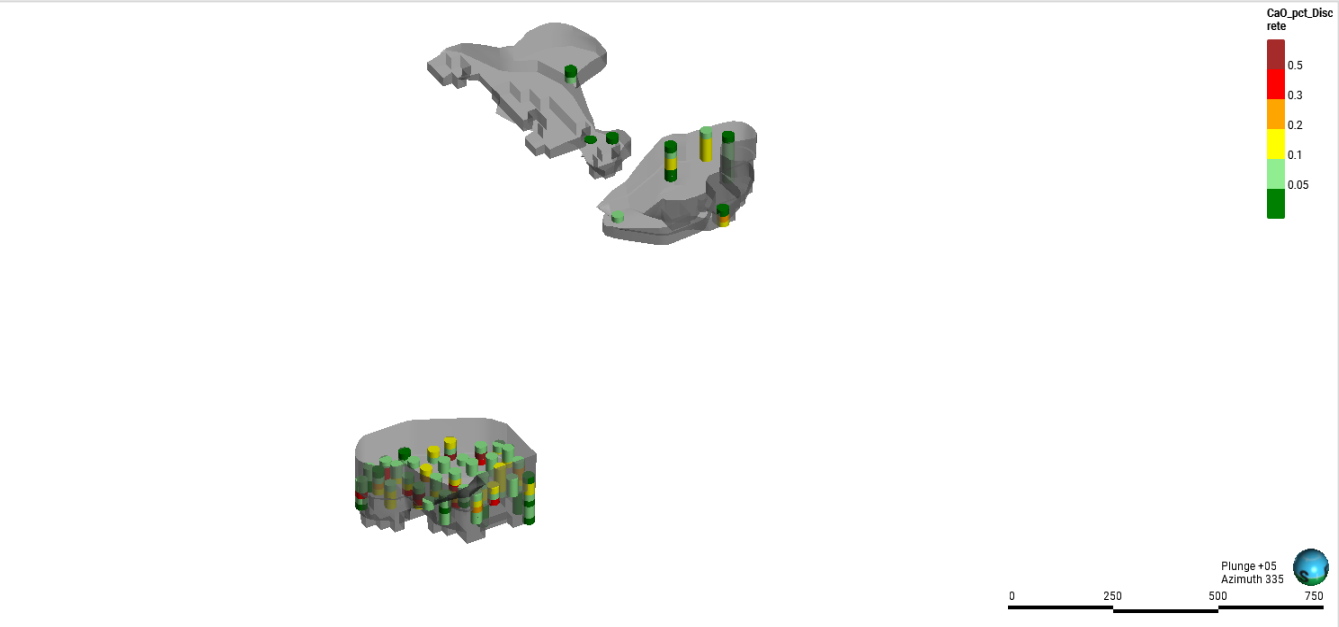
Fridge Central

Calcium Oxide content

Drill hole database



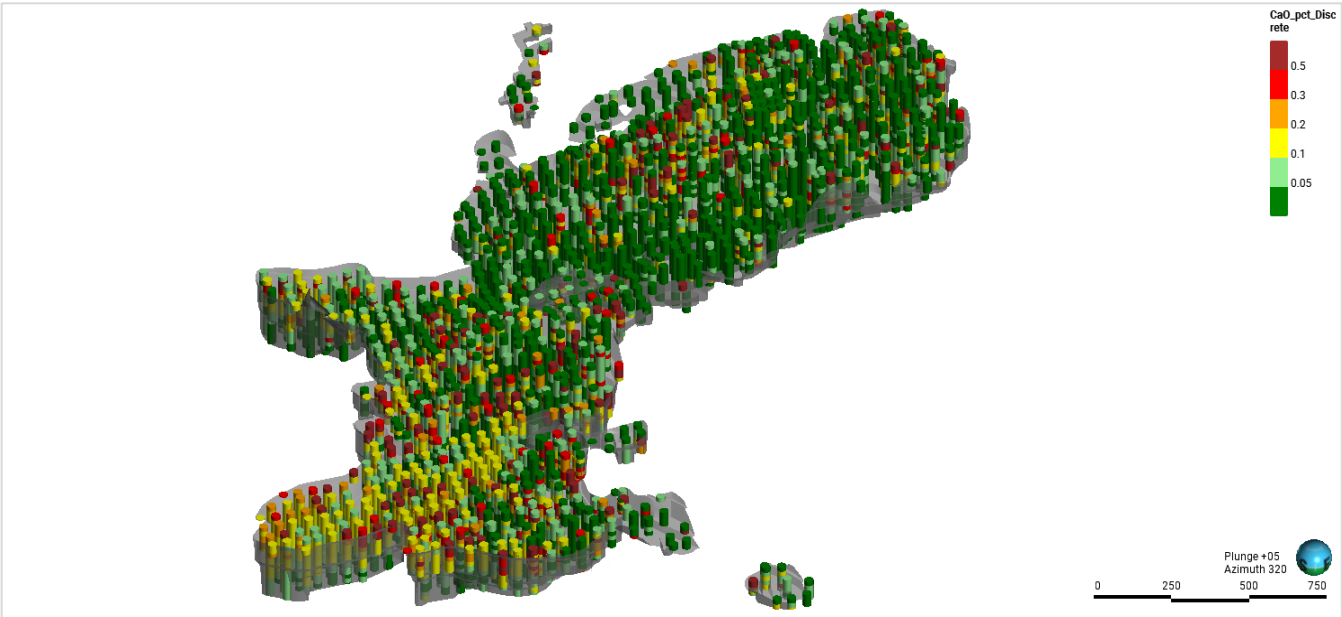
Drill hole Database – CzD2 and CzD3 lithologies



