Geoenvironmental Hazards Assessment

Macraes Phase 4 Project

31 August 2026

J-NZ0498-004-R-FINAL

MINE WASTE MANAGEMENT
GREENROAD GROUP

OCEANAGOLD

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Factual Report: Geoenvironmental Hazards

Macraes Phase 4 Project

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EXECUTIVE SUMMARY

OceanaGold (New Zealand) Limited (OGNZL) currently undertakes open pit and underground gold mining operations at the Macraes Operation located at Golden Point Road, Macraes Flat, East Otago. As part of their ongoing operations, OGNZL continually review the remaining life of the Macraes Operation in light of updated knowledge of the gold resource and the economics of mining.

Reflecting recent exploration success and optimisation work, together with higher gold prices, the Macraes Phase Four Project (MP4 or the Project) seeks to extend the life of mining at the Macraes Operation until at least 2039. The Project, which will enable ongoing gold production at a rate of approximately 130,000 ounces per annum, is identified as a Listed Project in Schedule 2 of the Fast-track Approvals Act 2024 (FTAA) as a project providing significant national or regional benefits.

To support the development of the substantive application for the Project, OGNZL has engaged Mine Waste Management (MWM) to provide an assessment of the Project's effects on surface water and groundwater quality and, to the extent required, identify any necessary management and operation measures to address any such effects.

Purpose and Objectives

This report enhances the existing geochemical knowledge base for the Project to support the FTAA application. The primary objective of this report is to define the geochemical characteristics of waste rock and tailings associated with the Project through:

- Collation and review of previous geochemical studies and the OGNZL acid base accounting (ABA) database to establish a baseline understanding of material characteristics.
- Identification of data gaps regarding the geochemical characteristics of rock that will be disturbed in proposed expansion areas.
- Targeted geochemical testing on selected MP4 waste rock.
- Identification of geochemical hazards associated with pit extensions and tailings storage facilities (TSF), specifically the current facility (Top Tipperary TSF) and SP10/11 TSF.
- Interpretation of analytical data to characterise acid generation potential and solute leaching risks.

Tailings

To facilitate the proposed Innes Mills Open Pit extension (Stages 10-13), the Project involves the hydraulic relocation of 59 Mt of historical tailings to the Frasers TSF Stage 3. This involves the removal of all tailings from SP10 and SP11 (approximately 26 Mt) and the top approximately 30 m of tailings from the Mixed Tailings Impoundment (MTI) (approximately 33 Mt). Tailings from the Macraes Operation are classified as non-acid forming.

Water quality associated with MTI tailings indicates elevated concentrations of sulfate and arsenic. However, through pressure oxidation processing of the ore, stable ferric antimonate minerals were formed, which is thought to be responsible for the very low concentrations (< 0.1 mg/L) of antimony seen in tailings influenced waters (Weightman et al., 2022).

Sodium cyanide is added to the slurry as part of the gold extraction process, however cyanide concentrations appear to decrease in the tailings decant pond through volatilisation and decomposition due to ultraviolet radiation.

Waste Rock

Extensive ABA data collected between 2007 and 2025 have been collated from the OGNZL database. This site-specific dataset confirms the waste rock is non-acid forming, characterised by net acid generation (NAG) pH > 4.5 and acid neutralisation capacity (ANC) values that significantly exceed maximum potential acidity (MPA) values (i.e., negative net acid producing potential [NAPP]).

Geochemical Characterisation

A sampling program was designed to provide spatial coverage of materials to be disturbed as part of the Project (Table E1). Golden Bar data is available from previous investigations by MWM (2024). These data increase the total ABA dataset for material from the Macraes Operation and support identification of potential constituents of concern to understand potential effects and guide operational management requirements.

Sample analysis utilised the following techniques:

- Standard ABA methodologies to assesses materials potential to generate and neutralise acid,
- Static leach testing to identify and understand mobility of potential constituents of concern, and
- Elemental composition analyses through portable X-ray Fluorescence (pXRF) to identify potential constituents of concern.

Table E1: Sample summary

PIT DOMAIN	TOTAL SAMPLES	WASTE ROCK ZONE		
		HW WR[1]	WM / IB WR	FW WR
Coronation North	11	8	2	1
Coronation	14	13	1	-
Innes Mills	16	14	2	-
Southern Pit / Innes Mills (SPIM)	8	6	2	-
Golden Point Underground (GPUG)	5	2	2	1
Total	**54**	**43**	**9**	**2**

HW WR = hanging wall waste rock, WM / IB WR = weakly mineralised / intra burden waste rock, FW WR = foot wall waste rock

[1] Weathered samples included from Coronation North (1), Coronation (1), SPIM (1), Innes Mills (2).

Acid Base Accounting Data

Fifty-four samples underwent ABA testing. Results are summarised in Table E2. Key observations include:

- ABA data confirm previous investigation findings that waste rock at the Macraes Mine is predominantly non-acid forming.

- Three samples classified as uncertain under the Price (2009) classification scheme with a neutralisation potential ratio (NPR) [1] of < 2.
- Four samples were classified uncertain as per Resource Consent requirements (RM10.351.10.V1 – Compliance Criteria iv) with a neutralisation potential ratio < 3.

Table E2: Waste rock ABA data summary (n = 54).

METRIC	TOTAL SULFUR (S)	NAG pH	PASTE pH (1:2)	ANC	MPA	NAPP	NPR
UNITS	wt%	pH units			kg H_2SO_4/t		-
Average	0.191	6.47	8.81	49	5.83	-43.2	13.1
Median	0.173	6.35	8.9	43	5.28	-37.5	9.5
Minimum	0.01	4.8	7.3	13	0.31	-124	1.5
Maximum	0.472	10.2	9.2	137	14.44	-5.1	68.6

NAG = net acid generation, ANC = acid neutralisation capacity, MPA = maximum potential acidity, NAPP = net acid producing potential, NPR = neutralisation potential ratio.

While the materials are unlikely to generate acid rock drainage, they retain the capacity to generate neutral metalliferous drainage due to the release of potential constituents of concern.

Leach Testing

Static leach testing identifies and assesses mobility of potential constituents of concern. Thirteen representative samples were tested with the following observations of note:

- Alkaline pH across all leachate samples with a range from 7.47 to 9.4.
- Sulfate concentration ranged from 0.45 to 28 mg/L.
- Potential constituents of concern elevated in comparison to water quality reference guidelines [2] are aluminium, arsenic, and antimony.

Column leach testing provides data on long-term leaching behaviour of material and has been completed as part of the Project for four samples of representative material over 10 leaching cycles (MWM, 2026a). Potential constituents of concern identified through column leach testing include aluminium, arsenic, boron, copper, and zinc.

Elemental Enrichment

Elemental enrichment is assessed using pXRF data (50 samples) against the Geochemical Abundance Index (GAI). Generally, a GAI of 3 or greater signifies enrichment that warrants further examination, such as leach testing of rock samples. The following potential constituents of concern were identified with a GAI ≥ 3: arsenic, cadmium, and antimony. Enrichment does not necessarily mean the potential constituents of concern will be mobile in mine impacted waters.

[1] Neutralisation potential ratio = acid neutralisation capacity / maximum potential acidity
[2] Derived from Viridis (2026), ANZG (2018) default guideline values (95% protection level), and British Columbia Ministry of Water, Land and Resource Stewardship (2023) water quality guidelines.

Additional testing is being undertaken using aqua regia analysis of waste rock samples to validate pXRF results regarding element enrichment.

Summary

Data suggests that geohazard risk is more strongly controlled by weathering processes and waste rock proximity to mineralisation than by the pit domain where waste rock is sourced. Waste rock environmental geohazards identified through this investigation include:

- Arsenic was identified as the main potential constituents of concern for all pit domains and waste rock zones; enrichment is identified in all intra burden / weakly mineralised waste rock samples. Arsenic is elevated in both static leachate and column leach test leachate data.
- Antimony is identified from elemental enrichment and static leach testing.
- Aluminium is elevated in static leach testing and column leach test leachate.
- Boron, copper, and zinc are elevated in column leach test leachate.

Additional potential constituents of concern identified include:

- Arsenic and sulfate identified through tailings water quality.

Antimony is identified as a potential constituent of concern for tailings, though low concentrations are observed in tailings water.

- Nitrogenous compounds (e.g., nitrate, nitrite, and ammoniacal nitrogen) due to ammonium-nitrate-based blasting residues.

Total S data and ANC of waste rock tested as part of this investigation are within the range identified from existing waste rock, suggesting geoenvironmental hazards of sampled material are represented by existing geochemical data available for the Macraes Operation.

Recommendations

Monitoring of the following analytes is recommended based on the potential constituents of concern identified in static leachate and column leach test leachate data.

- Major ion: sulfate
- Metals and metalloids: aluminium, arsenic, boron, copper, antimony, and zinc.
- Nitrogenous compounds.

ABA testing of waste rock is required as part of resource consent activities. The monitoring requirements will be clarified in the Environmental Water Monitoring Plan and should include:

- Collection of representative waste rock drill core samples from resource drilling in advance of mining.
- Collection of representative waste rock from operational Waste Rock Stacks and operational open pit backfills to validate material placement.
- Samples numbers should be in alignment with industry guidance.

Samples should be analysed for ANC and total S to classify rocks with regard to acid / non-acid generating behaviour.

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1 INTRODUCTION

OceanaGold (New Zealand) Limited (OGNZL) currently undertakes open pit and underground gold mining operations at the Macraes Operation located at Golden Point Road, Macraes Flat, East Otago. As part of their ongoing operations, OGNZL continually review the remaining life of the Macraes Operation in light of updated knowledge of the gold resource and the economics of mining.

Reflecting recent exploration success and optimisation work, together with higher gold prices, the Macraes Phase Four Project (MP4 or the Project) seeks to extend the life of mining at the Macraes Operation until at least 2039. The Project, which will enable ongoing gold production at a rate of approximately 130,000 ounces per annum, is identified as a Listed Project in Schedule 2 of the Fast-track Approvals Act 2024 (FTAA) as a project providing significant national or regional benefits.

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1.1 Objectives and Scope of Work

This report enhances the existing geochemical knowledge for the Project to support the FTAA application. This scope of this report is to define the geochemical characteristics of waste rock and tailings associated with the MP4 and confirm they are no different to previous material that have been mined at the Macraes Operation.

To achieve this objective, the specific scope of work includes:

- Collate and review previous geochemical studies and the existing OGNZL acid base accounting (ABA) database of the Macraes Operation to establish a baseline understanding of material characteristics.
- Identify data gaps regarding the geochemical characteristics of materials in proposed expansion areas; and design and execute a sampling and analysis plan (SAP) to address these knowledge deficiencies.
- Identify and summarise geochemical hazards associated with pit extensions and tailings storage facilities (TSF), specifically the current facility (Top Tipperary TSF [TTTSF]) and SP10/11.
- Interpret analytical data to characterise acid generation potential and solute leaching risks.

The outcomes of this assessment will inform waste management and support future project planning.

1.2 Site Location and Description

OGNZL owns and operates the Macraes Mine at Macraes Flat, approximately 30 km northwest of Palmerston in the Otago Region. The Macraes Operation is the largest gold (Au) mine in New Zealand and, since commissioning in 1990, has produced more than 6 million ounces of Au. The current components of the Macraes Mine include:

- Numerous open pits (both operational and non-operational);
- Two underground mines (Frasers (now closed) and Golden Point, which is actively mined);
- Waste rock stacks (WRSs) at various stages of operation and rehabilitation;
- A network of haul roads and general mine service tracks;
- A Processing Plant;
- Five tailings storage facilities (TSFs) (three inactive, one active but nearing capacity, and one under construction and currently receiving tailings);
- An extensive network of water management infrastructure, including diversion drains, silt ponds, sumps, pit lakes, and freshwater storage reservoirs;
- Two consented but not yet constructed water storage reservoirs (Camp Creek Dam and Coal Creek Dam); and
- Associated infrastructure supporting ongoing operations, including district roads, powerlines, workshops, offices, and associated water and amenity facilities.

2 PROJECT OVERVIEW

The following section summarises the relevant background information for the MP4, as determined by the literature review.

2.1 Locality and Climate

The Macraes Operation is situated on an elevated plateau at approximately 500 m above sea level. The climate of the project area is semi-arid, characterised by significant seasonal temperature variation, relatively low average rainfall, and strong prevailing winds. This regional climate is controlled predominantly by the Rock and Pillar Mountain ranges to the west, which act as a rain-shadow barrier to incoming westerly weather systems, resulting in limited precipitation.

Three weather stations (Glendale, Deepdell, and Golden Point) record the baseline rainfall, temperature and wind data. Evaporation data are obtained from the national weather station in Middlemarch, located 30 km south-southwest of the site at an elevation of 200 mRL, which is considered the most representative regional dataset. The historical climate dataset for the site is summarised below:

- Daily average temperatures range from approximately 15ºC in summer (December to February) to 5ºC in winter (June to August). Snowfall is common during the winter months.
- The area receives a relatively low average annual rainfall of approximately 650 mm. While there is limited seasonable variation in rainfall volume, the region is susceptible to prolonged dry periods and droughts, particularly during the summer.
- Mean annual pan evaporation is approximately 952 mm (based on 1991-2018 data), which significantly exceeds annual rainfall, resulting in a negative onsite water balance.

2.2 Geology

The Macraes deposit is a structurally controlled orogenic gold deposit hosted within the metamorphic greenschist facies Otago Schist. The mineralisation is associated with the Hyde-Macraes Shear Zone (HMSZ), the principal gold-bearing structure, and the Macraes Fault, which offsets the HMSZ with a reverse displacement of approximately 250 m (OGNZL, 2011). This primary deformation is accompanied by numerous subsidiary faults, both foliation-parallel and foliation-cutting, which influence local hydrogeological pathways (OGNZL, 2011).

Gold mineralisation originally occurred in the brittle-ductile transition zone at approximately 300 ºC; this hydrothermal activity created a significant 120 m thick altered zone (Craw, 2002). The ore body comprises a combination of mineralised sheared graphitic schist and associated quartz veins.

The altered zone is enriched in sulfide minerals, primarily pyrite (FeS_2) and arsenopyrite (FeAsS). Gold is predominantly associated with these two minerals within the HMSZ. Minor fine-grained sulfide species are also present, including chalcopyrite ($CuFeS_2$), sphalerite (ZnS), and galena (PbS) (Golder, 2011). The mineralised rocks exhibit variable enrichment in arsenic (As), Au, antimony (Sb), tungsten (W), molybdenum (Mo) and bismuth (Bi) (Craw, 2002).

The potential contaminants of concern (PCOC) associated with the ore and host minerals are recognised as As, copper (Cu), iron (Fe), lead (Pb), sulfate (SO_4), and zinc (Zn), under current resource consent conditions. Compliance monitoring is undertaken by OGNZL for these PCOC to ensure operational management processes are effective and environmental impacts are minimised.

A key indicator for environmental geochemistry risk, particularly acid and metalliferous drainage (AMD) associated with sulfide minerals, is total sulfur (S) content of the rock.

Data analysis indicates a stratified risk profile: interburden waste rock (Au < 0.15 g/t) typically exhibits higher sulfur content than overburden waste rock. Low-grade ore (LGO; 0.15 – 0.4 g/t Au) shows sulfur levels comparable to the interburden. This distribution suggests that interburden materials represent a higher relative risk for AMD compared to general overburden, requiring specific management within the waste rock stacks. Noting management processes are provided for Coronation North WRS and Trimbells WRS in the WRS management plan (OGNZL, 2023). The spatial distribution of these lithological units and their relative sulfur risk levels are illustrated in Figure 1.

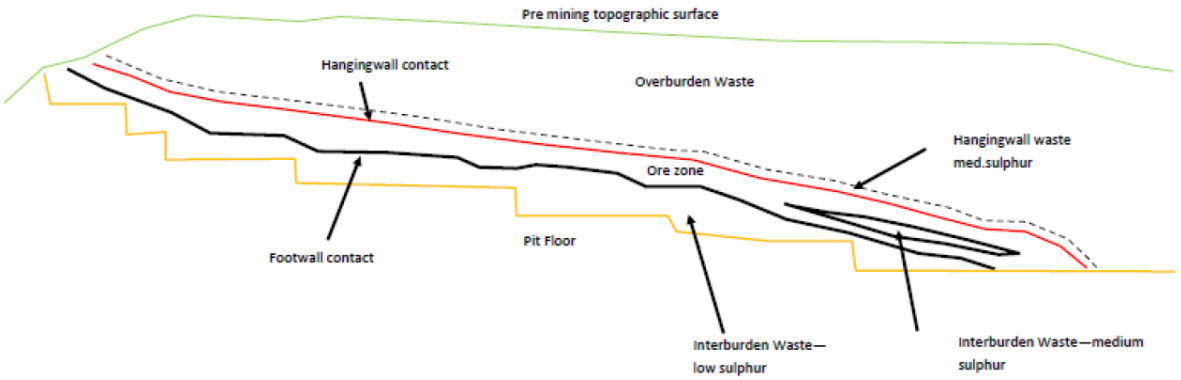

Figure 1: Coronation orebody stylised geological cross section.

Source: O'Kane Consultants (2016).

2.3 Ore Processing and Tailings Chemistry

Ore processing at the Macraes Operation involves the production of a sulfide concentrate via the flotation of crushed and ground ore. The resulting tailings geochemistry is fundamentally dictated by the gold liberation technology employed at the time of production.

Carbon-in-pulp (CIP) cyanidation (pre-1999): Historically, concentrate was processed via CIP cyanidation (~15 µm), resulting in tailings with elevated sulfide mineral content. Material deposited between 1993 and 1999 contains up to 0.5 wt% sulfide sulfur, primarily as pyrite and arsenopyrite. In contrast, the deepest tailings in the MTI (1990–1993) exhibit lower sulfide concentrations because the flotation concentrate was stored separately during that period (Weightman et al., 2021).

- Pressure oxidation (POX) (1999 - present): A POX autoclave system was commissioned in 1999 (Golder, 2011) to oxidise sulfide minerals at 225°C, liberating the encapsulated gold prior to cyanidation. While the transition to POX processing significantly reduced the residual sulfide content in the tailings, it increased the proportion of process mineral residues and secondary minerals, including gypsum (± anhydrite), jarosite (± alunite), and ferric sulfate (Weightman et al., 2021).
- Stibnite (Sb_2S_3) rich ore processing (2007-2016): During this period, the Macraes Operation processed stibnite rich ore sourced from the Globe Progress Mine. Tailings from this period are characterised by elevated Sb concentrations, typically in the form of ferric antimonate minerals ($FeSbO_4$) (Weightman et al., 2022).

- Sodium cyanide is added as part of the process and has been identified in some tailings water samples. Craw and Mackenzie (2016) indicate that cyanide does not generally appear to have a long residence time in the decant ponds at Macraes due to volatilisation and degradation through exposure to ultraviolet radiation.

2.4 Tailings Facility History

Four tailings storage facilities (TSFs) have been commissioned to date at the Macraes Operation. Their depositional histories are complex and must be delineated to characterise current material risks. The four facilities comprise:

- Mixed Tailings Impoundment (MTI): The primary deposition site from 1990 to 2013 that included the Concentrate Tailings Impoundment (CTI) and the Flotation Tailings Impoundment (FTI) that eventually merged behind the common MTI embankment.
- Southern Pit 10 (SP10): Periodically used between 2003 and 2004.
- Southern Pit 11 (SP11): Periodically used from 2006 onwards, directly overlying the SP10 facility. SP11 and the MTI eventually merged behind a common embankment.
- Top Tipperary TSF (TTTSF): The primary disposal facility since 2013.

Table 1 outlines the depositional chronology for each facility and the corresponding waste characteristics based on processing configurations.

Table 1: Deposition history of the tailings facilities at the Macraes Operation.

PERIOD	RECEIVING IMPOUNDMENT	NOTES REGARDING THE STORED MATERIAL
10/02/1991 – 07/02/2002 27/05/2003 – 18/05/2004 25/11/2004 – 22/03/2006 13/12/2007 – 20/05/2009 08/02/2010 – 09/05/2011 25/01/2012 – 10/10/2013	MTI	• 1991-1999 material bypasses POX; contains sulfides. • 1999-2013 ore was processed by POX. • 2006-2013 includes high Sb material from Reefton.
7/02/2003 – 27/05/2003 18/05/2004 – 25/11/2004	SP10	• All ore processed by POX.
22/03/2006 – 13/12/2007 20/05/2009 – 08/02/2010 9/05/2011 – 25/01/2012	SP11	• All ore processed by POX. • All periods of deposition likely to contain high Sb material from Reefton.
10/10/2013 - present	TTTSF	• All ore processed by POX. • High Sb Reefton material deposited from beginning of facility to 2016.

The expected mineral stratigraphy within the MTI is illustrated in Figure 2 (after Weightman et al., 2021). Primary baseline schist minerals, including quartz, albite, muscovite, chlorite, and carbonates are ubiquitous throughout the profile. During the POX period, autoclave processing degraded portions of these silicate phases to form kaolinite, clays, and amorphous silicates (Craw, 2006). Sulfide phases (pyrite and arsenopyrite) were common before POX was introduced but are rare in the tailings post POX. From the period post POX, there are an array of oxidised minerals including ferric arsenate minerals, calcium sulfates and ferric oxides.