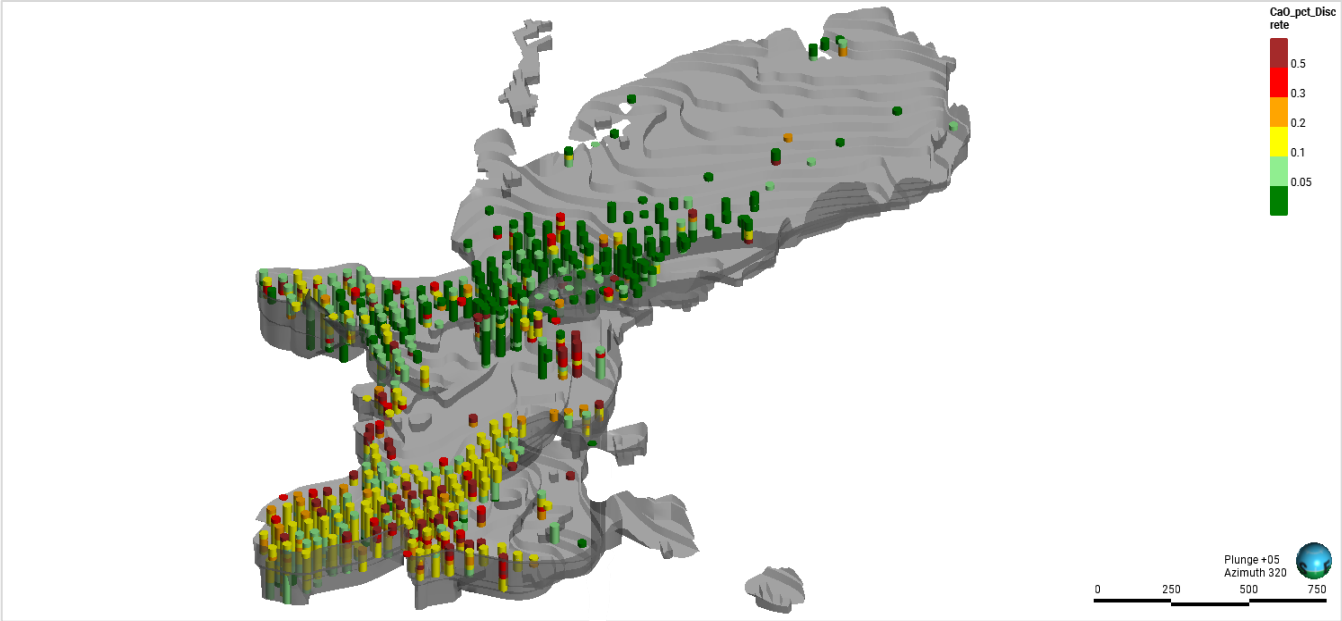
Fridge Hill

Calcium Oxide content

Drill hole database



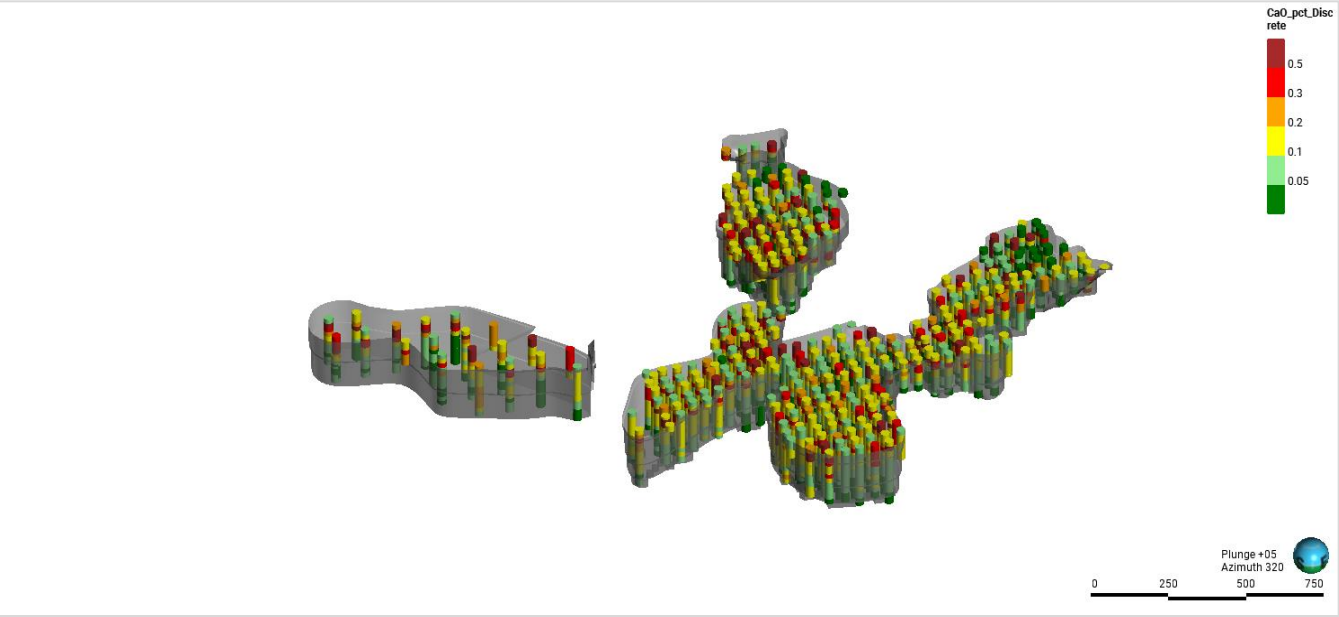
Drill hole Database – CzD2 and CzD3 lithologies



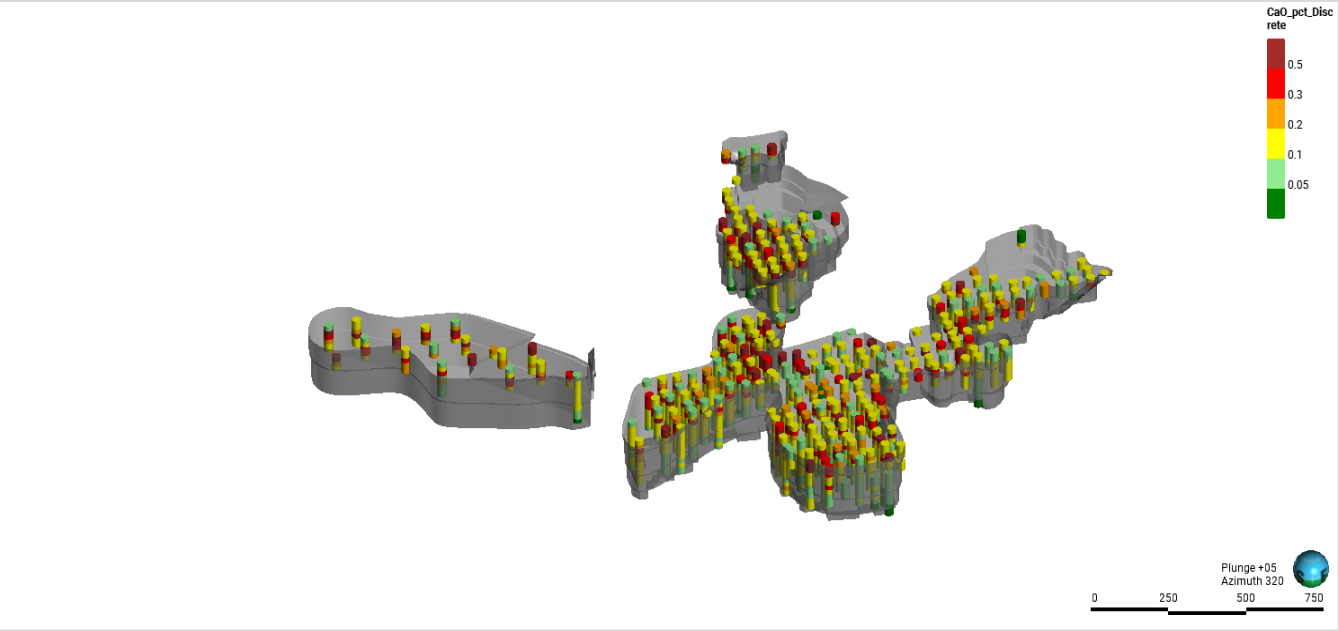
Fridge West

Calcium Oxide content

Drill hole database



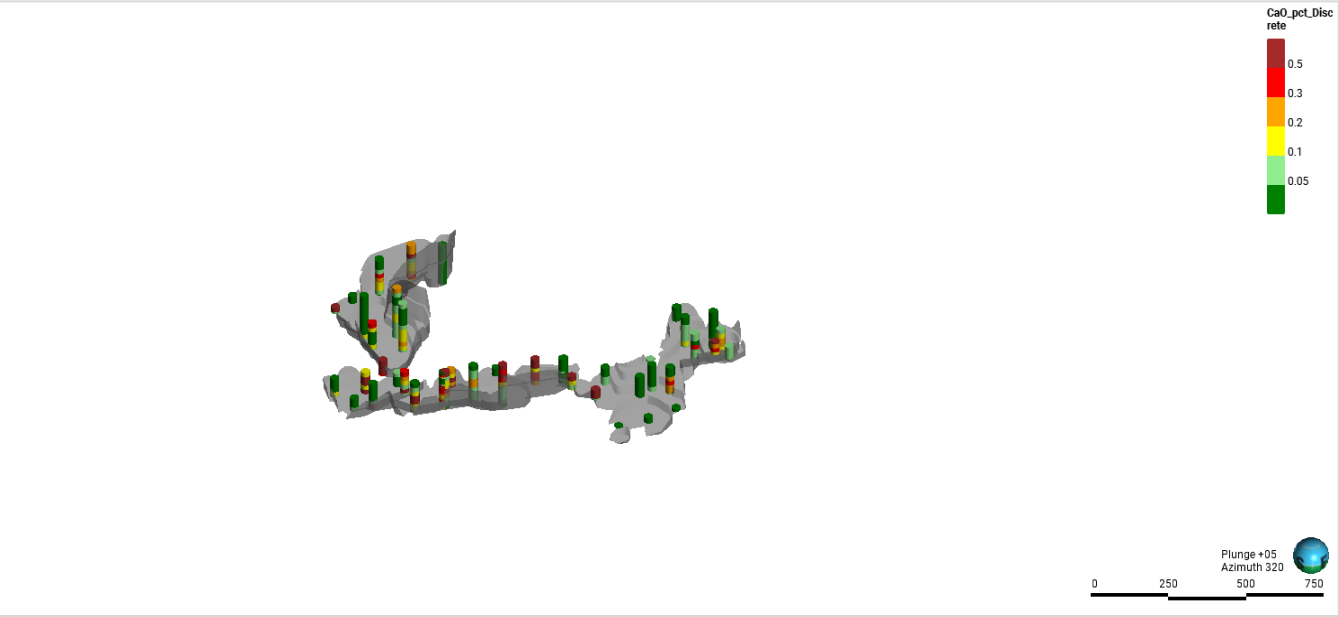
Drill hole Database – CzD2 and CzD3 lithologies