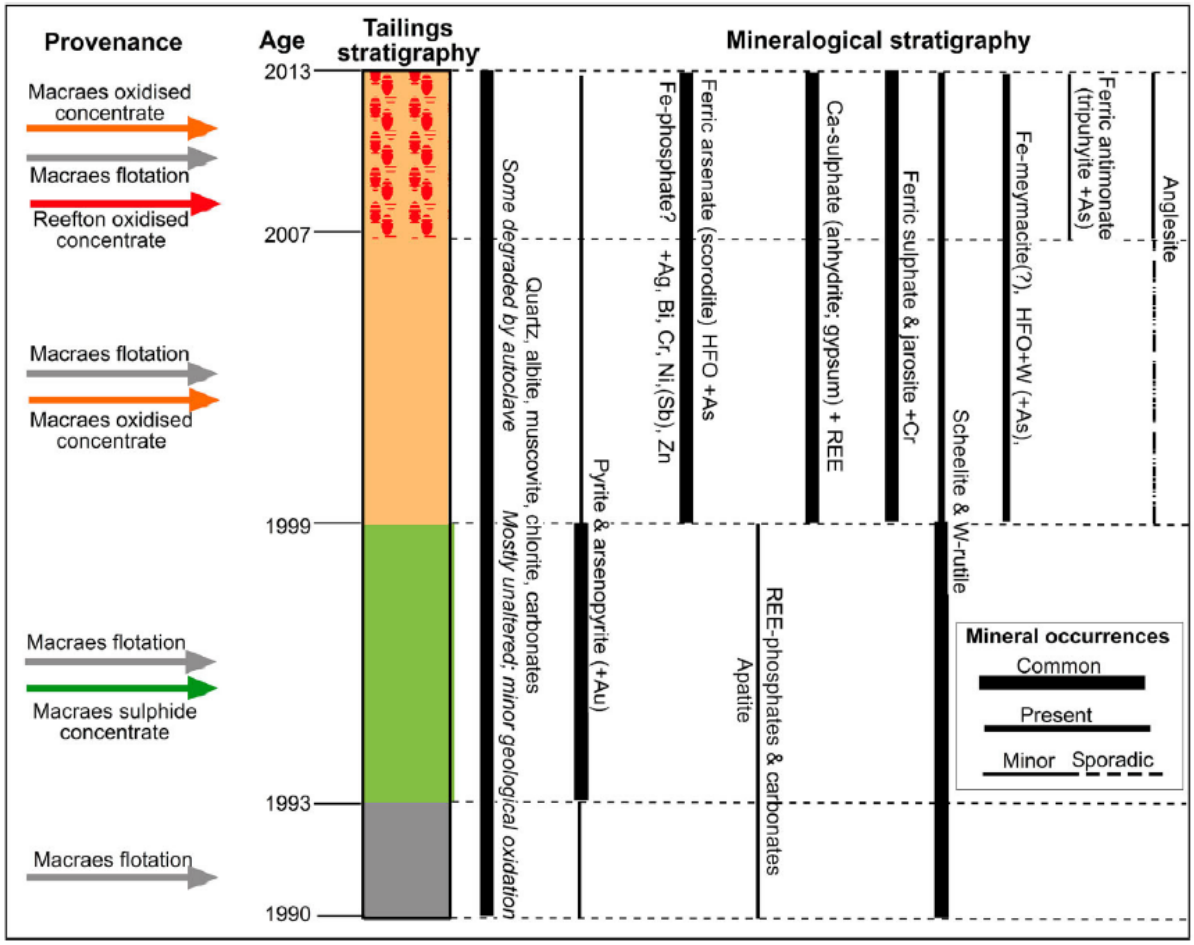

Figure 2: Conceptual sedimentary and mineralogical stratigraphy of the MTI.

Note: Total stratigraphic thickness represents 100 m; unit proportions are not to scale.

Source: Weightman et al. (2021).

2.5 MP4 Activities

The following are the proposed key MP4 activities related to tailings and/or waste rock management:

- Open pit extensions at Coronation, Coronation North, Innes Mills, and Golden Bar.
- Underground mine expansion through further development of the Golden Point Underground mine (GPUG).
- Tailings management, including:
  - Construction of the Frasers Tailings Storage Facility (FTSF) Stage 3 to accommodate a total tailings storage of up to 153 Mt; and
  - Hydraulic mining and relocation of tailings from the Mixed Tailings Impoundment (MTI), Southern Pit Option 10 TSF (SP10), and Southern Pit Option 11A TSF (SP11) to FTSF.
- Waste rock disposal, including increased storage capacity within open pits and at existing waste rock stacks at Coronation, Coronation North, Innes Mills, Golden Bar, Golden Point, and Frasers.

An overview of the proposed activities which make up the Project is shown in Figure 3.

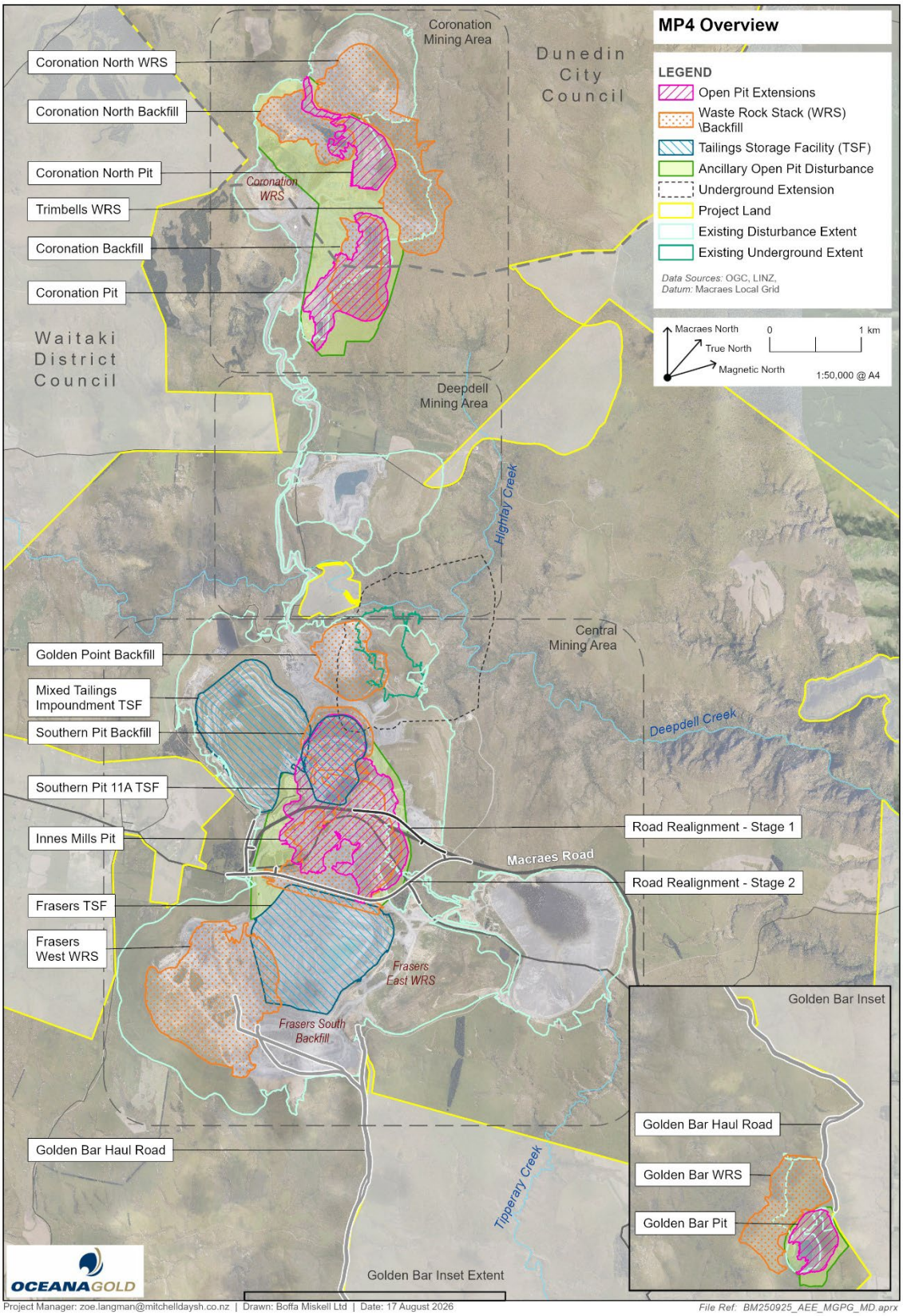

Figure 3: MP4 overview plan.

Source: OGNZL (2026).

2.5.1 Open Pit Extensions

MP4 proposes extensions to four existing open pits and the continued development of the Golden Point Underground mine (GPUG). These expansions will generate significant volumes of waste rock and require long-term management of pit lakes and local water balances.

- Golden Bar Pit: The Golden Bar Stage 2 and 3 extensions involve a ~340 m expansion to the east and northeast, increasing the pit footprint by approximately 15.2 ha (a 109% increase). The extension will generate approximately 32.4 Mt of waste rock.
- Coronation and Coronation North: The Coronation Pit will expand to the southeast (Stages 6–8), increasing its footprint by approximately 40 ha. The Coronation North Pit will expand southeast (Stage 6) by approximately 17 ha, progressing over predominantly tussock land and the existing Trimbells WRS.
- Innes Mills Pit: The project proposes an extension to the north, east, and west into the Southern Pit area (Stages 11–13). This expansion will increase the pit footprint by approximately 49 ha and requires the excavation of 36 Mt of ore and 276 Mt of waste rock. Crucially, this expansion requires the removal of the SP11 and the upper levels of the MTI tailings to access the underlying resource.
- GPUG: Continued development of the underground operations will proceed via existing portals in the Golden Point Pit highwall. Mining will take place between 105 m and 379 m below the surface, generating approximately 256,000 m³ of waste rock.

Waste rock from these expansions will be managed through a combination of in-pit backfilling (specifically at Frasers, Innes Mills, Southern Pit, Golden Point, and Coronation/Coronation North) and height raises to existing WRSs (Frasers West, Trimbells, and Golden Bar).

2.5.2 Tailings Storage and Relocation Strategy

Process residues are discharged as mine tailings into dedicated TSFs, creating a stratified inventory across the site. To facilitate the proposed Innes Mills Open Pit extension (Stages 11-13), the MP4 relies on the large-scale hydraulic relocation of 59 Mt of historical tailings to the FTSF (Stage 3). This material movement involves the removal of all tailings from SP11 and SP10 (approximately 26 Mt) and the excavation of the upper 30 m of tailings from the MTI (approximately 33 Mt).

Geochemically, SP10 and SP11 are expected to contain low sulfide material deposited after the implementation of the POX processing circuit. For the MTI, the facility contains material from the pre-POX period, with shallower depositions containing material from the post-POX period. Weightman et al. (2021) indicate that a drillhole sample from 44 m depth in the MTI contained oxidised POX material. Therefore, it is expected that all tailings moved from the MTI to a depth of 30 m as part of the MP4 postdate the introduction of POX.

2.6 Water Quality Reference Values

Water Quality Reference (WQ Ref) Values are used in this report as a screening tool to determine whether leachate concentrations are elevated relative to water quality guidelines or proposed ecotoxicity trigger values (Weber and Olds, 2016). This screening framework identifies potential PCOC for the MP4 using a conservative approach that omits toxicity modification factors and prioritises chronic exposure limits over acute thresholds.

Proposed surface water quality trigger values for the Project were applied (Viridis, 2026). Where no site-specific limit was provided, the 95% ANZG (2018) default guideline values (DGVs) were applied where available for aluminium (Al), cadmium (Cd), chromium (Cr [VI]), fluoride (F), mercury (Hg), and manganese (Mn), alongside the British Columbia Ministry of Water, Land and Resource Stewardship (2023) water quality guideline (WQG) for Sb [3], to establish a WQ Ref Value for assessment purposes. The compiled WQ Ref Values used in this report are provided in Table 2.

Direct comparison against the WQ Ref Values provides context for the assessment of leachate data and what parameters are considered potentially elevated under lab testing processes.

Table 2: Water quality reference values used for geochemical screening assessments.

PARAMETER	PROPOSED TRIGGER VALUE	UNIT	COMMENTS	SOURCE
pH	6.5 – 9.0	pH units	Chronic limit	Viridis (2026)
SO_4	500	mg/L	Chronic limit, when hardness <100 mg/L	Viridis (2026)
Al	0.055	mg/L	95% protection level, pH > 6.5	ANZG (2018)
As	0.013	mg/L	Chronic limit	Viridis (2026)
B	0.94	mg/L	Chronic limit	Viridis (2026)
Cd	0.0002	mg/L	95% protection level, toxicity modifier available	ANZG (2018)
Cr (VI)	0.001	mg/L	95% protection level	ANZG (2018)
Cu	0.004	mg/L	Chronic limit, toxicity modifier available	Viridis (2026)
Fe	0.28	mg/L	Chronic limit	Viridis (2026)
F	1.7	mg/L	95% protection level	ANZG (2018)
Hg	0.0006	mg/L	95% protection level	ANZG (2018)
Mn	1.9	mg/L	95% protection level	ANZG (2018)
Ni	0.008	mg/L	Chronic limit, toxicity modifier available	Viridis (2026)
Pb	0.045	mg/L	Chronic limit, toxicity modifier available	Viridis (2026)
Sb	0.074	mg/L	Chronic limit	BC WQG (2023)*
Zn	0.016	mg/L	Chronic limit, toxicity modifier available	Viridis (2026)

** British Columbia Ministry of Water, Land and Resource Stewardship (2023).*

[3] Selected for screening purposes as the ANZG (2018) DGVs for Sb are for an undefined protection level.

3 PREVIOUS GEOCHEMICAL INVESTIGATIONS

Extensive ABA data have been collected on material from the Macraes Operation since 2007. This section summarises the findings of these historical investigations for waste rock and tailings.

3.1 Waste Rock

3.1.1 ABA

Waste rock ABA data generated between 2007 and 2025 have been collated from the OGNZL database. The ABA dataset includes the acid neutralising capacity (ANC) and total sulfur. From these data, the maximum potential acidity (MPA) and net acid production potential (NAPP) can be calculated. Average ABA values, grouped by proposed MP4 operational domains, are presented in Table 3.

The average NAPP values across all assessed project domains are consistently negative, indicating that the bulk waste rock mass is unlikely to be net acid producing.

Table 3: Summary of OGNZL database waste rock ABA data (average values) by WRS domain.

PIT DOMAIN	SAMPLES (n)	TOTAL S (wt%)	MPA (kg H_2SO_4/t)	ANC (kg H_2SO_4/t)	NAPP (kg H_2SO_4/t)
Frasers West	201	0.14	4.42	63.97	-59.62
Trimbells	8	0.12	3.73	33.39	-29.67
Coronation North	48	0.10	3.11	31.87	-28.76
Coronation	39	0.16	4.90	40.59	-35.68
Innes Mills	36	0.15	4.52	61.65	-57.13
Golden Point	36	0.17	5.25	56.53	-51.28
ALL WASTE ROCK DATA - MACRAES OPERATION					
Average	854	0.16	5.05	58.05	-53.01
Minimum	854	0.005	0.15	6.36	-244.04
Maximum	854	1.45	44.46	246.76	38.11

Source: OGNZL ABA database.

A previous investigation of waste rock (n = 61) and ore (n = 9) completed by MWM (2024), presented in Table 4, supports previous findings that waste rock from the Macraes Operation is non-acid forming (NAF). Because ANC values significantly exceed the MPA, the resulting NAPP values are overwhelmingly negative. This classification is further supported by circumneutral to alkaline net acid generation (NAG) pH values (Table 4), which aligns with the circumneutral drainage chemistry monitored onsite.

Table 4: Summary of MWM (2024) ABA data (average values) by pit domain.

PIT DOMAIN	SAMPLES (n)	NAG pH (pH unit)	TOTAL S (wt%)	MPA (kg H_2SO_4/t)	ANC (kg H_2SO_4/t)	NAPP (kg H_2SO_4/t)
WASTE ROCK						
SPIM	19	9.2	0.11	3.4	57.8	-54.4
Innes Mills	18	8.9	0.14	4.1	53.2	-49
Golden Bar	8	9	0.16	4.8	39.6	-34.8
Coronation	8	9	0.15	4.5	48.1	-43.6
Round Hill	8	9.9	0.14	4.4	55.5	-51.1
ORE						

PIT DOMAIN	SAMPLES (n)	NAG pH (pH unit)	TOTAL S (wt%)	MPA (kg H_2SO_4/t)	ANC (kg H_2SO_4/t)	NAPP (kg H_2SO_4/t)
SPIM	2	10.7	0.46	14.1	75.1	-61
Innes Mills	2	8.3	0.25	7.8	39.9	-32.1
Golden Bar	2	8.3	1.15	35.2	61.1	-26
Coronation*	1	8.9	0.16	5	51	-46.1
Round Hill	2	10	0.22	6.7	54.5	-47.8

*Only 1 sample, therefore sample data presented.

Applying the AMIRA (2002) classification scheme based on NAG pH and NAPP data (Figure 4), only 2 of the 70 samples assessed were classified as uncertain (UC) regarding their acid generating potential. However, a subset of samples from the Southern Pit / Innes Mills (SPIM) domain was identified as presenting a higher risk for AMD (indicated by the blue circle in Figure 4), characterised by either a UC classification or lower NAG pH values.

From an overall AMD hazards assessment perspective, the minor volume of material represented by these UC samples is statistically insufficient to alter the geochemical performance of the bulk waste rock mass or impact the predicted compliance water quality for the Project.

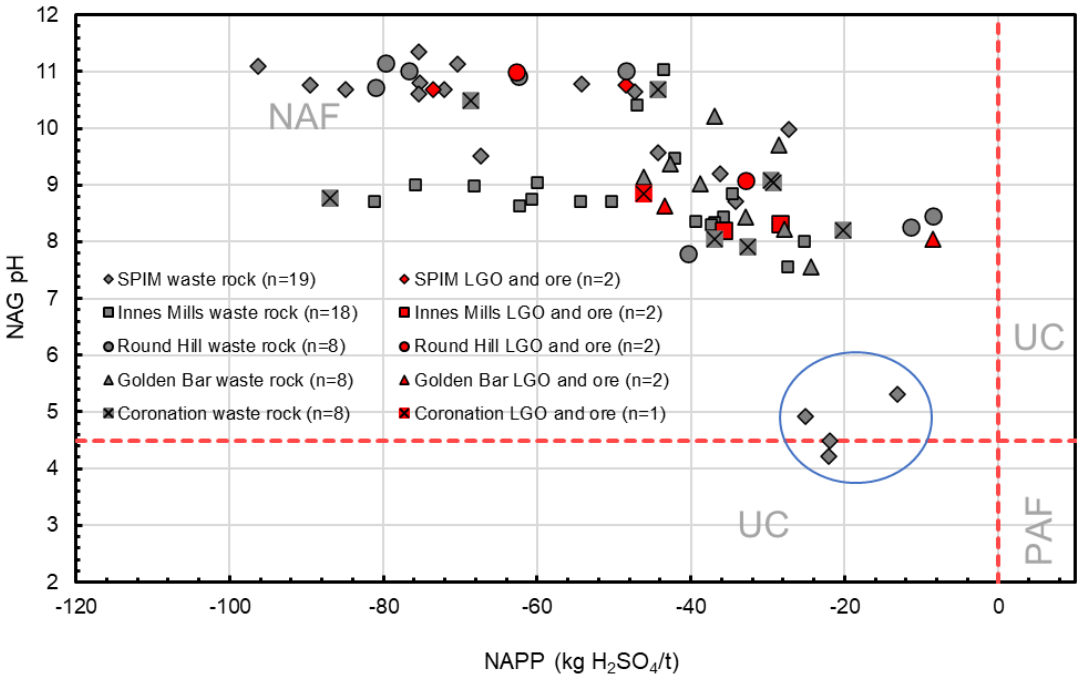

Figure 4: AMIRA (2002) classification of site materials based on NAPP and NAG pH.

Source: MWM (2024).

3.1.2 Potential Constituents of Concern

Geochemical testwork and empirical site data assessed by MWM (2024) indicate that the PCOC for the MP4 operation are arsenic (As), nitrogenous compounds (associated with ammonium-nitrate blasting residues), and SO_4. Iron (Fe), Zn, and Cu can exhibit localised elevations. Collectively, the ABA data confirm that acid rock drainage (ARD) is not expected at this site; instead, a lower-risk neutral metalliferous drainage (NMD) is expected, which is currently observed at the site (e.g., circumneutral drainage elevated in SO_4 and specific contaminants of concern).

Previous portable X-ray fluorescence (pXRF) multi-element screening (MWM, 2024) assessed solid-phase enrichment relative to average crustal abundances using the geochemical abundance index (GAI)[4]. This analysis identified enrichment for Sb, tin (Sn) (one SPIM LGO sample), As (consistently enriched across all pit domains), and S (only in LGO and ore samples). Apparent Cd enrichment reflected analytical interference associated with the limit of reporting (LOR) rather than true geochemical enrichment; available seepage and leachate data confirm that Cd concentrations remain very low (MWM, 2024).

Shake flask extraction (SFE) from three waste rock samples (Innes Mills and SPIM) yielded an average Sb concentration of 0.014 mg/L, which was elevated above the WQ Ref Value of 0.009 mg/L. Other parameters of interest included SO_4 (average 17.1 mg/L) and As (average 0.3 mg/L); these, along with all other parameters, remained below the WQ Ref Values. Average SFE data from backfill samples (n = 6) for Sb (0.014 mg/L) was also above the WQ Ref Value, while all other parameters remained below their respective WQ Ref Values, including As (< 0.02 mg/L) and SO_4 (35.7 mg/L).

3.2 Tailings

3.2.1 ABA

Historical ABA data for tailings samples are available from 2007 to 2025. Because the tailings impoundments relevant to the MP4 operated until 2013, the characterisation data for the 2007-2013 samples are summarised in Table 5. Samples were collected directly from either the tailings hopper or the discharge line.

The data in Table 5 indicates that the tailings material is NAF under the Price (2009) NPR classification schemes due to abundant inherent ANC. The mean and median NAPP values are negative (-13.2 kg H_2SO_4/t and -34.8 kg H_2SO_4/t, respectively), with an average NPR value > 3 (mean value of 9.6).

Table 5. ABA data summary for historical Macraes Operation tailings (2007-2013).