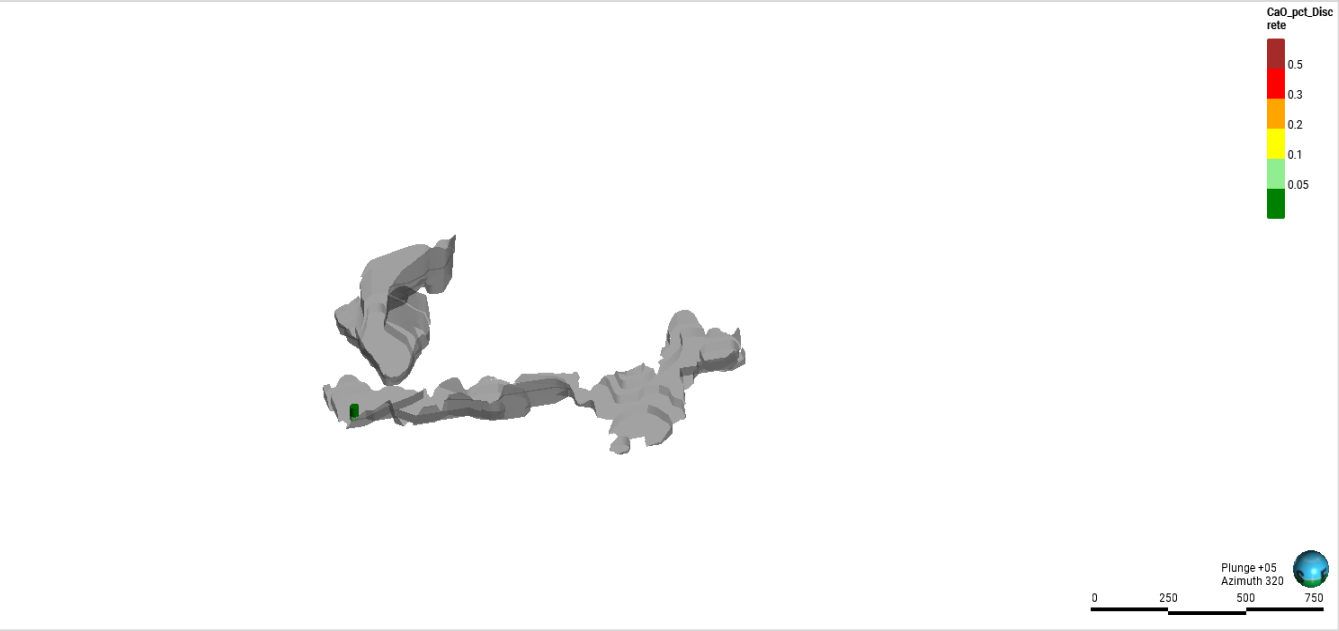
Horseshoe Hill

Calcium Oxide content

Drill hole database