PARAMETER	TOTAL S	MPA*	ANC**	NAPP	NPR
	wt%	kg H_2SO_4/t	kg H_2SO_4/t	kg H_2SO_4/t	-
Average	0.86	24.15	40.1	-15.9	9.7
Median	0.26	7.65	43.7	-35.3	5.7

** MPA calculated from Total S. ** ANC is based on conservative 0.1 N HCl digestion rather than the 0.5 N HCl digestion (i.e., a less aggressive acid will have a lower ANC). Total sample population (n) was 302.*

Source: OGNZL database

As illustrated in Figure 5 (MWM, 2024), the total S content was higher during the 2007-2011 period. This is likely due to the additional sulfide feed contribution from processing stibnite-rich concentrate imported from the Globe Progress Mine. The period up to 2013 reflects the material that was placed on the MTI and SP11, making it highly relevant to this Project. Although these data indicate greater total S and therefore a higher MPA, sufficient ANC was present over this period to maintain negative NAPP values in the ABA dataset (Table 5).

[4] Applying the Geochemical Abundance Index (GAI), where a GAI of 3 or greater signifies elemental enrichment.

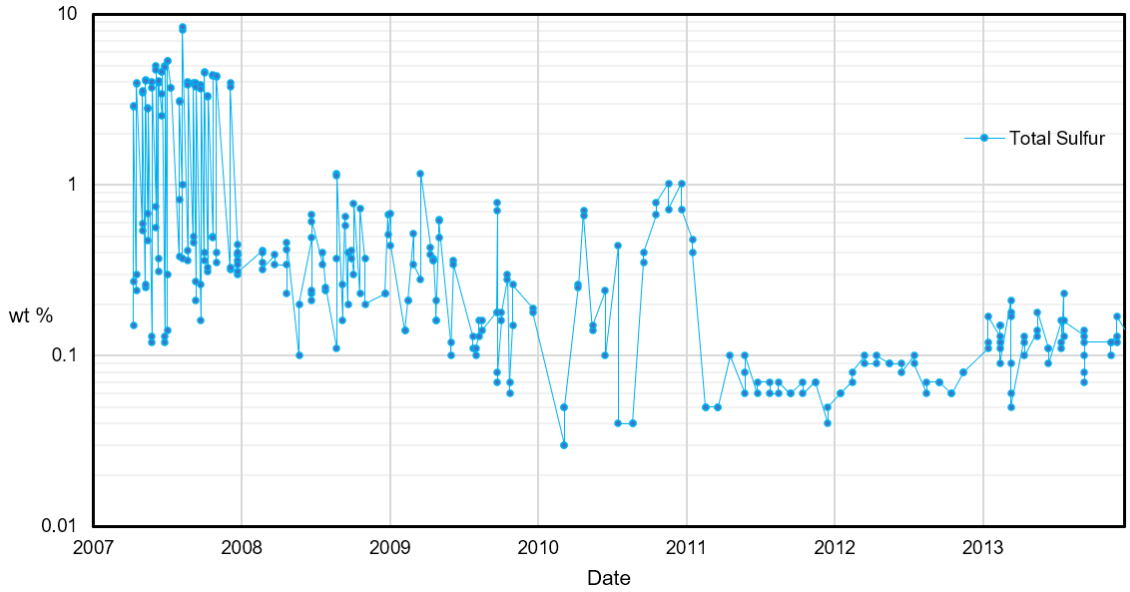

Figure 5: Total sulfur content for tailings (2007 - 2021).

Source: MWM (2024)

Note: An anomalous sample from 24-08-2007 yielding an outlier of 188.8 kg H_2SO_4/t has been omitted from this plot.

3.2.2 Tailings Influenced Water Quality

Craw and Pope (2017) assessed the water-rock interactions and the resulting water quality within the MTI. They found that while numerous ions, including SO_4 (up to 8,000 mg/L), calcium (Ca), Fe, potassium (K), sodium (Na), and chloride (Cl), were highly concentrated in tailings process waters following the introduction of POX, solute attenuation occurred as seepage migrated through the facility to the basal chimney drain.

Despite this attenuation, the chimney drain exhibited gradually increasing concentrations of SO_4, Ca, magnesium (Mg), and Na between 1993 and 2013, while the drainage pH remained stable at approximately 6.4. Arsenic concentrations in the chimney drain evolved slowly, increasing from approximately 1 mg/L to 4 mg/L by 2013. Table 6 shows the concentrations recorded in 2013 as a representation of evolved seepage from the impoundment.

Table 6: Seepage quality recorded within the MTI chimney drain in 2013.

ANALYTE	UNIT	VALUE
pH	pH units	6.4
SO_4	mg/L	2,000
As	mg/L	4
Mg	mg/L	100
K	mg/L	40
Na	mg/L	600
Cl	mg/L	100
Ca	mg/L	200

Source: Craw and Pope (2017).

Investigation by Weightman et al. (2022) focused on the geochemistry and mobility of Sb within the processing and tailings at the Macraes Operation. They found that during the POX processing of the

ore, stable ferric antimonate minerals formed, which is thought to be responsible for the very low concentrations (< 0.1 mg/L) of Sb observed in the tailings influenced waters.

3.3 Knowledge Gaps

For the MP4, the following data gaps associated with geoenvironmental hazards were identified, these knowledge gaps have been addressed in this report through additional geochemical testing:

- Existing ABA data indicates that MP4 materials are NAF. However, site specific testing should be undertaken to validate the geochemical nature of MP4 materials.
- Additional static leach testing to validate PCOC of waste rock to be generated by proposed pit expansions.
- Targeted analysis of materials from the SPIM domain is required to delineate the specific mineralogical drivers behind the anomalous low NAG pH values (pH < 4.5) identified by MWM (2024).
- Column leach testing (CLT) of waste rock is required to provide data on long-term leaching behaviour of material.

4 MATERIAL CHARACTERISATION METHODOLOGY

To address the knowledge gaps identified in Section 3.3, an SAP was implemented to acquire representative geochemical data and support the assessment of the potential environmental effects. This section outlines the sampling program, laboratory methods, and geochemical classification process utilised to assess the MP4 materials. The full SAP memorandum (MWM, 2026b) is attached as Appendix B.

Column leach testing (CLT) of waste rock is required to provide data on long-term leaching behaviour of material. The CLT report is provided as Appendix D to support the identification of PCOC for the Project.

4.1 Sampling Program

The sampling program was designed to provide comprehensive spatial and vertical coverage of the materials to be disturbed as part of the Project and to investigate the anomalous low NAG pH values previously identified within the SPIM domain.

Drill core was the primary sampling medium. Samples were selected based on the following criteria:

- Geological logging and lithological interpretations.
- Drillhole cross-sections and geological domains.
- Existing assay data provided by OGNZL.
- Proportional representation across the major lithology (schist) and waste rock zones.
- Proximity to identified geochemical anomalies (e.g., the SPIM low NAG pH region).

Sampling intervals were standardised at 0.5 m for PQ [5] core and 1.0 m for smaller diameter core. Both full-core and half-core materials were utilised depending on availability, supplemented by retained sample materials from previous assay analysis where necessary.

4.1.1 Waste Rock Zones and Weathering States

To ensure vertical representativeness, the selected waste rock was classified into three geochemically and geologically relevant zones:

- Hanging Wall Waste Rock (HW WR): The dominant waste rock type across the proposed pit expansions, representing the largest volume of excavated material.
- Weakly Mineralised / Intra-Burden Waste Rock (WM WR / IB WR): Material situated between mineralised ore zones or weakly mineralised hanging wall.
- Footwall Waste Rock (FW WR): Limited in overall extent but sampled to provide background geochemical data.

Weathering states were also factored into the sample selection. While predominantly unweathered rock (UW) was targeted, one weathered sample per pit domain was included (comprising approximately 10% of the total ABA samples).

[5] Diameter of PQ drill core 85.00 mm

4.1.2 Sample Inventory

A total of 54 drill core samples were selected across the five pit domains. A summary of the sample distribution is provided in Table 7, with additional details compiled in Appendix B. Geochemical data from drill core (n=8) sourced from Golden Bar is provided in MWM (2024).

Table 7: Summary of sampling program and waste rock zone distribution.

PIT DOMAIN	DRILLHOLE ID	TOTAL SAMPLES	WASTE ROCK LOCATION		
			HW WR	WM / IB WR	FW WR
Coronation North (n = 11)	DDH8253	8	6	2	-
	DDH8257	2	2	-	-
	DDH8113	1	-	-	1
Coronation (n = 14)	DDH8125	8	8	-	-
	DDH8134	6	5	1	-
Innes Mills (n = 16)	DDH8165	3	2	1	-
	DDH8256	2	2	-	-
	DDH8168	1	1	-	-
	DDH8266	1	1	-	-
	DDH8243	8	7	1	-
	IM8-5300-004	1	1	-	-
SPIM (n = 8)	DDH7848	7	6	1	-
	DDH8047	1	-	1	-
GPUG (n = 5)	DDH7847	5	2	2	1
Total	**-**	**54**	**43**	**9**	**2**

Source: MWM (2026b).

4.2 Analysis Program

The analysis program was developed to characterise the geochemical behaviour of the waste rock and quantify the geoenvironmental risks associated with the Project. The analytical suite provides an integrated assessment of acid-generation potential, elemental composition, and both short-term and long-term leaching kinetics. Detailed laboratory testing methodology is provided in Appendix C.

4.2.1 Acid-base Accounting

Standard ABA testing was performed on all 54 samples to assess their potential to generate and neutralise acid. The analytical testing suite included:

- Paste pH and electrical conductivity (EC)
- Total S
- Total carbon (C)
- ANC (modified Sobek method)
- NAG testing

To ensure analytical accuracy and data reliability, three certified reference material (CRM) samples were included within the laboratory testing batch for quality assurance/quality control (QA/QC).

Using these laboratory results, the MPA and NAPP were calculated for each sample to determine the theoretical acid balance.

4.2.2 Elemental Composition and Geochemical Abundance Index

The total elemental composition of the samples [6] (n = 50) was screened using portable pXRF to evaluate spatial variability and elemental associations across the dataset.

The GAI was utilised to quantify elemental enrichment relative to average crustal abundances (Förstner et al., 1993). The GAI for a specific element is calculated as follows:

$$GAI = log_2 [\frac{C}{1.5 \times S}]$$

where C is the measured concentration of the element in the sample, and S is the standard median crustal abundance for that element.

The resulting values are truncated to integer increments ranging from 0 to 6. A GAI of 0 indicates the element is present at a concentration near or below the standard crustal abundance, whereas a GAI of 6 indicates approximately a 70-fold or greater enrichment.

Generally, a GAI ≥ 3 signifies significant enrichment that warrants further environmental investigation (Förstner et al., 1993. Because pXRF is a semi-quantitative screening method with recognised limitations regarding detection limits for some elements (e.g., Hg and Cd). Enrichment alone of analytes does not strictly indicate environmental mobility. This is instead tested through the solute leaching procedures.

4.2.3 Static Leaching Procedure

Static leach testing was undertaken on nine (9) samples at SGS laboratories and four (4) samples at ALS laboratories, as part of the CLT program, for a total of 13 samples to assess the short-term environmental mobility and leachability of PCOC applying the following methodology:

A 1:10 solid to liquid ratio using deionised (DI) water over an 18-hour agitating leach period [7].

The resulting leachates were analysed for pH, EC, major anions/cations, trace metals/metalloids, and nitrogen species. A complete list of analytes is provided in Appendix B. To definitively identify the PCOC for the MP4, these static leachate concentrations are screened against the specific WQ Ref Values established in Section 2.6.

4.2.4 Kinetic Column Leach Testing

Kinetic CLT is currently in progress at ALS Brisbane to assess long-term leaching behaviour, sulfide oxidation rates, and water quality evolution. Four (4) samples representing the dominant HW, IB, and FW waste rock across the Innes Mills, Coronation North, Coronation, and SPIM domains were selected for this program.

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[6] CLT samples (n=4) were not screened using pXRF.
[7] SGS inhouse method.

Ten (10) leaching cycles of data were available during compilation of this report. The CLT program is ongoing with a minimum of 16 leach cycles planned. The CLT leachates are analysed for pH, EC, major anions/cations, and trace metals/metalloids. The detailed results of the CLT program are provided as a standalone report (MWM, 2026a) in Appendix D.

4.2.5 Analysis Program Summary

The following Table 8 provides a summary of the testing that was completed.

Table 8: MP4 waste rock analytical schedule.

TEST DESCRIPTION	TOTAL NUMBER OF SAMPLES
Paste pH/EC (1:2)	54
ANC	54
Total Sulfur, Total Carbon	54
Single addition NAG (pH + Acidity to 4.5 and 7.0)	54
CRM	3
pXRF	50
Static leaching procedures Analysis of leachate being: pH, EC, major anions, major cations, trace metals and metalloids, forms of nitrogen.	13
Column leach testing Analysis of leachate being: pH, EC, major anions, major cations, trace metals and metalloids.	4

4.3 AMD Classification

The acid forming potential of the samples was classified using two schemes (summarised in Table 9):

- The AMIRA (2002) scheme classifies samples based on a combination of NAPP and NAG pH values
- The Price (2009) scheme relies on the NPR, defined as the ratio of ANC to MPA.

Furthermore, current Resource Consent conditions for the site (RM10.351.10.V1 – Compliance Criteria iv) dictates that waste rock placed at the site must be non-acid forming, with an NPR not less than 3.

Table 9: Summary of AMD classification criteria.

AMD CLASS	AMIRA SCHEME (2002)	PRICE SCHEME (2009)
PAF	NAPP ≥ 0 NAG pH ≤ 4.5	NPR ≤ 1
NAF	NAPP < 0 NAG pH > 4.5	NPR > 2
UC	NAPP ≥ 0; NAG pH > 4.5 or NAPP < 0; NAG pH ≤ 4.5	1 < NPR ≤ 2

5 GEOCHEMICAL CHARACTERISATION RESULTS

The sample characterisation results are presented in this section. Raw analytical laboratory data are compiled in Appendix E.

5.1 Acid Base Accounting

Table 10, Table 11, and Table 12 present the analytical ABA datasets segregated by pit domain, designated waste rock zone, and weathering state, respectively. Waste rock ABA data for Golden Bar from MWM (2024) is included in Table 10 for comparison purposes.

Key observations from Table 10 include:

- NAG pH data is greater than 4.5 for all samples.
- Samples with a range of total S (wt%) between 0.01 wt% to 0.472 wt% have been tested.
- ANC values exceed the MPA for all samples (Table 10) resulting in negative NAPP values for all waste rock tested. These data validate the NAG pH data and confirm the materials are non--acid forming.

ABA data is discussed in detail in the following sections (Section 5.1.1 to 5.1.5).

Table 10: ABA results grouped by pit domain.

DOMAIN	TOTAL S	TOTAL C	NAG pH*	PASTE pH* (1:2)	PASTE EC (1:2)	ANC	MPA	NAPP	NPR
UNITS	wt%		pH units		µS/cm		kg H_2SO_4/t		-
Coronation (n = 14)									
Min	0.048	0.23	4.8	7.5	147	15	1.47	-92	1.5
Max	0.35	2.22	9.7	9	520	97	10.71	-5	30.4
Median	0.216	0.76	6.4	8.6	335	48.0	6.59	-41.0	7.3
Average	0.209	0.88	5.75	8.35	342.6	51.6	6.38	-45.0	10.5
STD	0.088	0.59	5.38	8.10	97.6	26.5	2.69	26.8	8.5
Coronation North (n = 11)									
Min	0.01	0.09	5.2	8.8	150	21	0.31	-124	6.8
Max	0.425	2.48	10.2	9.1	320	137	13.01	-20	68.6
Median	0.091	0.54	6.20	8.90	260.0	44.0	2.78	-40.0	14.6
Average	0.115	0.76	5.77	8.91	245.5	51.8	3.51	-48.2	21.9
STD	0.11	0.67	5.65	9.60	60.9	32.6	3.31	29.9	17.7
SPIM (n = 8)									
Min	0.052	0.25	4.8	7.3	170	18	1.59	-78	1.8
Max	0.369	1.90	8.6	9.2	1200	80	11.29	-8	42.9
Median	0.246	0.51	6.50	9.00	375.0	39.0	7.53	-34.0	5.9
Average	0.219	0.67	5.47	8.11	510.0	43.0	6.71	-36.4	11.8
STD	0.125	0.55	5.22	7.76	333.6	22.1	3.82	23.4	13.8
GPUG (n = 5)									
Min	0.068	0.46	6.1	9	220	33	2.08	-69	6.7
Max	0.175	1.09	7.3	9.1	420	72	5.36	-29	24.9
Median	0.100	0.49	6.50	9.10	370.0	39.0	3.06	-37.0	18.7
Average	0.113	0.67	6.43	9.06	338.0	48.8	3.45	-45.4	16.4
STD	0.043	0.28	6.54	9.95	85.0	17.9	1.32	18.4	8.6
Innes Mills (n = 16)									
Min	0.019	0.14	5.8	8.4	136	13	0.58	-96	2.6

DOMAIN	TOTAL S	TOTAL C	NAG pH*	PASTE pH* (1:2)	PASTE EC (1:2)	ANC	MPA	NAPP	NPR
UNITS	wt%		pH units		µS/cm		kg H_2SO_4/t		-
Max	0.472	1.53	7.6	9.1	420	101	14.44	-12	22.4
Median	0.218	0.65	6.30	8.90	310.0	45.0	6.67	-37.5	7.5
Average	0.230	0.72	6.28	8.86	292.9	48.0	7.26	-40.8	8.8
STD	0.121	0.34	6.41	9.12	78.4	19.2	3.69	19.3	5.6
Golden Bar (waste Rock) (n=8)[1]									
Min	0.05	-	7.6	8.3	252	29.4	1.6	-46.1	4.3
Max	0.29	-	10.2	9.31	396	49	8.8	-24.4	21.7
Median	0.15	-	9.1	8.84	265	41	4.7	-34.9	8.8
Average	0.16	-	9.0	8.84	283	39.6	4.8	-34.8	11.2
STD	0.08	-	0.8	0.28	46	7.4	2.5	7.1	6.2

**pH statistics calculated via linear hydrogen ion concentration ($[H^+]$), where $pH = -\log_{10}([H^+])$.*

[1]MWM (2024).

Table 11: ABA results grouped by waste rock zone.

WASTE ROCK ZONE	TOTAL S	TOTAL C	NAG pH*	PASTE pH* (1:2)	PASTE EC (1:2)	ANC	MPA	NAPP	NPR
UNITS	wt%		pH units		µS/cm		kg H_2SO_4/t		-
HW WR (n = 43)									
Min	0.01	0.09	4.8	7.3	136	13	0.31	-95.8	1.5
Max	0.472	2.22	9.7	9.2	1200	101	14.44	-5.1	68.6
Median	0.197	0.61	6.30	8.90	310.0	43.0	6.03	-36.5	7.8
Average	0.205	0.70	5.74	8.45	342.9	46.5	6.27	-40.2	11.5
STD	0.11	0.45	5.44	8.06	177.8	21.9	3.39	22.1	11.7
IB / WM (n = 9)									
Min	0.048	0.48	6.3	8.9	170	35	1.47	-124.0	6.7
Max	0.425	2.48	8.6	9.1	400	137	13.01	-30.6	42.9
Median	0.099	0.78	6.60	9.00	310.0	56.0	3.03	-54.0	18.7
Average	0.150	1.03	6.63	9.00	297.8	62.2	4.60	-57.6	17.9
STD	0.124	0.69	6.73	9.74	77.6	32.5	3.79	29.8	12.0
FW WR (n= 2)[1]									
Min	0.068	0.47	6.5	8.8	160	39	2.08	-49.3	18.7
Max	0.070	1.24	10.2	9.1	370	51.4	2.14	-36.9	24.0
Average	0.069	0.86	8.35	8.95	265.0	45.2	2.11	-43.1	21.4

**pH statistics calculated via linear hydrogen ion concentration ($[H^+]$), where $pH = -\log_{10}([H^+])$.*

[1]As n=2 median and STD data are not supplied.

Table 12: ABA results grouped by weathering state.

WEATHERING STATE	TOTAL S	TOTAL C	NAG pH*	PASTE pH* (1:2)	PASTE EC (1:2)	ANC	MPA	NAPP	NPR
UNITS	wt%		pH units		µS/cm		kg H_2SO_4/t		-
Weathered (n = 5)									
Min	0.010	0.090	4.8	7.3	140	13	0.31	-44.7	1.5
Max	0.323	0.600	6.4	9.0	1200	50	9.88	-5.1	68.6
Median	0.174	0.230	6.20	8.40	350.0	18.0	5.32	-12.4	9.4
Average	0.170	0.262	5.35	7.75	472.0	23.4	5.20	-18.2	20.7
STD	0.154	0.200	5.18	7.65	436.2	15.2	4.72	15.9	28.1
Unweathered (n = 49)									
Min	0.048	0.170	4.8	8.2	136	18	1.47	-124.0	1.9
Max	0.472	2.480	10.2	9.2	720	137	14.44	-9.0	42.9
Median	0.171	0.660	6.40	8.90	310.0	44.0	5.23	-38.6	9.7

WEATHERING STATE	TOTAL S	TOTAL C	NAG pH*	PASTE pH* (1:2)	PASTE EC (1:2)	ANC	MPA	NAPP	NPR
UNITS	wt%		pH units		µS/cm		kg H_2SO_4/t		-
Average	0.193	0.811	5.92	8.80	318.2	51.7	5.90	-45.8	12.3
STD	0.111	0.501	5.56	8.94	107.5	23.3	3.40	23.0	9.1

*pH statistics calculated via linear hydrogen ion concentration ([H+]), where pH = -log10([H+]).

5.1.1 Paste pH versus NAG pH

The relationship between paste pH and NAG pH is used to assess potential lag times to the onset of acidity (Weber et al., 2006 [8]). Data are plotted in Figure 6 to Figure 8 by pit domain, waste rock zone, and weathering state. The following observations are made:

- All samples are characterised as NAF.
- SPIM and Coronation have the greatest range in NAG pH.
- Weathered samples consistently have NAG pH between 4.8 and 6.5 (as shown in Figure 8).
- IB WR / WM WR samples exhibit a narrow paste pH range of 8.9 to 9.1.
- Some SPIM samples (weathered and unweathered had lower NAG pH and paste pH that is comparable to earlier studies (Figure 4).
- Golden Bar data from MWM (2024) has an average higher NAG pH than other pit domains.

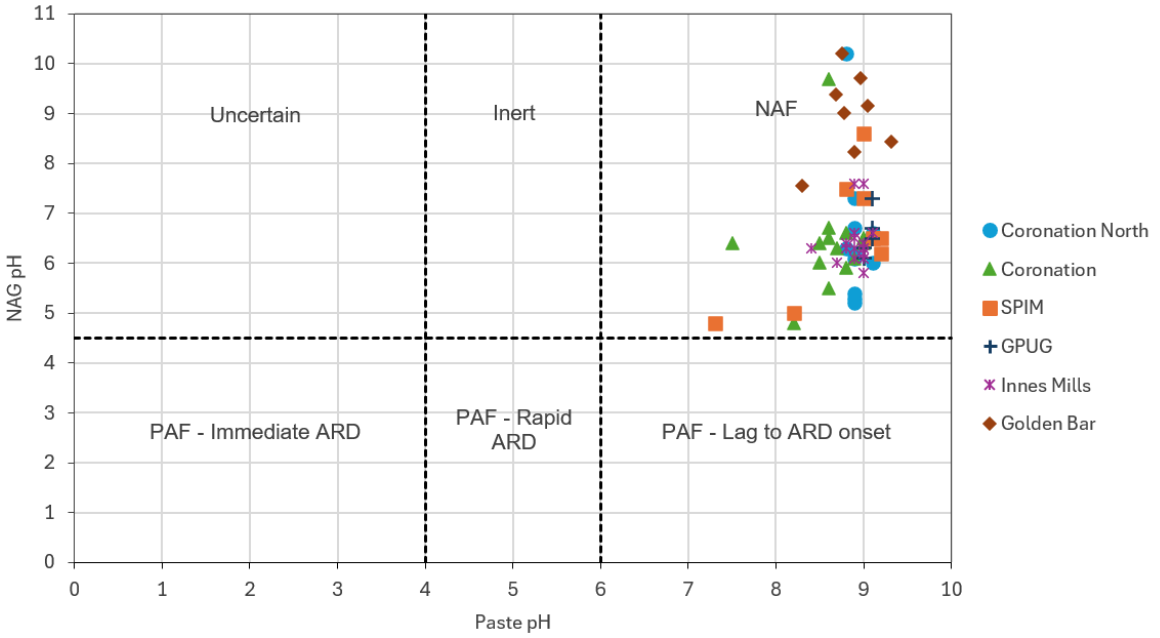

Figure 6: NAG pH versus paste pH of samples by pit domain.

Golden Bar data from MWM (2024).

[8] *Where the classification system is modified to include inert materials (i.e., highly weathered materials where NAG pH > 4.5 and pH is 4-6).*

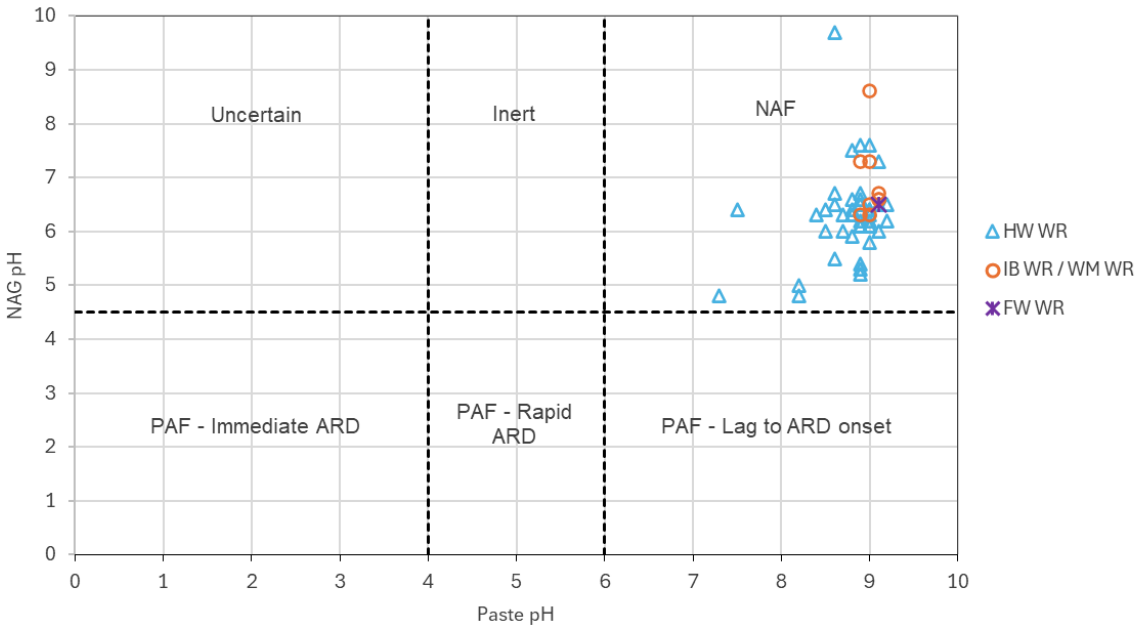

Figure 7: NAG pH versus paste pH of samples by waste rock zone.

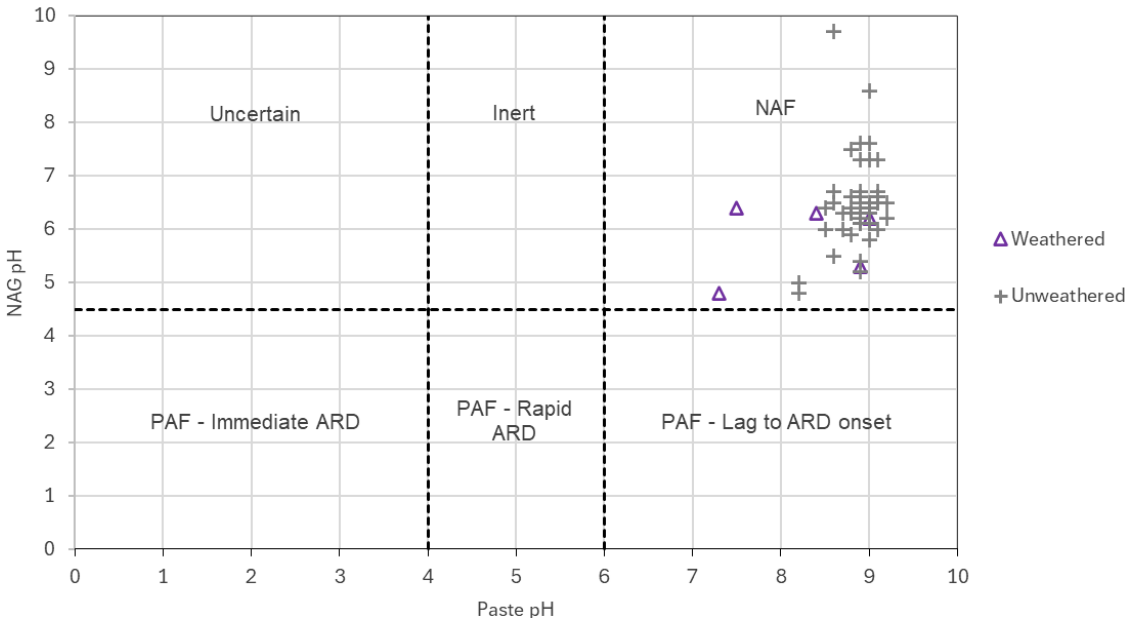

Figure 8: NAG pH versus paste pH of samples by weathering state.

5.1.2 Total Sulfur

Figure 9 presents the total S distribution across the dataset. Key observations include:

- Total S values across the entire 54-sample dataset range from 0.01 to 0.472 wt%.
- The average total S is lowest within the GPUG domain (0.113 wt%) and highest in the Innes Mills domain (0.230 wt%).
- The four CLT samples (highlighted in orange) represent targeted material spanning a total S range of 0.070 to 0.350 wt%, demonstrating that the kinetic program captures the mid to high S profiles of the broader waste mass.

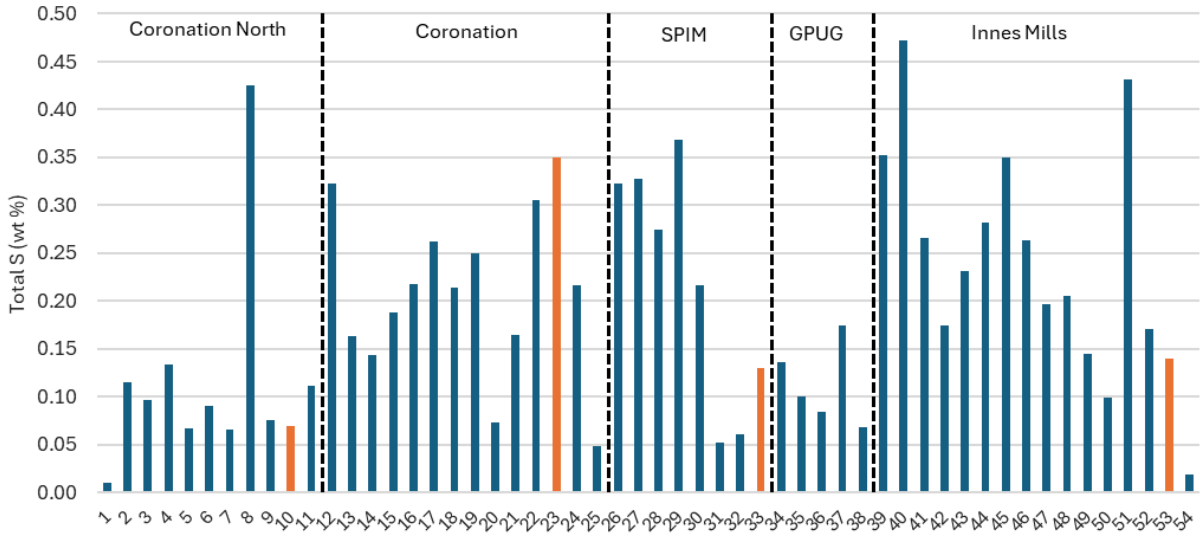

Figure 9: Total S distribution of samples.

Data in orange indicate CLT samples.

Figure 10 presents the statistical percentiles for total S segregated by individual pit domain and the combined dataset. While total S content for the GPUG and Coronation North domains is predominantly lower than other domains, it must be noted that samples were selected to capture a specific spatial range. Therefore, these percentile data represent the sampled distribution rather than the true mass-weighted percentiles expected from the final bulk waste rock.

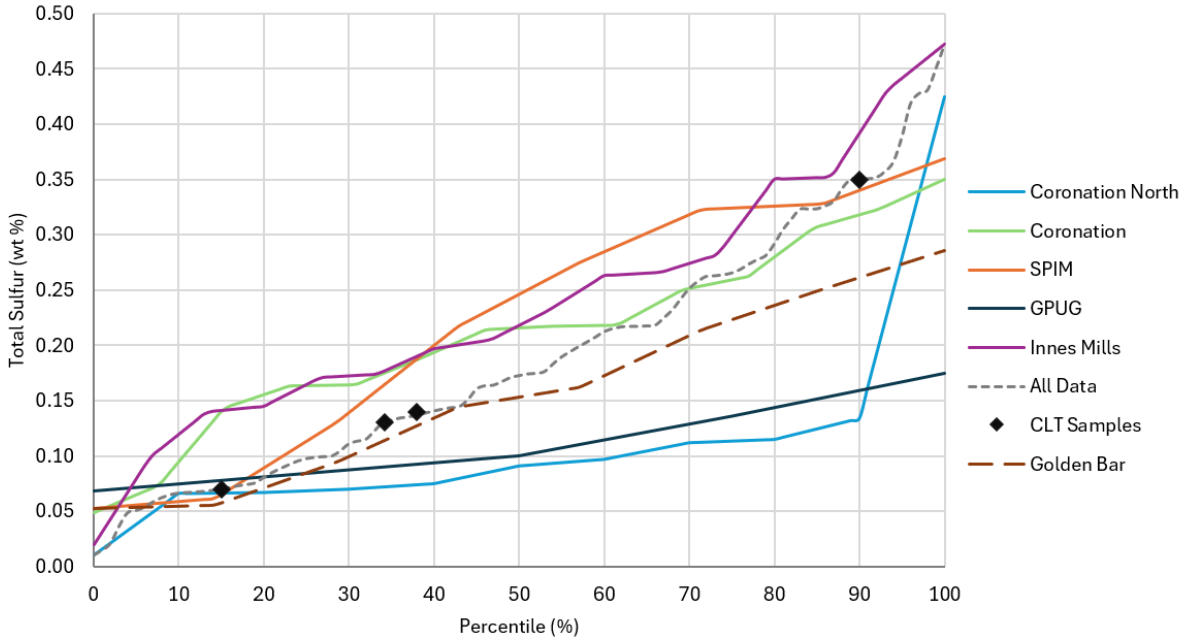

Figure 10: Statistical percentile distribution of total S content.

Golden Bar data (MWM, 2024) is provided as a comparison and is not included in the calculation of All Data.

5.1.3 ANC

Figure 11 presents the ANC distribution across the dataset, indicating the range of buffering capacity tested for each pit domain. Key observations include:

- ANC values across individual samples range from 13 to 137 kg H_2SO_4/t.

- The average ANC is highest within the Coronation North domain (51.8 kg H_2SO_4/t), with the Coronation domain demonstrating a similar average (51.6 kg H_2SO_4/t). The lowest average ANC is observed within the SPIM domain (43.0 kg H_2SO_4/t).

- Total carbon data ranges from 0.09 wt% to 2.48 wt% across the sample population. Data was converted to an equivalent calcium carbonate ANC_{calc} (kg $CaCO_3$/t) by multiplying wt% C by the stoichiometric conversion factor of 83.3. ANC (as $CaCO_3$/t)[9] versus ANC_{calc} is plotted in Figure 12. The conversion of total C to ANC_{calc} assumes all carbon is present as carbonate minerals, therefore the presence of inorganic carbon can overestimate $CaCO_3$ content. As ANC increases, there is increasing divergence from a 1:1 relationship with ANC_{calc} greater than ANC suggesting the presence of inorganic carbon (e.g., graphite is identified within the Otago Schist at the Macraes Operation).

- The CLT samples (highlighted in orange) span an ANC range of 41 to 66.3 kg H_2SO_4/t, confirming they provide a representative assessment of the acid buffering capacity of the broader waste rock mass.

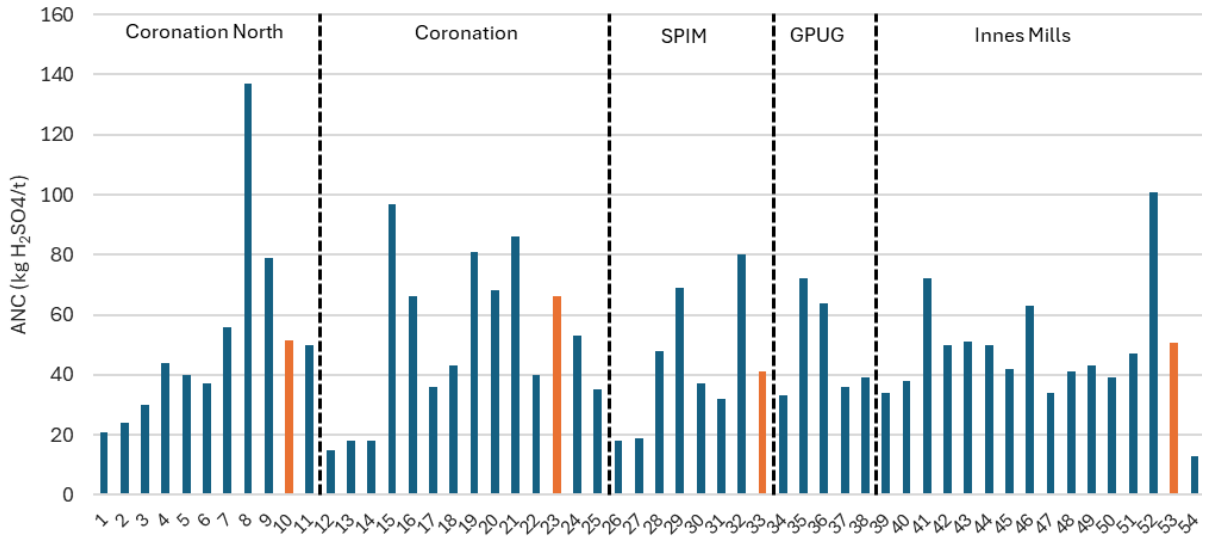

Figure 11: ANC distribution of samples.

Data in orange indicate CLT samples.

[9]To convert ANC kg H_2SO_4/t to equivalent in kg $CaCO_3$/t, a stoichiometric conversion of x 1.0205 is applied.

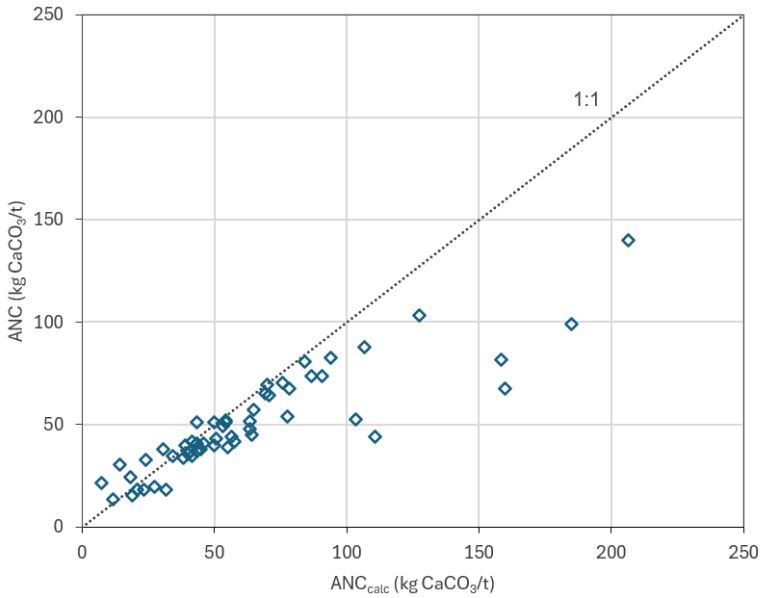

Figure 12: ANC versus ANC_{calc}.

5.1.4 Quality Assurance / Quality Control

Three CRM samples were included in the sample batch to verify the accuracy of the laboratory results from SGS. CRM certificates are provided in Appendix F.

The QA/QC results presented in Table 13 indicate that the laboratory data are reliable. All analytical values fall within two standard deviations of the CRM mean values, confirming that the dataset is suitable for conducting the geoenvironmental hazard assessment.

Table 13: QA/QC results for the ABA dataset against CRM.

	TOTAL S (wt%)			TOTAL C (wt%)		
SAMPLE ID / CRM CODE	ALS LAB RESULT	CRM VALUE[1]	CRM MEAN ± 2 STD DEV	ALS LAB RESULT	CRM VALUE[1]	CRM MEAN ± 2 STD DEV
CX91320 / GS917-4	0.392	0.36	0.32 / 0.4	0.07	0.05	0.03 / 0.07
CX91340 / GS310-10	0.300	0.27	0.21 / 0.33	1.05	1.08	0.96 / 1.2
CX91360 / GS310-10	0.300	0.27	0.21 / 0.33	1.06	1.08	0.96 / 1.2

[1] *Certified reference values sourced from Geostats Pty Ltd.*

5.1.5 ABA Summary

Figure 13 provides a visual summary of the key ABA parameters by pit domain, waste rock zone, and weathering state, demonstrating that regional variation across the entire dataset remains within one order of magnitude. Based on the datasets presented in this section, the following overall spatial and geological trends are observed:

- Pit domain
    - Average total S ranges from 0.113 wt% in GPUG to 0.230 wt % in Innes Mills.

- Average ANC ranges from 43.0 kg H_2SO_4/t in SPIM to 51.8 kg H_2SO_4/t in Coronation North.
- Average NAG pH ranges from 5.47 in SPIM to 6.43 in GPUG.
- Golden Bar data from MWM (2024) has a higher average NAG pH (9.0) and lower average ANC (39.6 kg H_2SO_4/t) than other pit domains, average total S (0.16 wt%) is within the range of other pit domains.

- Waste rock zone
  - Average total S ranks in ascending order: 0.069 wt% (FW WR), 0.150 wt% (IB/WM WR), and 0.205 wt% (HW WR).
  - Average ANC ranks in ascending order: 45.2 kg H_2SO_4/t (FW WR), 46.5 kg H_2SO_4/t (HW WR), and 62.2 kg H_2SO_4/t (IB/WM WR).
  - Average NAG pH ranks in ascending order: 5.74 (HW WR), 6.63 (IB/WM WR), and 8.35 (FW WR).
- Weathering state
  - Average total S of 0.170 wt% (weathered) to 0.193 wt% (unweathered) and is essentially similar.
  - Average ANC of weathered samples (23.4 kg H_2SO_4/t) is less than half the average ANC of unweathered samples (51.7 kg H_2SO_4/t). This may reflect carbonate leaching over geological timeframes.
  - Average NAG pH ranges from 5.35 (weathered) to 5.92 (unweathered).