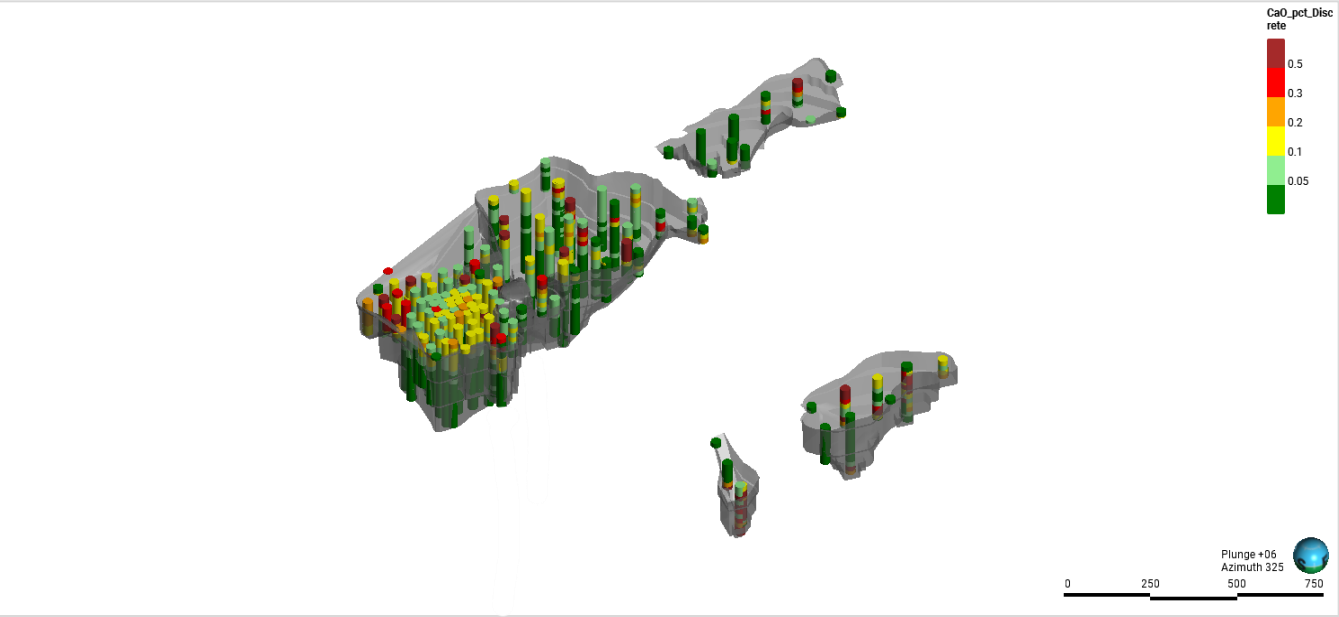
Drill hole Database – CzD2 and CzD3 lithologies