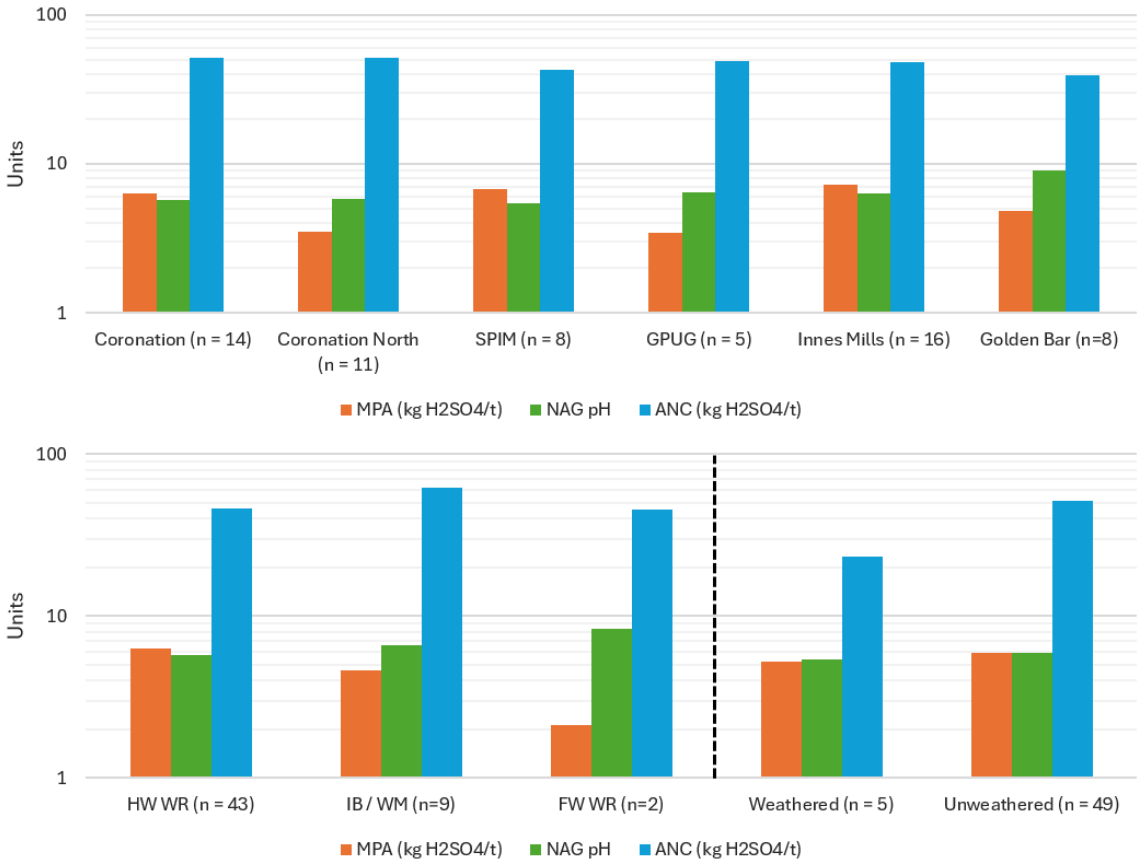

Figure 13: Comparison of average ABA data grouped by pit domain, waste rock zone, and weathering state.

Golden Bar data from MWM (2024).

5.2 Static Leach Testing

The leachate analytical results under oxic conditions are presented in Table 14, where the data are compared to the WQ Ref Values. The following observations are noted:

- Leachate pH is consistently alkaline across all samples, ranging from 7.47 to 9.4.
- Sulfate concentrations are low, ranging from 0.45 to 28 mg/L.
- Arsenic is elevated above the WQ Ref Value in six samples (all IB WR samples [n=5] and GPUG unweathered HW WR).
- Antimony exceeds the WQ Ref Value in one unweathered SPIM HW WR sample.
- Aluminium exceeds the WQ Ref value in 11 of the 13 samples. This increased mobility is consistent with the alkaline pH range (7.49 to 9.4), which favours the formation of soluble amphoteric Al complexes, though it may also reflect colloidal Al measured by ICP-MS as the dissolved fraction.
- A suite of trace metals remained consistently below the LOR across all tests, including Cd, Cr, cobalt (Co), Pb, Hg, nickel (Ni), selenium (Se), silver (Ag), thallium (Tl), Sn, and Zn.

Table 14: Static leachate data.

SAMPLE ID		DA26206	DA26218	DDH8113	DA26247	DDH8125	DA26258	DA26265	DDH8047	DA26225	IM8-5300-004	DA26230	DA26272	DA26274	WQ REF VALUE
LABORATORY		SGS	SGS	ALS	SGS	ALS	SGS	SGS	ALS	SGS	ALS	SGS	SGS	SGS	
PIT DOMAIN		CORONATION NORTH			CORONATION			SPIM			INNES MILLS		GPUG		
WR ZONE / WEATHERING STATE		HW WR / SW	IB WR / UW	FW / UW	HW WR / UW	HW WR / UW	IB WR / UW	HW WR / UW	IB WR / UW	HW WR / UW	HW WR / UW	IB WR / UW	HW WR / UW	IB WR / UW	
pH**	pH unit	8.6	9	7.81	9.1	7.97	9.3	9	7.47	8.8	7.92	9.3	9.4	8.9	**6.5-9.0**
EC	µS/cm	14	69	93	92	110	74	150	96	100	99	57	69	97	-
Acidity	mg/L	-	-	2	-	2	-	-	2	-	4	-	-	-	-
Total Alkalinity	mg/L $CaCO_3$	9	87	36	320	44	180	35	32	37	30	42	30	53	-
SO_4	mg/L	0.45	2.4	20	13	24	4.7	36	23	11	28	1.3	5.4	14	500
Cl	mg/L	0.38	0.75	-	0.23	-	2.1	0.37	-	0.43	-	0.31	0.31	0.4	-
F	mg/L	0.13	0.07	-	0.1	-	0.09	0.1	-	0.08	-	0.05	0.08	0.21	-
NO_3-N	mg/L	0.029	0.011	-	0.011	-	0.068	0.44	-	0.033	-	0.031	0.4	0.061	2.4
NO_2-N	mg/L	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-
NH_4-N	mg/L	<0.01	0.05	-	0.08	-	0.13	0.13	-	0.1	-	0.11	0.08	0.12	-
Total N	mg/L	<0.05	0.06	-	0.09	-	0.48	0.16	-	0.14	-	0.12	0.08	0.09	-
Total P	mg/L	3.66	2.76	-	4.46	-	4.43	3.67	-	1.93	-	1.53	2.77	2.54	-
Ca	mg/L	0.5	9.9	7	12.4	10	9.4	24.3	6	13.6	4	7.1	9	10.2	-
K	mg/L	1.2	4.3	1	4.6	3	6.6	6.4	2	5	2	5.5	4.5	7.6	-
Mg	mg/L	0.61	1.25	2	1.08	3	0.84	1.28	1	0.9	<1	0.49	1.09	1.59	-
Na	mg/L	1.1	0.7	8	0.9	3	1.4	0.9	10	0.9	12	0.6	1.9	2.1	-
Ag	mg/L	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	-
Al	mg/L	0.386	0.225	0.02	0.2	0.14	0.366	0.354	0.06	0.286	0.05	0.559	0.488	0.31	**0.055**
As	mg/L	0.002	0.531	0.003	0.004	0.002	0.075	0.001	0.132	<0.001	0.006	0.135	0.076	0.052	**0.013**
B	mg/L	<0.005	0.006	0.34	0.006	<0.05	0.006	0.006	0.34	0.005	0.56	0.008	0.007	0.007	0.94
Ba	mg/L	0.007	<0.002	-	0.003	-	0.003	0.005	-	0.003	-	0.003	<0.002	0.005	-
Cd	mg/L	<0.0002	<0.0002	<0.0001	<0.0002	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	0.0002

SAMPLE ID		DA26206	DA26218	DDH8113	DA26247	DDH8125	DA26258	DA26265	DDH8047	DA26225	IM8-5300-004	DA26230	DA26272	DA26274	WQ REF VALUE
LABORATORY		SGS	SGS	ALS	SGS	ALS	SGS	SGS	ALS	SGS	ALS	SGS	SGS	SGS	
PIT DOMAIN		CORONATION NORTH			CORONATION			SPIM			INNES MILLS		GPUG		
WR ZONE / WEATHERING STATE		HW WR / SW	IB WR / UW	FW / UW	HW WR / UW	HW WR / UW	IB WR / UW	HW WR / UW	IB WR / UW	HW WR / UW	HW WR / UW	IB WR / UW	HW WR / UW	IB WR / UW	
Co	mg/L	<0.001	<0.0005	-	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	-
Cr	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Cu	mg/L	0.002	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	0.004
Fe	mg/L	0.556	0.014	<0.05	<0.005	<0.05	0.007	<0.005	<0.05	<0.005	<0.05	0.015	<0.005	<0.005	**0.28**
Hg	mg/L	-	-	<0.0001	-	<0.0001	-	-	<0.0001	-	<0.0001	-	-	-	0.0006
Mn	mg/L	0.073	0.002	-	<0.001	-	<0.001	0.001	-	0.001	-	0.001	0.001	<0.001	1.9
Mo	mg/L	0.002	0.001	-	0.001	-	0.001	0.002	-	0.001	-	<0.001	0.001	0.002	-
Ni	mg/L	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	0.008
Pb	mg/L	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	0.045
Sb	mg/L	<0.001	0.01	-	<0.001	-	0.004	0.127	-	0.006	-	0.006	0.023	0.007	**0.074**
Se	mg/L	<0.005	<0.005	-	<0.005	-	<0.005	<0.005	-	<0.005	-	<0.005	<0.005	<0.005	-
Sn	mg/L	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	-
Sr	mg/L	0.001	0.08	-	0.062	-	0.046	0.17	-	0.05	-	0.054	0.147	0.202	-
Tl	mg/L	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.0005	<0.0005	-
U	mg/L	<0.0002	0.001	-	<0.0002	-	<0.001	<0.001	-	<0.0002	-	0.002	<0.001	<0.001	-
V	mg/L	0.001	0.002	-	0.003	-	0.003	0.001	-	0.001	-	0.004	0.003	0.002	-
W	mg/L	<0.001	0.003	-	0.001	-	0.003	<0.001	-	<0.001	-	0.004	0.003	<0.001	-
Zn	mg/L	<0.005	<0.002	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	0.016
Total S	wt%	0.01	0.425	0.07	0.218	0.35	0.048	0.369	0.13	0.35	0.14	0.099	0.1	0.175	-

*Data in red exceeds WQ Ref Values (indicated in **bold**).*

EC = electrical conductivity, SW = slightly weathered.

Analysis completed at the ALS Brisbane laboratory are CLT samples.

5.3 Elemental Composition

Total elemental composition data were collected via pXRF. pXRF is a rapid, semi-quantitative analysis technique with inherent limitations regarding limits of detection (LOD) and quantification (LOQ) for certain elements (e.g., Hg and Cd) (Geological Survey of Western Australia, 2022); therefore, it is usually used as a screening tool to identify geochemical enrichment (Appendix C). A total of 50 drill core pulp samples were tested, with raw data provided in Appendix E.

From a suite of 38 analysed elements, the GAI calculation shows that three elements are enriched with a GAI ≥ 3, with instances of a GAI = 6 for all three elements (Table 15). A statistical summary of the concentrations for these three elements is provided in Table 16.

Table 15: Summary of enriched elements identified.

ELEMENT	SAMPLES WITH GAI ≥ 3 (n = 50)	SAMPLES WITH GAI = 6 (n = 50)
As	23	1
Cd	22	22
Sb	3	3

Table 16: Statistical summary of enriched elements.

PARAMETER	UNIT	MINIMUM	AVERAGE	MAXIMUM
As	ppm	10	157	7651
Cd	ppm	16	20	25
Sb	ppm	31	34	39

Limits of detection (LOD) and limits of quantification (LOQ) provide an indication of data reliability; these values increase with decreasing measurement time. Data presented was acquired using a 30-second measurement time indicating Hg results similar to the LOQ, therefore data is unreliable and not included.

Table 17 presents the percentage of enriched samples distributed by waste rock zone, pit domain, and weathering state. Based on these datasets, the following observations are made:

- Samples enriched in As and Cd occur across all sampled pits and waste rock zones.
- Samples enriched in Sb are restricted to unweathered HW WR samples from Coronation North, SPIM and GPUG.
- All IB WR / WM WR samples and the single FW WR sample tested are elevated in As.
- Samples from Golden Bar data (MWM, 2024) are identified as enriched in As through GAI analysis of pXRF data (n=4).

Table 17: Percentage of enriched elements (GAI ≥ 3).

WASTE ROCK	NUMBER OF SAMPLES (N)	As	Cd	Sb
		% of samples with GAI ≥ 3		
WASTE ROCK ZONE				
HW WR	41	37	49	7
IB WR / WM WR	8	100	25	0

WASTE ROCK	NUMBER OF SAMPLES (N)	As	Cd	Sb
		% of samples with GAI ≥ 3		
FW WR	1	100	0	0
PIT DOMAIN				
Coronation North	10	40	40	10
Coronation	13	31	23	0
SPIM	7	57	86	14
GPUG	5	80	40	20
Innes Mills	15	47	53	0
WEATHERING STATE				
Weathered	5	20	40	0
Unweathered	45	49	44	7

Enrichment alone does not indicate environmental mobility, because pXRF measures total concentrations, and enriched trace elements can be present in nonreactive minerals. Elemental mobility should be confirmed through leach testing (Section 5.2) and empirical site data (e.g. WRS seepage and surface water quality monitoring).

5.4 AMD Classification

5.4.1 AMIRA Scheme

When applying the AMIRA (2002) classification scheme, all 54 samples are classified as NAF (Figure 14 to Figure 16). ABA testing confirms a NAG pH > 4.5 for all waste rock. Low NAG pH material (NAG pH ≤ 4.5) is not identified, unlike earlier studies (Figure 4). Golden Bar waste rock data from MWM (2024) is presented in Figure 14, all samples are classified as NAF and have a nigher average NAG pH than waste rock from other pit domains.

While this classification is consistent across all pit domains and waste rock zones, samples from weathered materials plot closer to the UC boundary due to their lower ANC (Figure 16). Conversely the highly buffered IB/WM materials exhibit more negative NAPP values and plot deep within the NAF quadrant.

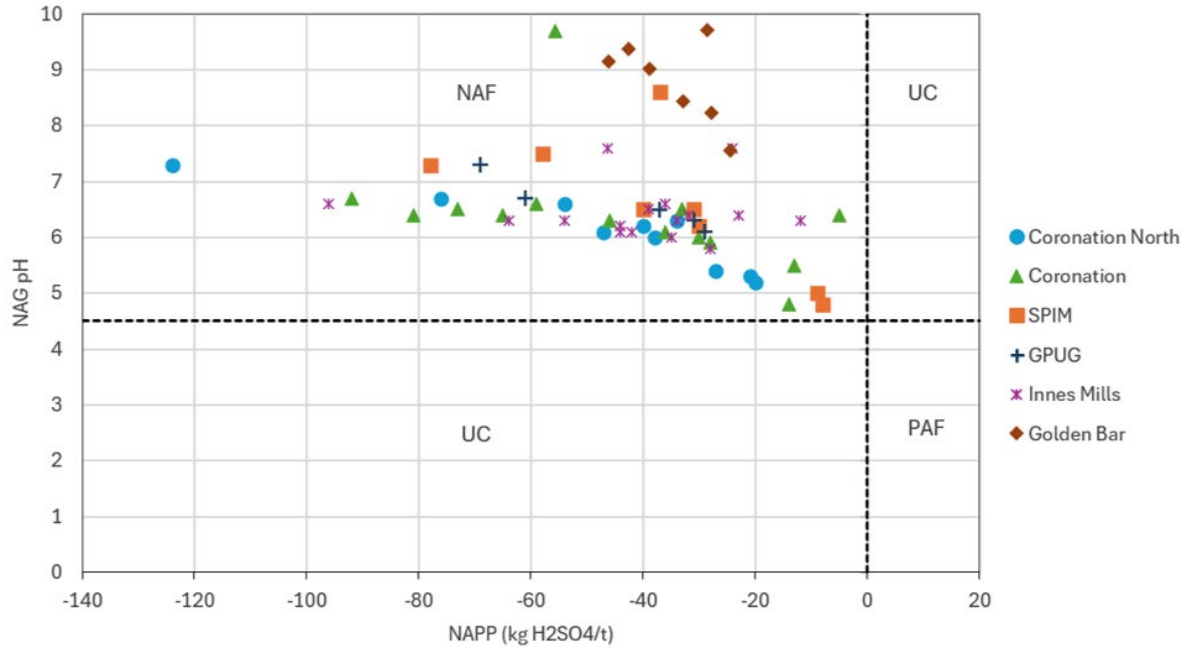

Figure 14: NAG pH and NAPP results segregated by pit domain.

Golden Bar data from MWM (2024) added for comparison purposes.

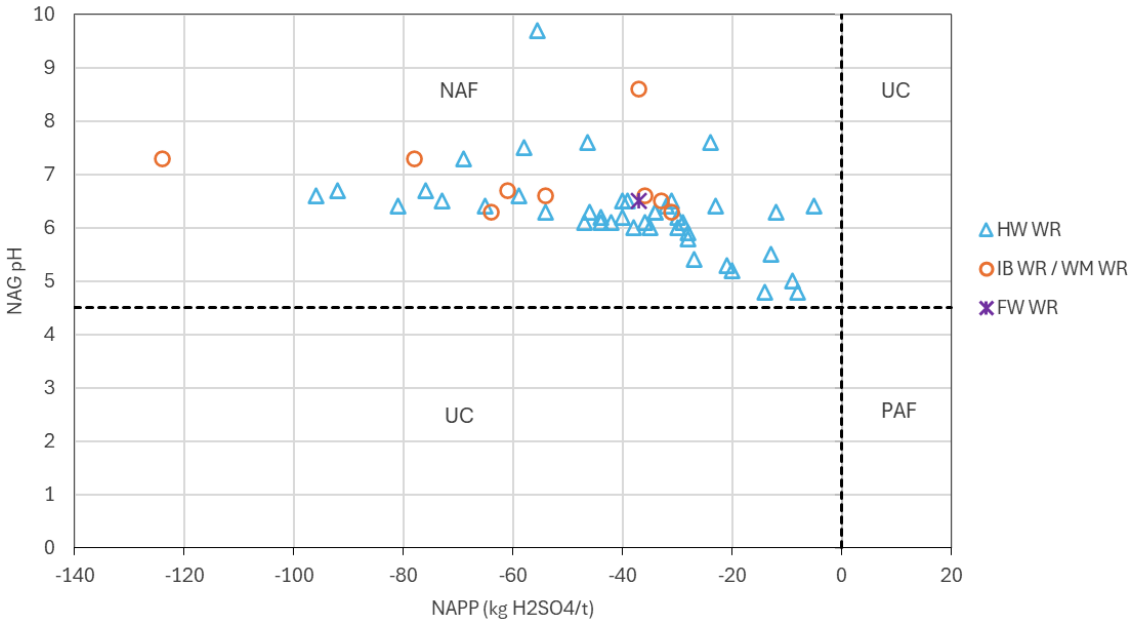

Figure 15: NAG pH and NAPP results segregated by waste rock zone.

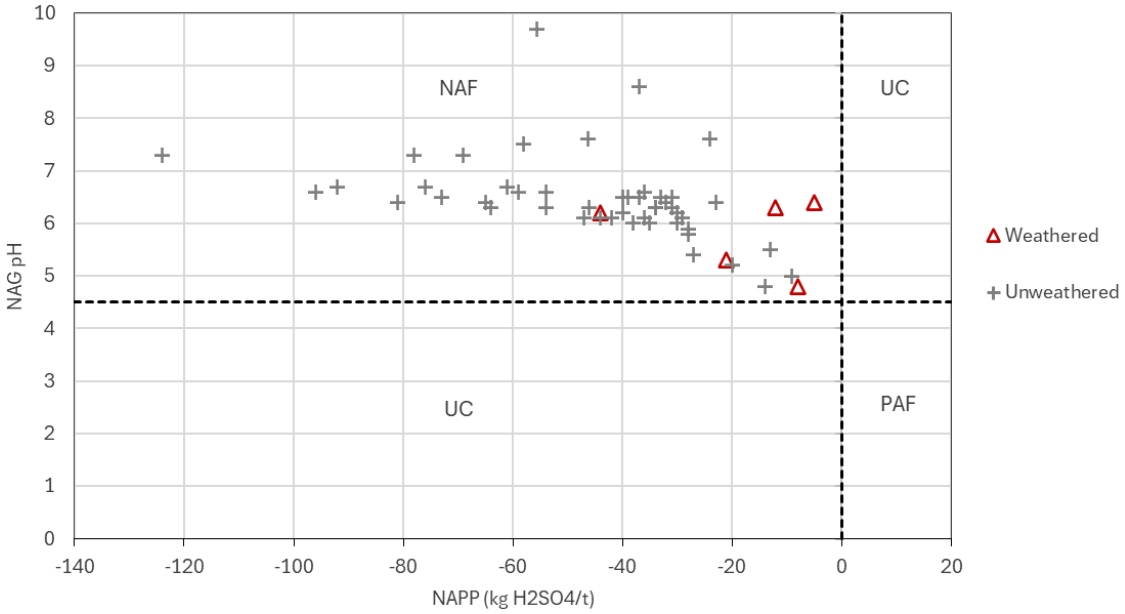

Figure 16: NAG pH and NAPP results segregated by weathering state.

5.4.2 Price Scheme

Three samples from SPIM (2) and Coronation (1) are classified as UC with an NPR < 2 as identified in Figure 17, including two weathered and one unweathered HW WR samples (Figure 17 to Figure 19). All data from Golden Bar (MWM, 2024) has an NPR greater than 3 (Figure 17).