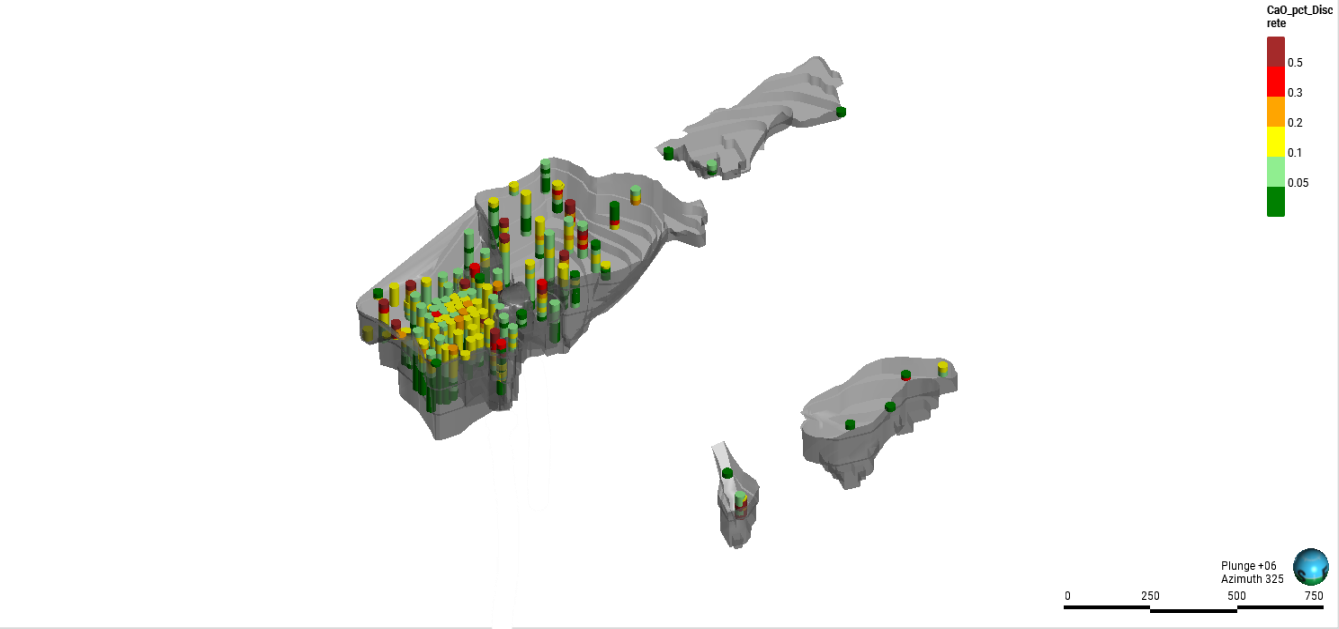
Horseshoe South

Calcium Oxide content

Drill hole database



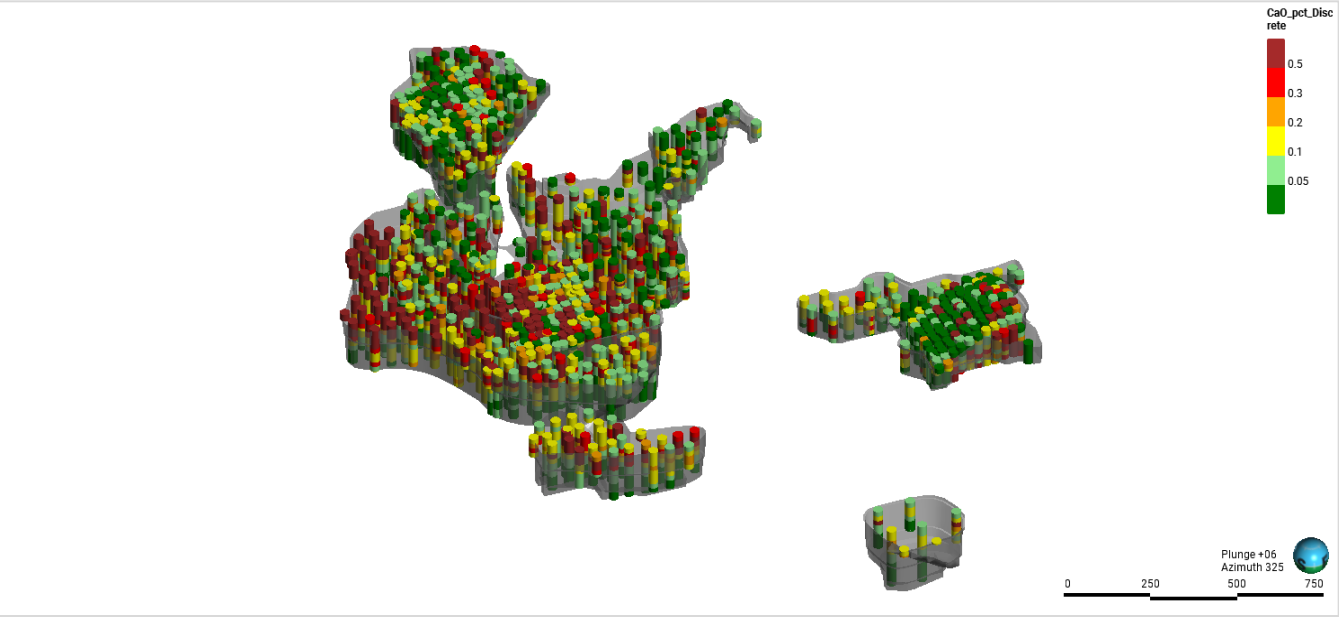
Drill hole Database – CzD2 and CzD3 lithologies



Murray's Hill

Calcium Oxide content

Drill hole database



Drill hole Database – CzD2 and CzD3 lithologies