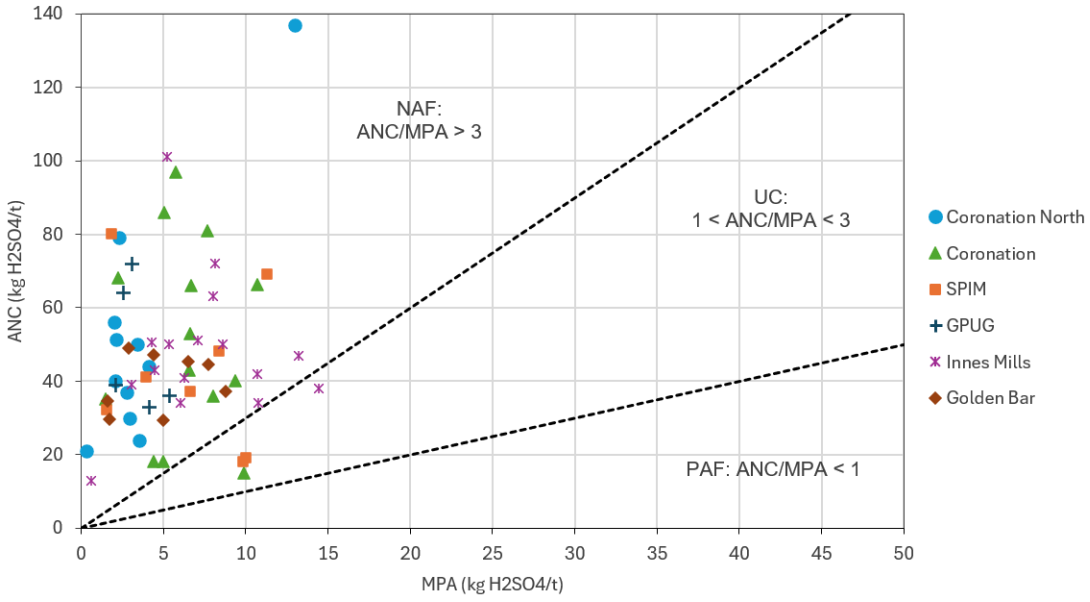

Figure 17: Price (2009) classification results segregated by pit domain.

Golden Bar data from MWM (2024).

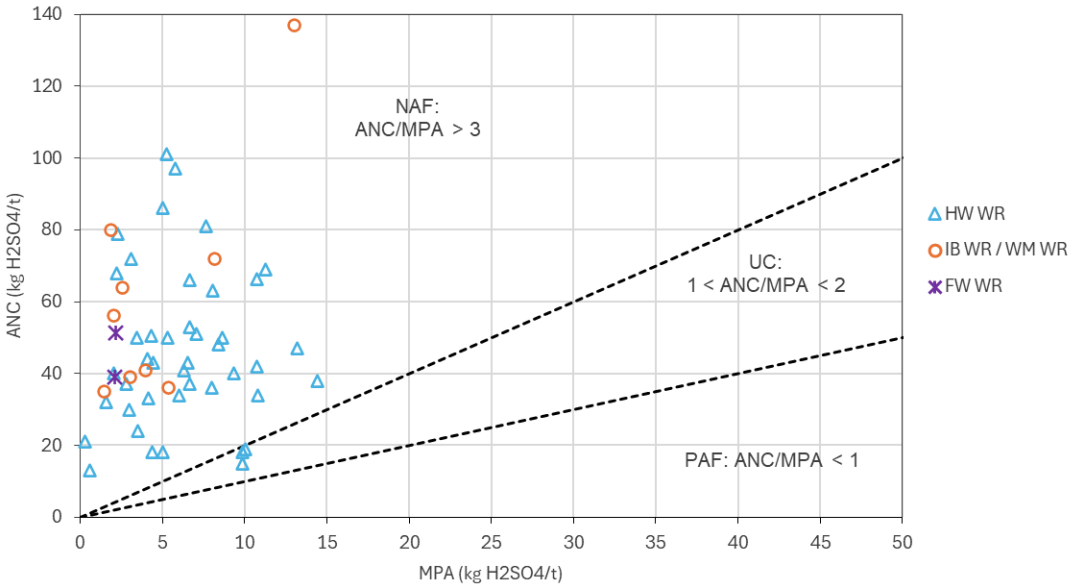

Figure 18: Price (2009) classification results segregated by waste rock zone.

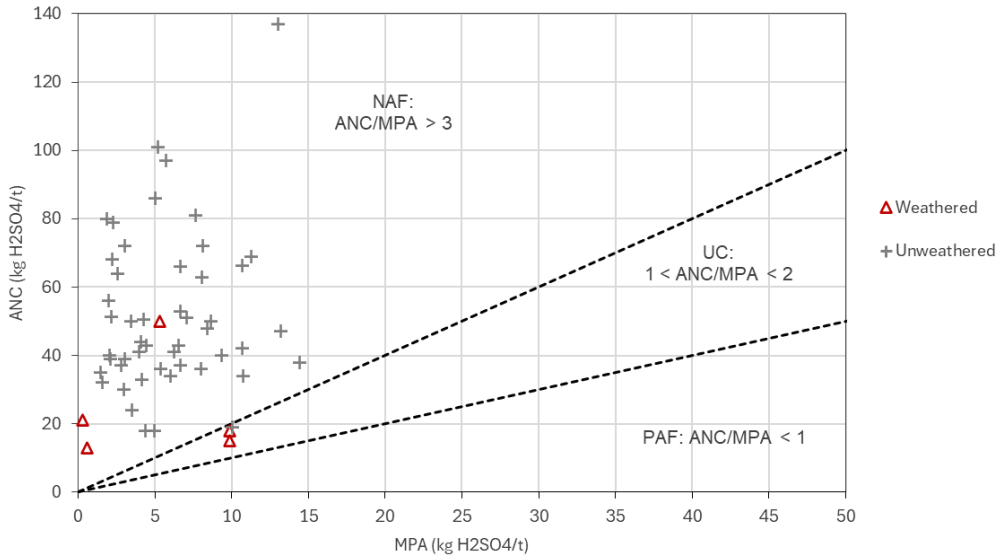

Figure 19: Price (2009) classification results segregated by weathering state.

5.4.3 Resource Consent

Resource Consent (RM10.351.10.V1 – Compliance Criteria iv) requires all waste rock to be NAF, specifying that the NPR must achieve a minimum of 3 (i.e., ANC/MPA ≥ 3). While it is generally accepted in environmental geochemistry that an NPR of > 2 is sufficient to account for alkalinity loss (i.e., Price scheme), an NPR of 3 provides a conservative environmental safety margin.

As illustrated in Figure 20, the majority of samples have an NPR > 3. However, four samples have an NPR between 1 and 3, classifying them as uncertain (UC) under the consent framework.

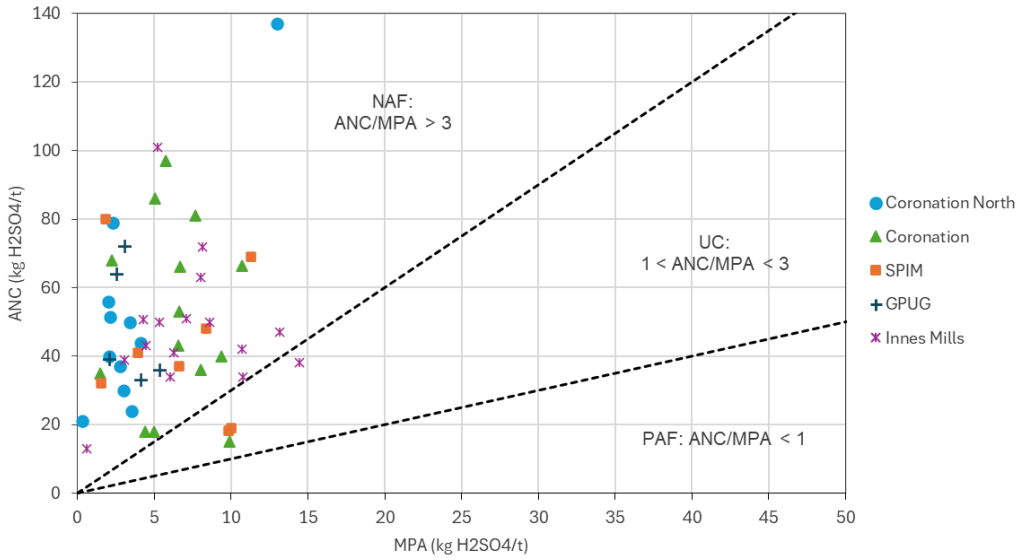

Figure 20: NPR results segregated by pit domain.

Figure 21 presents the relationship between NPR and total S, indicating a reduction in NPR as total S increases:

- Samples with an NPR < 3 contain total S > 0.3 wt%
- Samples with < 0.1 wt% S have an NPR of 10 or higher.

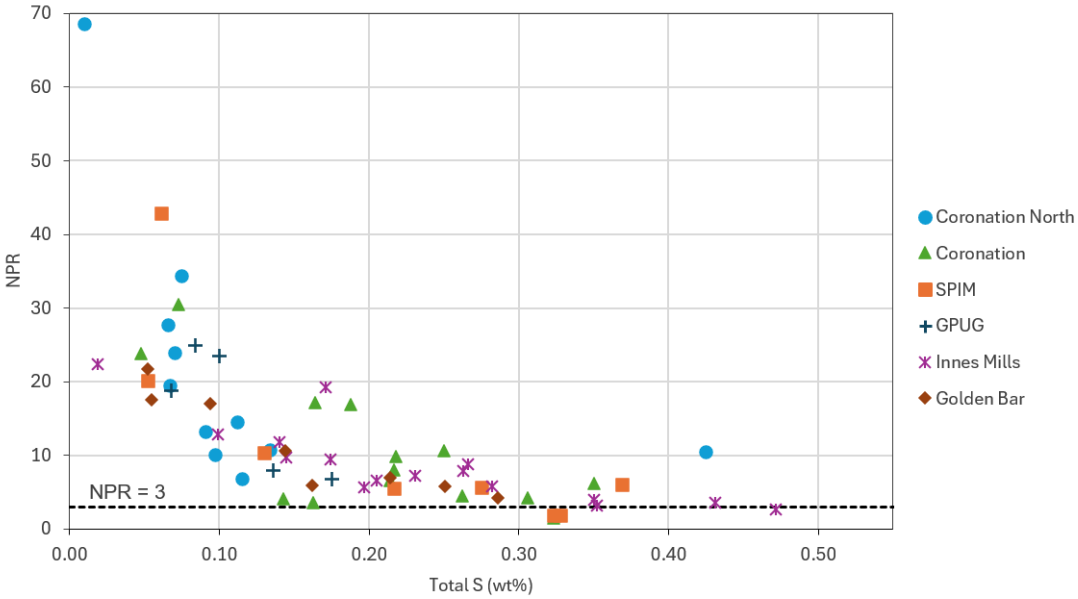

Figure 21: NPR and total S by pit domain.

Golden Bar data from MWM (2024).

5.5 Geochemistry Testing Summary

5.5.1 ABA

Table 18 summarises the statistical ABA data presented in this section. These data support previous investigations indicating that waste rock at the Macraes Operation is NAF; ANC values are significantly

higher than MPA values, leading to negative NAPP values for all samples. However, four samples with total S content of > 0.3 wt% returned an NPR < 3.

Table 18: Statistical summary of ABA data.

PARAMETER	UNIT	AVERAGE	MEDIAN	MINIMUM	MAXIMUM	STD DEV
Paste pH (1:2)	pH units	8.81	8.90	7.3	9.2	0.36
Total S	wt%	0.191	0.173	0.010	0.472	0.114
ANC	kg H_2SO_4/t	49.0	43.0	13	137	24.0
MPA	kg H_2SO_4/t	5.8	5.2	0.3	14.4	3.5
NAPP	kg H_2SO_4/t	-43.2	-37.5	-124	-5.1	23.7
NAG pH	pH units	6.47	6.35	4.80	10.20	0.97
NPR	-	13.1	9.5	1.5	68.6	11.9

Note: Total sample number is 54.

5.5.2 Static Leach Testing

A selection of 13 samples, representative of five pit domains and three waste rock zones, were tested through static leach testing. The leachate analysis results indicated:

- Leachate pH values range from 7.47 to 9.4.
- Sulfate concentrations range from 0.45 to 28 mg/L.
- The primary PCOC identified from the leach testing are Al, As, and Sb. The elevation of Al is consistent with the alkaline pH range (7.49 to 9.4), however there is also potential for colloidal Al to be influencing the analysis process (due to reacidification of the filtered sample prior to ICP-MS analysis).

5.5.3 Elemental Composition

GAI analysis of the elemental composition by pXRF screening of 50 drill core pulp samples identified the enrichment of three elements:

- Arsenic is enriched in 23 samples across all pit domains and waste rock zones, with all WM WR / IB WR / FW WR samples showing elevated As.
- Cadmium is enriched in 22 samples across all pit domains and waste rock zones, however limitations of the use of pXRF for reporting of Cd are noted.
- Antimony is enriched in 3 samples, with the enrichment restricted to HW WR units from Coronation North, SPIM, and GPUG.

6 GEOCHEMICAL HAZARD ANALYSIS

This section provides an analysis of the available analytical datasets to assess the geoenvironmental hazards associated with the MP4.

6.1 Potential Constituents of Concern

As established in Sections 2.6 and 5.2, the leachate results were screened against the site specific WQ Ref Values to identity the PCOC for the Project.

Total S data of waste rock from the Macraes Operation (Table 3) ranges from 0.005 to 1.45 wt% and ANC of 6.36 to 246.76 kg H_2SO_4/t, indicating waste rock tested as part of this investigation are within the range expected from existing WRS and are representative of existing WRS geoenvironmental hazards.

The PCOC were identified through a combined assessment of elemental enrichment (via pXRF) and the leach testing results:

- Arsenic was identified as the main PCOC for all geological units. Enrichment is identified in all IB WR and WM WR samples, with elevated concentrations confirmed in both static leachate and CLT data.
- Sulfur, present as arsenopyrite and pyrite (as identified in Section 2.2), is a key indicator of NMD drainage risk. However, SO_4 is not elevated against WQ Ref Values in static leachate data or CLT over 10 leaching cycles. Material containing > 0.3 wt% total S represents a potentially higher risk of producing an NPR between 1 and 3 (UC classification).
- Antimony is identified as a PCOC via elemental enrichment, static leach testing, and CLT.
- Cadmium is enriched across all pit domains and waste rock zones based on pXRF screening. However, Cd is not mobile, remaining below LOR in all static or CLT leachates.
- Aluminium is elevated in static leachates and in CLT leachate, consistent with the alkaline pH range (7.49 to 9.4), which favours the formation of soluble amphoteric Al complexes, though it may also reflect colloidal Al.

Additional PCOC identified from CLT (MWM, 2026a - Appendix D) include boron (B), Cu and Zn.

- Boron is elevated in SPIM IB WR and Innes Mills HW WR.
- Copper is elevated in Innes Mills HW WR
- Zn is elevated in all CLT samples (Innes Mills HW WR, Coronation HW WR, Coronation North FW WR and SPIM IB WR)

Previously identified PCOC for the Macraes Operation include As, cyanide, Cu, Fe, Pb, Zn, SO_4 and nitrogenous compounds (MWM, 2024).

6.1.1 Stored Water Soluble PCOC Load

The raw static leachate concentrations were converted into mass loads (mg/kg) using the 1:10 solid to liquid ratio to determine the stored water-soluble PCOC load. Average calculated PCOC loads are

summarised by waste rock zone and pit domain in Table 19. Key parameter trends plotted by domain in Figure 22 and waste rock zone in Figure 23.

Observations regarding the key PCOC identified during this investigation include:

- The leachable As load rate (Figure 23) is lower for the HW WR and FW WR zones compared to the IB WR / WM WR zones.
- Highest Sb and nitrate loads are observed in the HW WR (Figure 23).
- Sulfate mobility is variable across waste rock zones and pit domains. A higher total S content does not necessarily correlate with higher leachable SO_4 load, as demonstrated by the Coronation North IB WR sample (DA26218) in Figure 22.

Table 19: Average PCOC load mass.

PARAMETER (mg/kg)	WR ZONE			PIT DOMAIN				
	HW WR	IB WR	FW WR*	CORONATION NORTH	CORONATION	SPIM	GPUG	INNES MILLS
n	7	5	1	3	3	2	2	3
Ca	105.4	85.2	70.0	58.0	106.0	151.5	96.0	82.3
Mg	12.09	10.34	20.00	12.87	16.40	11.40	13.40	6.30
Na	29.57	29.60	80.00	32.67	17.67	54.50	20.00	45.00
K	38.14	52.00	10.00	21.67	47.33	42.00	60.50	41.67
SO_4	168.4	90.8	200.0	76.2	139.0	295.0	97.0	134.3
Cl	3.44	8.90	-	5.65	11.65	3.70	3.55	3.70
F	0.980	1.050	-	1.00	0.95	1.00	1.45	0.65
NO_3-N	1.83	0.43	-	0.20	0.40	4.40	2.31	0.32
NO_2-N	0.050	0.050	-	0.050	0.050	0.050	0.050	0.050
NH_4-N	0.79	1.03	-	0.28	1.05	1.30	1.00	1.05
Total N	0.99	1.88	-	0.43	2.85	1.60	0.85	1.30
Total P	32.98	28.15	-	32.10	44.45	36.70	26.55	17.30
Ag	0.0025	0.0025	-	0.0025	0.0025	0.0025	0.0025	0.0025
Al	2.72	3.04	0.20	2.10	2.35	2.07	3.99	2.98
As	0.13	1.85	0.03	1.79	0.27	0.67	0.64	0.47
B	0.87	0.73	3.40	1.16	0.12	1.73	0.07	1.91
Ba	0.038	0.030	-	0.040	0.030	0.050	0.030	0.030
Cd	0.0009	0.0009	0.0005	0.0008	0.0008	0.0008	0.0010	0.0008
Co	0.0030	0.0025	-	0.0038	0.0025	0.0025	0.0025	0.0025
Cr	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Cu	0.0057	0.0030	0.0050	0.0092	0.0033	0.0038	0.0025	0.0033
Fe	0.88	0.13	0.25	1.98	0.12	0.14	0.03	0.14
Hg	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	-	0.0005
Mn	0.153	0.010	-	0.375	0.005	0.010	0.008	0.010
Mo	0.014	0.011	-	0.015	0.010	0.020	0.015	0.008

PARAMETER (mg/kg)	WR ZONE			PIT DOMAIN				
	HW WR	IB WR	FW WR*	CORONATION NORTH	CORONATION	SPIM	GPUG	INNES MILLS
n	7	5	1	3	3	2	2	3
Ni	0.0036	0.0030	0.01	0.0042	0.0033	0.0038	0.0025	0.0033
Pb	0.0036	0.0030	0.0050	0.0042	0.0033	0.0038	0.0025	0.0033
Sb	0.31	0.07	-	0.05	0.02	1.27	0.15	0.06
Se	0.025	0.025	-	0.025	0.025	0.025	0.025	0.025
Sn	0.0025	0.0025	-	0.0025	0.0025	0.0025	0.0025	0.0025
Sr	0.86	0.96	-	0.41	0.54	1.70	1.75	0.52
Tl	0.0025	0.0025	-	0.0025	0.0025	0.0025	0.0025	0.0025
U	0.0026	0.0100	-	0.006	0.003	0.005	0.005	0.011
V	0.018	0.028	-	0.015	0.030	0.010	0.025	0.025
W	0.011	0.026	-	0.018	0.020	0.005	0.018	0.023
Zn	0.019	0.016	0.025	0.020	0.025	0.018	0.010	0.015

** Raw data as only one sample available.*

A hyphen '-' indicates no data.

Data in blue indicates all data is based on ½ LOR, variation is observed due to variable LOR across SGS and ALS laboratories.

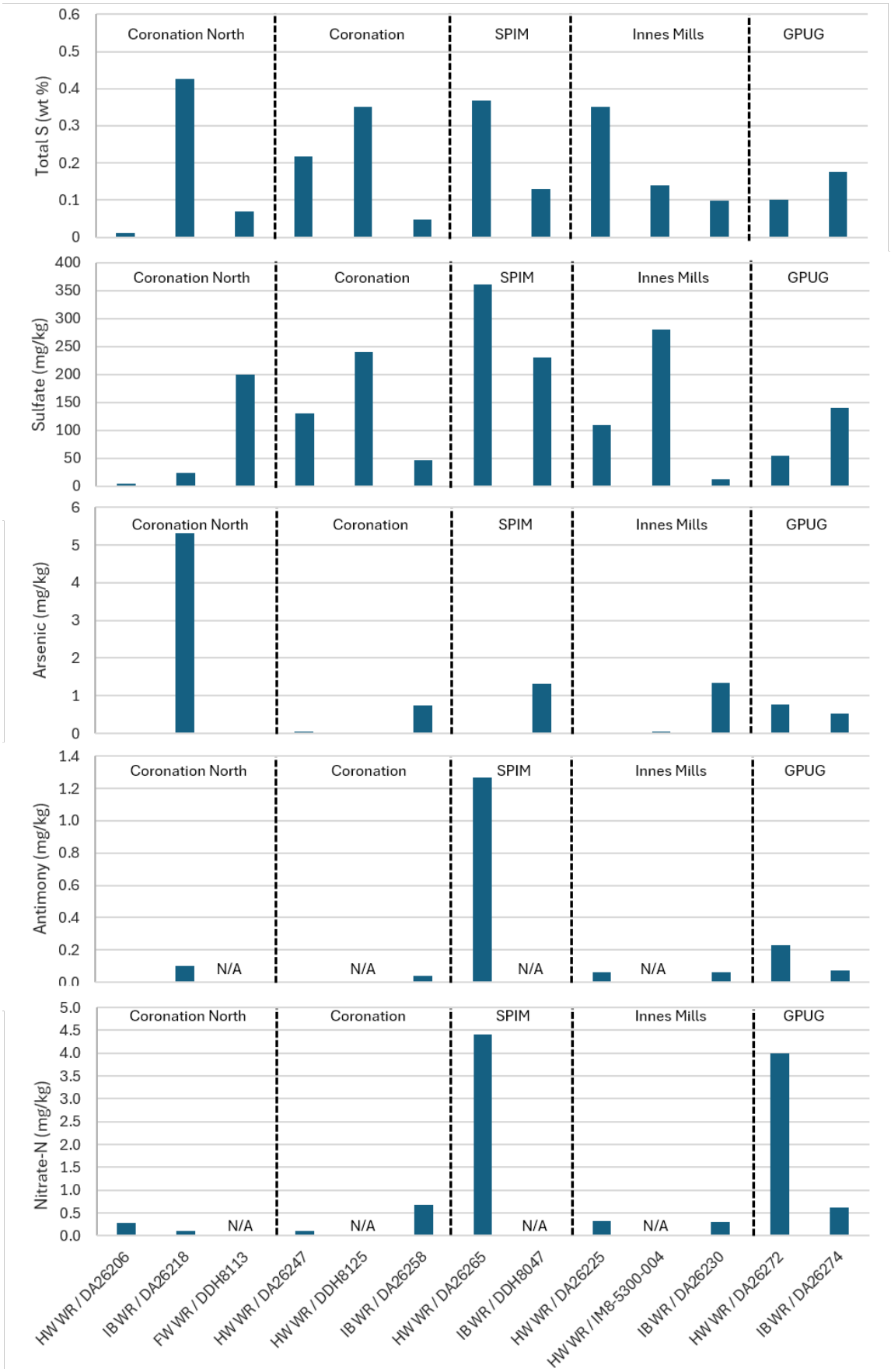

Figure 22: Total S and static leach test derived leachable SO_4, As, Sb, and NO_3-N.

N/A indicates no analysis completed.

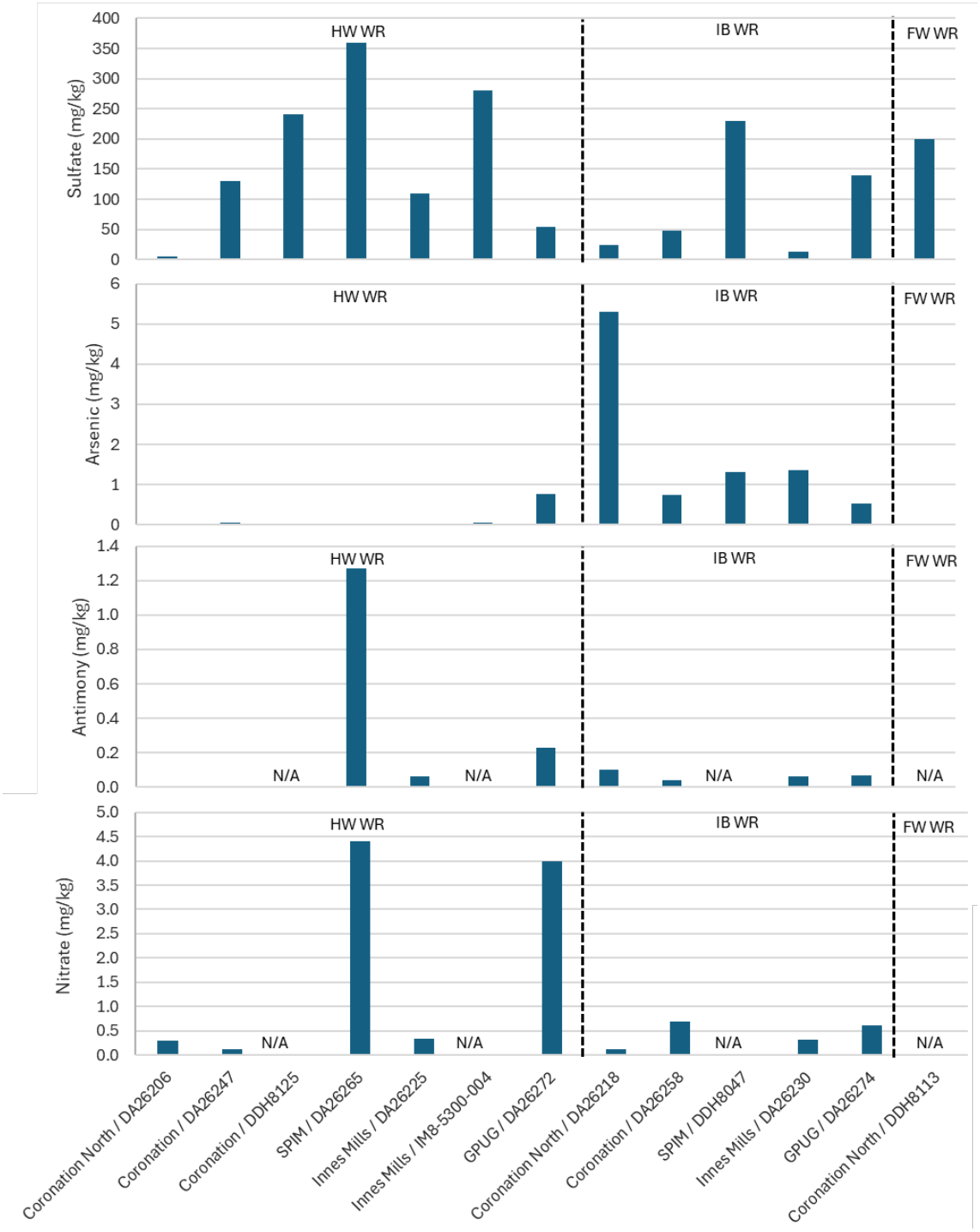

Figure 23: Static leach test derived leachable SO_4, As, Sb, and NO_3-N.

N/A indicates no analysis completed.

6.2 Geological Units

Understanding the spatial and lithological variation in geoenvironmental hazards assists in managing project risks. Key observations from this investigation include:

- The variation in total S, ANC, and NAG pH is higher between waste rock zones than between pit domains.
- The data suggest a higher potential for As mobility from IB WR / WM WR.

- Antimony enrichment is observed in unweathered SPIM HW WR.
- Weathered material generally has a lower ANC than unweathered material.

Overall, the data suggest that the waste rock zone and weathering state of the material have a greater influence on geoenvironmental hazard risks than the pit domain the rock originates from.

6.3 Tailings

Geoenvironmental hazards associated with the relocation of historical tailings from SP11 and SP10 and the top 30 m of tailings from the MTI have been investigated.

Analysis of the available ABA data confirms that SP10 and SP11 contain low sulfide material deposited following the implementation of POX processing. The data also suggest that the tailings excavated from the upper 30 m of the MTI are post the introduction of POX. However, high Sb material from the Globe Progress Mine is known to be present in the MTI and SP11 tailings deposited post 2007.

ABA data indicate tailings of the Macraes Operation are NAF. The primary PCOC identified for the relocated tailings include:

- Arsenic and SO_4 are identified based on historical tailings water quality monitoring.
- Antimony is identified as a PCOC due to the depositional history. However, dissolved Sb concentrations in the tailings water remain low (< 0.1 mg/L). Weightman et al. (2022) indicate this is due to the formation of stable ferric antimonate minerals during the POX process.

6.4 Management Implications

As the geochemical characterisation results indicate, the waste rock samples tested are almost entirely NAF. Acid rock drainage is not expected from these materials, and, instead, long-term circumneutral drainage is anticipated. However, the materials do pose a risk of generating NMD due to the potential mobilisation of specific trace elements (e.g., As, B, Co, Sb) and SO_4 under neutral pH conditions. Additionally, nitrogenous compounds (notably nitrate) are expected in the drainage due to the operational use of ANFO explosives and cyanide for gold recovery.

Given this specific geochemical risk profile, the terminology ‘Mine Impacted Water’ (MIW) is more technically appropriate for the site than AMD, as it accurately encompasses both NMD risks and nitrogenous compound loading.

To manage these specific MIW risks, operational source control technologies should be implemented. These methods must focus on minimising the oxidation of the residual sulfide minerals by reducing the advective ingress of oxygen into the WRSs. Furthermore, the careful management of surface water inflows through the WRSs will minimise the mobilisation of any accumulated oxidation products.

7 SUMMARY AND RECOMMENDATIONS

This report summarises the geochemical characterisation of waste rock and tailings associated with the proposed MP4 pit expansions and relocation activities that relates to AMD.

The Macraes Operation is a mature mining operation where the environmental hazards (e.g., AMD, chemical species leaching) are already well understood. This understanding was validated through targeted ABA testing (54 samples), static leach testing (13 samples), and kinetic column testing (Appendix D; MWM, 2026a), supported by a historical database of over 850 samples.

7.1 Geochemical Characteristics

Key findings from this investigation include:

- The ABA data presented in this investigation confirm that the bulk waste rock at the Macraes Operation is NAF, with sufficient ANC to maintain a negative NAPP.
- All samples are classified as NAF as per AMIRA (2002). Three samples are classified as UC as per Price (2009) and four samples with total S content of > 0.3 wt% are classified as UC as per Resource Consent conditions with an NPR < 3.

No samples analysed as part of this report had a NAG pH below 4.5 as identified in samples in MWM (2024); the lowest reported NAG pH is 4.8.

- Static leachate pH data is alkaline for all samples at 7.47 to 9.4; pH data from CLT over 10 leaching cycles ranges from 6.71 to 8.38 (MWM, 2026a – Appendix D).
- Total S data for samples selected for testing (0.01 to 0.472 wt%) are within the range of total S identified from the OGNZL ABA database, confirming these samples are representative of existing geoenvironmental hazards at the MP4.
- Weathered samples indicate generally lower ANC than unweathered samples.

These outcomes confirm that acid rock drainage is not expected at this site.

7.2 PCOC

Waste Rock

While acid rock drainage is not considered a risk for the site, the site materials retain the capacity to generate NMD. The following PCOC were identified through elemental enrichment (pXRF) and/or static/kinetic leach tests:

- Arsenic (As) is the primary PCOC across all geological units, showing enrichment and mobility for the IB WR / WM WR samples.
- Antimony (Sb) enrichment is observed in HW WR, with elevated mobility in static leachate testing for SPIM HW WR.
- Cadmium (Cd) is identified as being enriched (pXRF) across all pit domains but is not considered an issue for compliance water quality monitoring for the following reasons

  - Cd is not mobile in static leach testing or CLT (all data is < LOR).
  - The pXRF data are influenced by a high limit of reporting that will bias these results for the analysis of enrichment.
  - Site-specific studies (Viridis, 2026) demonstrate that Cd is low in mine impacted waters and compliance monitoring is not proposed.
- Aluminium (Al) is elevated in static leach testing, while B, Cu and Zn are elevated in the CLT (MWM, 2026a - Appendix D).
- Sulfur (present as arsenopyrite and pyrite) is a key indicator of NMD risk, where S > 0.3 wt% represents a potentially higher risk for producing an NPR between 1 and 3. However, SO_4 was not elevated in the static leachate data or the CLT over 10 leaching cycles.
- Nitrogenous compounds remain a known PCOC for the site.

Overall, the empirical data suggest that the waste rock zone and weathering state have a greater effect on geoenvironmental hazard risk than the specific pit domain the material originates from. Because the combined drainage risks are defined by NMD and nitrogenous compounds rather than acid generation, mine impacted water (MIW) is the most technically appropriate classification for the site.

- IB WR / WM WR indicates higher As risk,
- HW WR higher Sb risk, and
- Weathered waste rock show lower ANC values.

Tailings

The proposed MP4 requires the relocation of historical tailings from SP11, SP10, and the MTI. Analysis confirms these facilities predominantly contain NAF low-sulfide material deposited following the implementation of POX processing. The primary PCOC associated with these tailings include:

- Arsenic (As) and SO_4 identified through tailings water quality
- Antimony (Sb) is identified due to depositional history; however, its dissolved concentration in tailings water remain very low due to the formation of stable ferric antimonate minerals during the POX circuit.

7.3 Recommendations

Based on the mobile PCOC verified in the static leach testing and kinetic CLT, it is recommended that the ongoing surface water and seepage monitoring network include the following analytes:

- Major ion: SO_4.
- Metals and metalloids: Al, As, B, Cu, Sb [10] and Zn.
- Nitrogenous compounds (nitrate, nitrite, and ammoniacal nitrogen).

[10] *Cd is excluded as site specific studies (Viridis, 2026) demonstrates that Cd is low.*

ABA testing of waste rock is required as part of resource consent activities (RM10.351.10.V1 – Compliance Criteria iv). The monitoring requirements will be clarified in the Environmental Water Monitoring Plan and should include:

- Collection of representative waste rock drill core samples from resource drilling in advance of mining.
- Collection of representative waste rock from operational Waste Rock Stacks and operational open pit backfills to validate material placement.
- Samples numbers should be in alignment with industry guidance.
- Samples should be analysed for Acid Neutralising Capacity (ANC) and total sulphur content to classify rocks with regard to acid / non-acid generating behaviour.

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9 LIMITATIONS

Attention is drawn to the document “Limitations”, which is included in Appendix G of this report. The statements presented in this document are intended to provide advice on what the realistic expectations of this report should be, and to present recommendations on how to minimise the risks associated with this project. The document is not intended to reduce the level of responsibility accepted by Mine Waste Management, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in doing so.

APPENDIX A ABBREVIATIONS

ABBREVIATION	DEFINITION
ABA	Acid base accounting
AEE	Assessment of environmental effects
AMD	Acid and metalliferous drainage
ANC	Acid neutralisation capacity
ARD	Acid rock drainage
CIP	Carbon-in-pulp
CLT	Column leach testing
CRM	Certified reference material
DGV	Default guideline values
DI	Deionised
EC	Electrical conductivity
FTAA	Fast-track Approvals Act 2024
FTSF	Frasers tailings storage facility
FW	Foot wall
GAI	Geochemical Abundance Index
GPUG	Golden Point Underground
HW	Hanging wall
IB	Intra-burden
LOD	Limits of detection
LOQ	Limits of quantification
LOR	Limit of reporting
MP4	Macraes Phase 4 Project
MPA	Maximum potential acidity
Mt	Million tonnes
MWM	Mine Waste Management Ltd
MTI	Mixed Tailings Impoundment
NAF	Non-acid forming
NAG	Net acid generation
NAPP	Net acid production potential
NMD	Neutral metalliferous drainage
NPR	Neutralisation potential ratio
OGNZL	OceanaGold (New Zealand) Limited
PAF	Potentially acid forming
PCOC	Potential contaminants of concern

ABBREVIATION	DEFINITION
POX	Pressure oxidation
pXRF	Portable XRF
QA/QC	Quality assurance and quality control
SAP	Sampling and analysis plan
SFE	Shake flask extraction
SP10	Southern Pit 10
SP11	Southern Pit 11
SPIM	Southern Pit / Innes Mills
TSF	Tailings storage facilities
TTTSF	Top Tipperary TSF
UC	Uncertain
WM	Weakly mineralised
WQ Ref Value	Water quality reference values
WR	Waste rock
WRS	Waste rock stack

APPENDIX B SAP MEMORANDUM

MINE WASTE MANAGEMENT
GREENROAD GROUP

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MEMORANDUM

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From:	Paul Weber – Mine Waste Management Limited (MWM)
Date:	31 August 2026
Cc:	Simone Creedy – OceanaGold Simone Hoodhills – MWM; Eric Chen – MWM
Document Number:	J-NZ0498-002-M-FINAL
Document Title:	Sampling and Analysis Plan
Disclaimer:	This document has been produced for New Zealand consenting purposes only. Information contained herein must not be relied on for investment purposes.

Mine Waste Management Limited (MWM) has been engaged by OceanaGold (New Zealand) Limited (OGNZL) to assess environmental geochemistry hazards and potential effects for the proposed Macraes Phase Four Project (MP4 or the Project). This assessment supports the application as a Listed Project in Schedule 2 of the Fast-track Approvals Act 2024 (FTAA) as a project providing significant national or regional benefits.

As part of the assessment, it is proposed that laboratory testing be undertaken on waste rock materials that will be generated by the Project. The aim of this work is to assess the environmental geochemistry hazards associated with the waste rock, including:

- Quantifying the acid-generating potential and geochemical properties of the waste rock, including any geological and/or geochemical variability within these materials; and
- Determining the potential seepage/surface water quality generated by these materials.

This memorandum describes the sampling and analysis program (SAP) required to meet the above aims, including the rationale for sample selection and the technical justification for the proposed analytical program.

OBJECTIVES

This SAP is designed to address identified data gaps in the waste rock geochemical dataset and ensure the dataset is sufficient to support the FTAA application. The primary objectives include:

- Understanding the anomalous lower net acid generation (NAG) pH values observed in the Southern Pit / Innes Mills Pit (SPIM) area compared to other data as identified in MWM (2024).
- Reviewing sample density against industry guidance (e.g., DFAT, 2016) for proposed excavation volumes. While this assessment of sample density will rely on existing geochemical understanding of the Macraes Operation, additional samples are required to address sample density and distribution gaps for the FTAA application.

BACKGROUND

MP4 aims to extend the life of mining at the Macraes Operation until at least 2039.

MWM is undertaking comprehensive environmental geochemistry studies to inform surface and groundwater assessments in support of the substantive application for MP4. These studies will help ensure the project complies with environmental requirements and maintains industry best practice standards in resource management and environmental protection.

Key elements of the Project are summarised in Table 1. The mine plan and the project areas are shown in Figure 1.

Table 1: MP4 components.

MINE FACILITY	AREA
Open pits and underground mine extensions	Innes Mills (Stages 11-13), including Southern Pit integration and Mixed Tailings Impoundment (MTI) tailings relocation
	Coronation (Stages 6-8)
	Coronation North (Stage 6)
	Golden Bar (Stages 2-3)
	Golden Point Underground (GPUG)
Waste Rock Stacks (WRSs)	Frasers West WRS height raise
	Trimbells WRS height raise and extension
	Coronation North Backfill height raise
	Coronation Backfill
	Coronation North WRS height raise
	Innes Mills Backfill
	Southern Pit Backfill
	Golden Point Backfill
	Golden Bar WRS extension
Tailings Storage Facilities and return water	Frasers Tailings Storage Facility (TSF) Stage 3

Source: OGNZL (2026).

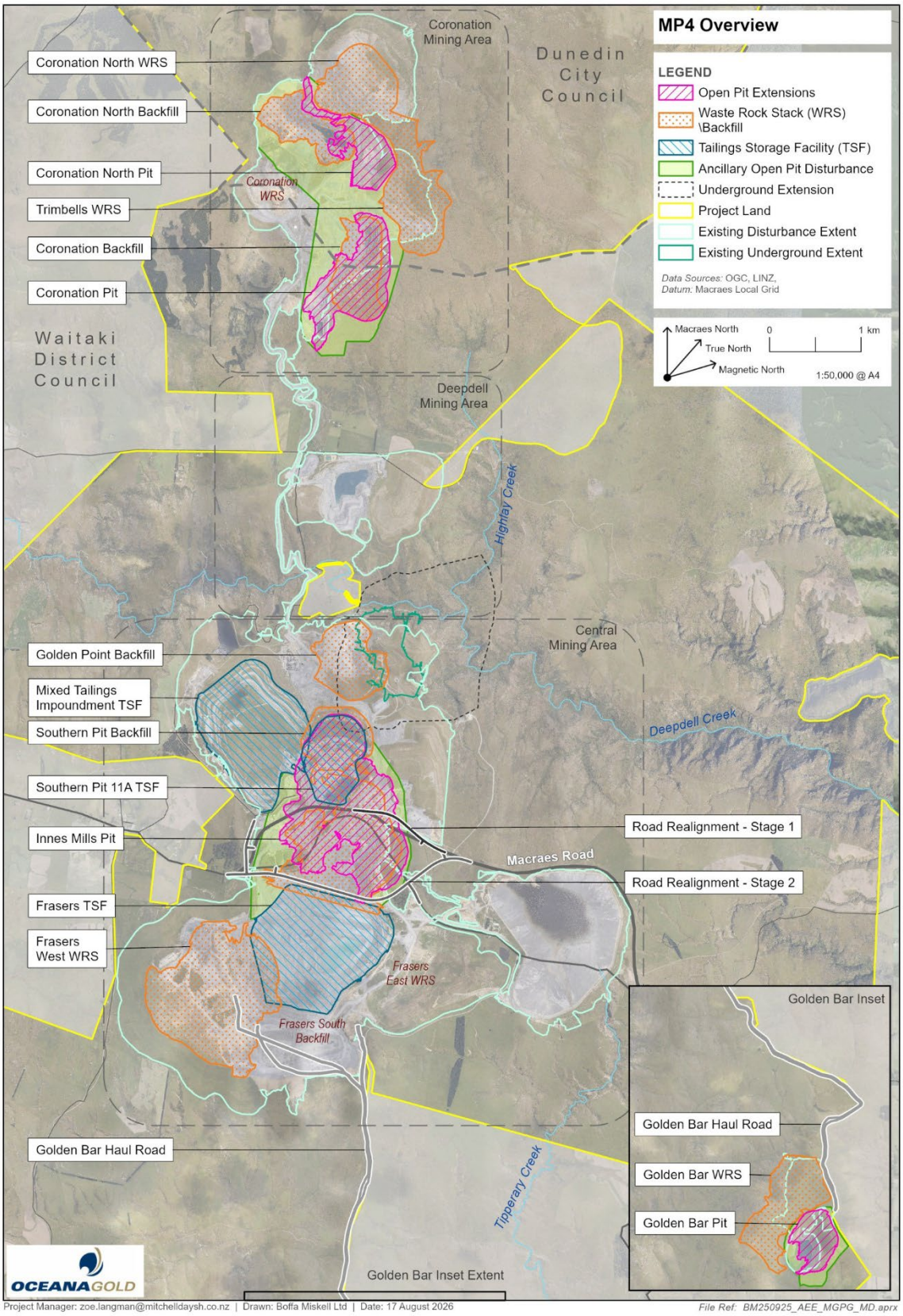

Figure 1: MP4 overview plan.

Source: OGNZL (2026).

DATA REVIEW

Extensive geochemical analyses have previously been undertaken on materials from the Macraes Operation. Acid base accounting (ABA) data provided by OGNZL includes over 850 analyses undertaken between 2007 to 2025. ABA assesses a material's potential to generate and neutralise acidity.

Recent ABA analysis was completed by MWM (2024) on samples collected from drillholes determined to be representative of in situ waste rock by OGNZL geologists for five open pits. A summary of the samples collected for this prior geochemical analysis is provided in Table 2.

Table 2: Sampling for ABA analysis (MWM, 2024).

PIT DOMAIN	DRILLHOLE ID	SAMPLES
SPIM (n=21)	RCD5238	12
	DDH7839	9
Innes Mills (n=20)	DDH7917	13
	RCD7928	7
Round Hill (n=10)	DDH7669	10
Golden Bar (n=10)	RCH5452	10
Coronation (South) (n=9)	RCD6230	9
Total		70

According to the AMIRA (2002) classification system, 68 out of the 70 samples were classified as non-acid forming (NAF), with the remaining two samples classified as uncertain (UC) (Figure 2). It is noted that two samples with low NAG pH (< 4.5) have a negative net acid producing potential (NAPP), demonstrating an acid neutralising capacity (ANC) in excess of the maximum potential acidity (MPA). These anomalous samples have a NAG pH only slightly less than pH 4.5 but relate to a grouping of data that generally demonstrates lower NAG pH values (indicated by the blue circled datapoints in Figure 2).

These anomalous data points were all sampled from SPIM[1] (DDH7839). Further investigation of material from SPIM is planned, and additional sampling is proposed as part of this SAP to investigate the reasons for the low NAG pH data.

[1] *Sample data was reviewed as part of this SAP and all material is identified as waste rock.*

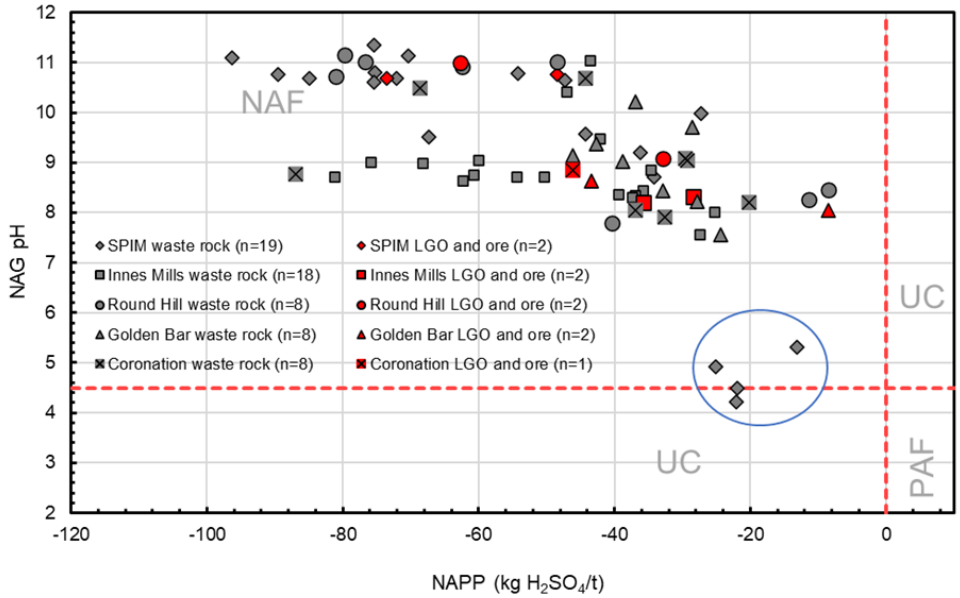

Figure 2: AMIRA (2002) classification based on NAPP and NAG pH data.

Blue circle indicates samples with NAG pH < 5.5.

SAMPLING AND ANALYSIS PLAN

Material Quantities

The objective of the sample selection process is to provide representative samples for geochemical testing to understand the geoenvironmental hazards associated with the project. General industry guidelines (e.g., DFAT, 2016) recommend collecting several hundred samples for ABA testing when the disturbed material quantities exceed 10 Mt and no prior geochemical information is available.

As shown in Table 3, the proposed material quantities for MP4 are considerably higher than 10 Mt. However, a smaller sample size is appropriate for MP4 for the following reasons:

- The site is a mature operation and the potential acid and metalliferous drainage (AMD) hazards and other environmental impacts (e.g., metals, sulfate, nitrate) are already well understood. For instance, large waste rock stacks (WRSs) are present on-site and water quality from project materials within these WRSs is well characterised.
- There is minor weathering, lithological, and alteration variation within the materials.
- Previous ABA data is available for the mine, sufficiently covering the major lithologies and pits. This historical data (over 850 samples collected from 2007 to 2025) is representative of the proposed disturbed material.

A total of 54 samples were selected for ABA analysis to address data gaps and fulfill sampling expectations (e.g., DFAT, 2016). The addition of these 54 samples will increase the total ABA dataset for materials from the Macraes Operation to over 900 results, providing robust support for the MP4 application.

Table 3: MP4 material quantities.

PIT	ORE	WASTE ROCK	REMINED TAILINGS	TOTAL
	Mt	Mt	Mt	Mt
Innes Mills Open Pit Stage 11 - 13	36.3	276.1	59.2	371.6
Coronation Open Pit Stage 6 - 8	6.9	106.0	-	112.9
Coronation North Open Pit Stage 6	0.7	34.6	-	35.3
Golden Bar Open Pit Stage 2 - 3	2.0	32.4	-	34.4
GPUG	TBC	0.26	-	0.26
Total	**45.9**	**449.4**	**59.2**	**554.5**

Source: OGNZL (2026).
TBC: Data is to be confirmed through exploration drilling in 2026.

Sample Selection Rationale

In conjunction with OGNZL geologists, representative drill holes were selected for geochemical sampling. A total of 54 samples were selected from across the proposed Project pit expansions where drill core was available to undergo ABA testing. Sample selection was determined using cross-sections, drillhole geology logs, and assay data as provided by OGNZL. The basis for the sample selection was as follows:

- Provide representative samples of materials that will be excavated spatially across MP4: horizontally from different pit domains, and vertically across the waste rock profile extending from the surface through mineralisation to foot wall waste rock.
- Test all significant lithologies. The majority of materials in the proposed pit extensions are schistose in nature.
- Characterise waste rock from intra-shear zones where applicable.
- Select samples from SPIM in the region of the anomalous samples (as illustrated in Figure 2) for further investigation.
- No drill core was available for sampling at Golden Bar (although previous ABA data is available for this domain [MWM, 2024]).

Waste rock across five pit domains were selected to provide spatial variation. The following waste rock zones were defined for sampling purposes to capture the vertical extent of the waste rock as per standard industry guidance (DFAT, 2016):

- Hanging wall waste rock (HW WR) – the highest volume of waste rock from the proposed pit expansions. Comprises the majority of materials sampled.
- Intra-burden waste rock (IB WR) or weakly mineralised hanging wall WR (WM WR) – waste rock between mineralised zones or the weakly mineralised hanging wall halo.

- Foot wall waste rock (FW WR) – sampling completed to provide background data.

Waste rock samples were further defined as 'unweathered' or 'weathered' material as per drill logs provided by OGNZL. Weathering or oxidation of material can influence reactivity, and these zones need to be sampled and characterised (DFAT, 2016). Predominantly unweathered waste rock was sampled with one sample recorded as 'weathered' selected for each pit domain to provide a representative range of material (accounting for 10% of total ABA samples).

Samples were selected over 0.5 m intervals for PQ[2] size drill core and 1.0 m intervals for smaller diameter drill core. Both full- and half- cores have been sampled, dependent on core availability. Several samples were selected from 'retains' remaining from prior assay analysis.

A summary of the samples selected is provided in Table 4, with additional detail provided in Attachment A.

Table 4: MP4 sample summary.

PIT DOMAIN	DRILLHOLE ID	TOTAL SAMPLES	WASTE ROCK LOCATION		
			HW WR	WM / IB WR	FW WR
Coronation North (n=11)	DDH8253	8	6	2	-
	DDH8257	2	2	-	-
	DDH8113	1	-	-	1
Coronation (n=14)	DDH8125	8	8	-	-
	DDH8134	6	5	1	-
Innes Mills (n=16)	DDH8165	3	2	1	-
	DDH8256	2	2	-	-
	DDH8168	1	1	-	-
	DDH8266	1	1	-	-
	DDH8243	8	7	1	-
	IM8-5300-004	1	1	-	-
SPIM (n=8)	DDH7848	7	6	1	-
	DDH8047	1	-	1	-
GPUG (n=5)	DDH7847	5	2	2	1
Total	**-**	**54**	**43**	**9**	**2**

Samples were selected for additional static leachate testing from the 54 representative samples to provide an indication of the immediate water quality if the rocks interact with water, allowing for an understanding of the mobility of potential constituents of concern (PCOC).

To ensure a representative range, 13 samples were selected across the five pit domains. HW WR and WM/IB WR samples were selected for each pit domain (two HW WR samples were selected for Coronation and Innes Mills, as these are the highest volume pit expansions as identified in Table 3). One FW WR sample was selected at Coronation North (Table 5).

[2] *Diameter of PQ drill core 85.00 mm.*

Table 5: MP4 static leachate sampling.

PIT DOMAIN	DRILLHOLE ID	TOTAL SAMPLES	WASTE ROCK LOCATION		
			HW WR	WM / IB WR	FW WR
Coronation North (n=3)	DDH8253	2	1	1	-
	DDH8113	1	-	-	1
Coronation (n=3)	DDH8125	3	2	1	-
Innes Mills (n=3)	DDH8243	2	1	1	-
	IM8-5300-004	1	1	-	
SPIM (n=2)	DDH7848	1	1	-	-
	DDH8047	1	-	1	-
GPUG (n=2)	DDH7847	2	1	1	-
Total		13	7	5	1

General industry guidelines advise selecting one to two samples representative of key lithologies for kinetic testing (e.g., DFAT, 2016). Four samples representative of waste rock from the Project were selected for additional kinetic leachate testing, by column leach testing (CLT) (Table 6), with more detail provided in Attachment A. This allows for one sample representative of each key waste rock zone, with an additional sample selected from the HW WR, given it is the highest volume material.

CLT provides an understanding of the PCOC that could be mobilised from disturbed materials over time. Compared to static leachate testing, CLT provides additional data regarding release rates and potential lag times for PCOC over an extended period to allow long term predictions of water quality. Unlike static leach testing, CLT simulates natural material weathering and oxidation that can be expected on exposure to air and water, although the CLT process is considered accelerated compared to field rates.

Samples were selected across four pit domains to provide spatial variation, and across the three major waste rock zones: HW WR (two samples), IB WR, and FW WR (one sample of each) to provide vertical variation. One sample was selected from each of the following pit domains:

- Innes Mills
- Coronation North
- Coronation
- SPIM

No material was selected from GPUG, as preference was given to testing waste rock from the largest proposed pit expansions. Three samples were selected from drill core. One sample (IM8-5300-004) is a composite rock chip sample from reverse circulation (RC) blast hole drilling over an 11 m drilled width. Figure 3 provides the locations of the selected CLT samples.

Table 6: MP4 CLT sampling.

COLUMN ID	PIT DOMAIN	SOURCE	MATERIAL	DISTANCE ABOVE HW* (m)	DRILL HOLE DETAILS		
					HOLE ID	FROM (m)	TO (m)
IM8-5300-004	Innes Mills 8	Blast hole RC rock chips - 11m composite	HW WR	170	IM8-5300-04	0	11
DDH8113	Coronation North	Diamond core	FW WR	Footwall	DDH8113	233.2	234.9
DDH8125	Coronation Stage 7	Diamond core PQ	HW WR	105	DDH8125	49	50
DDH8047	SPIM	Diamond core 1/2 PQ	IB WR	-105	DDH8047	37.5	39

**Approximate distance above hanging wall as provided by OGNZL.*

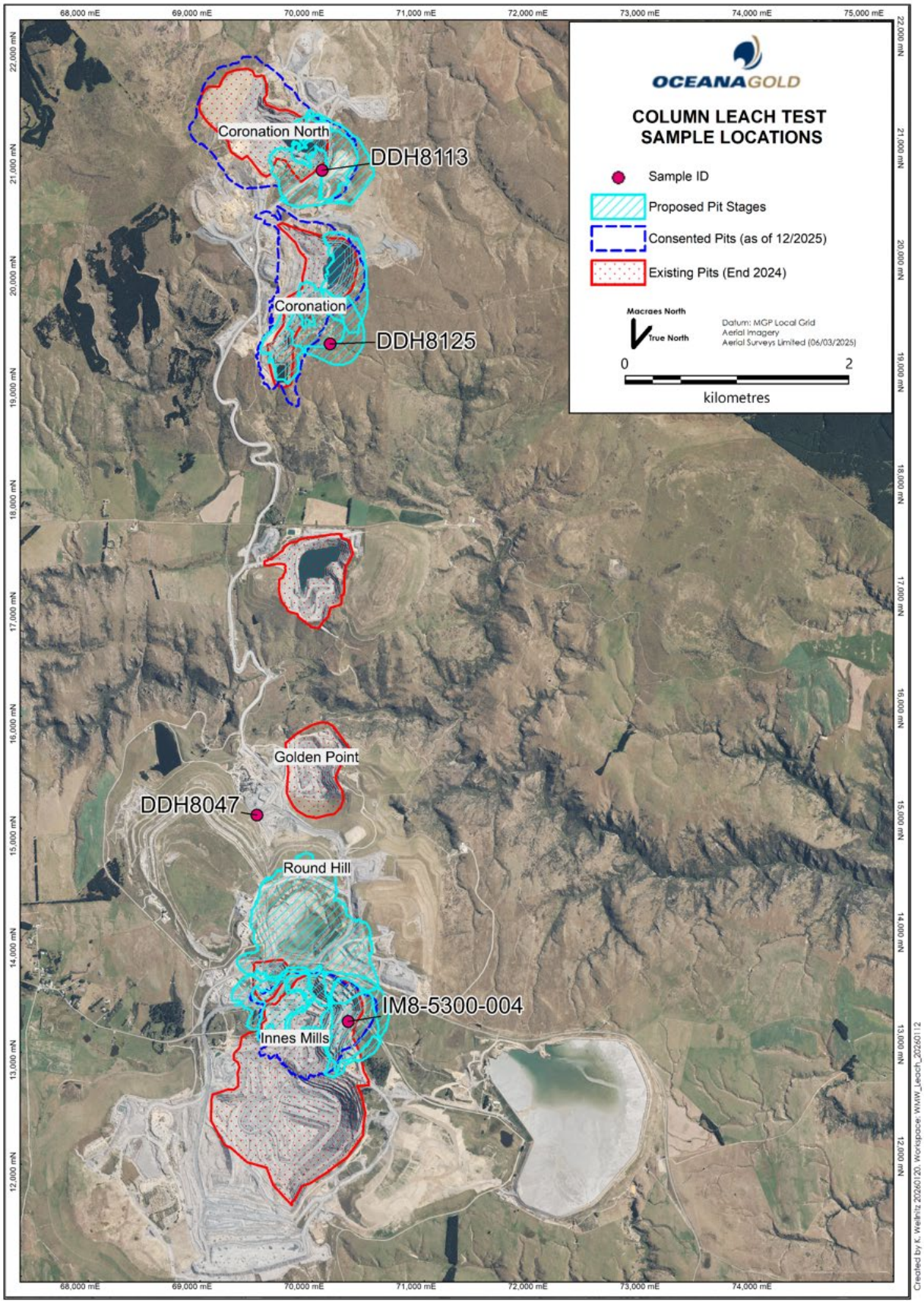

Figure 3: Location of CLT samples.

Source: OGNZL (2026)

Sample Analysis

The following testing schedule is proposed for all samples, excluding the four samples selected for CLT (as per Table 6):

- SGS Macraes will be contracted to complete sample preparation.
- SGS Westport will complete the ABA and shake flask testing of samples.
- Portable x-ray fluorescence (pXRF) testing will be completed by Wairiri Consulting Limited.

A typical ABA test suite is proposed for the representative samples of waste rock tested at SGS:

- Paste pH and electrical conductivity (EC) (1:2) (AMIRA, 2002).
- Total sulfur (S) and total carbon (C) content (wt.%).
- Acid neutralisation capacity (ANC) by modified Sobek testing (AMIRA, 2002).
- Single-stage net acid generation (NAG) testing (AMIRA, 2002).

Three Certified Reference Materials (CRMs) sourced from Geostats Pty Ltd are to be included with the material selected for ABA testing at SGS to assess the accuracy of analyses conducted by laboratories.

Nine static leachate samples are to be analysed by SGS Westport through shake flask extraction[3]. The proposed shake flask extraction schedule includes:

- pH, EC, major anions, major cations, trace metals and metalloids, and forms of nitrogen.

More details on shake flask extraction analytes are provided in Attachment B.

CLT Samples

The four samples selected for CLT (Table 6) are undergoing analysis at ALS Brisbane. The following testing schedule is underway:

- Standard ABA methodologies: Total S, total C, ANC, paste pH/EC, NAG (including NAG pH and NAG acidity) (AMIRA, 2002).
- Static leachate testing through the Synthetic Precipitation Leaching Procedure[4] (SPLP). Testing includes pH, EC, major anions, major cations, trace metals and metalloids, and forms of nitrogen.
- CLT (AMIRA, 2002) provides information on sulfide oxidation rates, neutralisation rates, metal(loid) solubility, and the leaching behaviour of the test materials under controlled conditions. CLT samples are planned to be run for 12 months (13 cycles). Testing includes pH, EC, major anions, major cations, trace metals, and metalloids.

More detail on the CLT analytes is provided in Attachment B.

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[3] Shake flask extraction is prepared with deionised water at a 1:10 solid to liquid ratio for a period of 18 hours.

[4] SPLP sample is prepared to 1:10 with distilled water over an 18-hour leach period with metals filtered to 0.45µm.

Summary

A summary of the proposed analytical schedule is provided in Table 7.

Table 7: MP4 waste rock analytical schedule.

TEST DESCRIPTION	TOTAL NUMBER OF SAMPLES
Paste pH/EC (1:2)	54
ANC	54
Total Sulfur, Total Carbon	54
Single addition NAG (pH + Acidity to 4.5 and 7.0)	54
CRM	3
Static leachate testing (shake flask extraction or SPLP) Proposed analysis of leachate being: pH, EC, major anions, major cations, trace metals and metalloids, forms of nitrogen.	13
Column leach testing Proposed analysis of leachate being: pH, EC, major anions, major cations, trace metals and metalloids.	4

CLOSING REMARKS

Please do not hesitate to contact Paul Weber at + 64 3 242 0221 or paul.weber@minewaste.com.au should you wish to discuss this memorandum in greater detail.

Attachments: Attachment A – Sample Summary
Attachment B – Leachate Analysis Schedule

REFERENCES

AMIRA, 2002. ARD Test Handbook – Project P387A Prediction and Kinetic Control of Acid Mine Drainage. AMIRA International Limited. Melbourne, Australia.

DFAT, 2016. Leading Practice Sustainable Development Program for the Mining Industry – Preventing Acid and Metalliferous Drainage. Commonwealth of Australia. Canberra, Australia.

Mine Waste Management (MWM), 2024. Macraes Phase 4.3: Environmental Geochemistry Assessment. MWM Document No: J-NZ0229-004-R-Rev0. 28 February 2024.

OceanaGold (New Zealand) Limited (OGNZL), 2026. Macraes Phase Four Project Description – Fast-track Approvals Act 2024. 15 April 2026.

ATTACHMENT A – SAMPLING SUMMARY

Attachment A: Sample Summary

Pit	Sampling					Waste Rock	Drill log summary					Testing Schedule		
	Drillhole ID	From (m)	To (m)	SampleID	Material	Type	Lith 1	Lith 2	Weathering	Aspy	Py	ABA	Shakeflask	CLT + SPLP
SPIM (GPUG)	DDH7848	30.0	30.5	DA26259	core	HW WR	spe		SW			✓		
	DDH7848	38.0	38.5	DA26261	core	HW WR	spa		UW		0.01	✓		
	DDH7848	104.0	104.5	DA26263	core	HW WR	spe		UW		0.02	✓		
	DDH7848	109.0	109.5	DA26265	core	HW WR	spe		UW		0.02	✓	✓	
	DDH7848	152.5	153.0	DA26268		HW WR	spe	spa	UW		0.02	✓		
	DDH7848	156.78	156.9	DA26269	core	HW WR	spe	spa	UW		0.02	✓		
	DDH7848	198.0	199.0	DA26270	PQ 1/2 core	WM WR	spa		UW		0.01	✓		
	DDH8047	37.5	39.0	Column 4		IB WR	swpe		UW		0.1	✓		✓
GPUG	DDH7847	324	325	DA26271	HQ whole core	HW WR	spe	flt	UW		0.01	✓		
	DDH7847	330	331	DA26272	HQ 1/2 core	HW WR	spa		UW		0.05	✓	✓	
	DDH7847	337	338	DA26273	HQ 1/2 core	IB WR	spa		UW		0.05	✓		
	DDH7847	345	346	DA26274	HQ 1/2 core	IB WR	swpa		UW	0.01	0.1	✓	✓	
	DDH7847	354	355	DA26275	HQ 1/2 core	FW WR	swpa		UW		0.05	✓		
Innes Mills	DDH8266	18	19	DA26239	PQ whole core	HW WR	spe	spa	MW		0.05	✓		
	DDH8165	50	50.5	DA26231	retains	HW WR	spe	ls	UW		0.5	✓		
	DDH8165	54	55	DA26233	retains	HW WR	spe	ls	UW		0.5	✓		
	DDH8256	125	125.5	DA26234	retains	HW WR	spe	ls	UW		0.1	✓		
	DDH8256	130	130.5	DA26235	retains	HW WR	spe		UW		0.08	✓		
	DDH8165	225	225.3	DA26236	retains	WM WR	-	-	UW	-	-	✓		
	DDH8168	15	15.5	DA26219	PQ whole core	HW WR	spe		SW			✓		
	DDH8243	44	45.5	DA26221	PQ half core 0.5m	HW WR	ls	spe	UW		0.4	✓		
	DDH8243	48.5	49	DA26224	PQ half core 0.5m	HW WR	spe		UW		0.05	✓		
	DDH8243	111	112	DA26225	HQ half core 1m	HW WR	spe		UW		0.05	✓	✓	
	DDH8243	118	119	DA26226	half core	HW WR	spa		UW			✓		
	DDH8243	153	154	DA26227	half core	HW WR	spe		UW			✓		
	DDH8243	212	213	DA26228	half core	HW WR	flt	swpe	UW		5	✓		
	DDH8243	218	219	DA26229	half core	HW WR	spe	spa	UW		0.1	✓		
	DDH8243	241	242	DA26230	half core	IB WR	swpe	ls	UW	0.1	0.3	✓	✓	
	IM8-5300-004	11 m composite		Column 1	Blast Hole RC chip	HW WR	No drill log data					✓		✓
Coronation North	DDH8253	15	15.5	DA26206	PQ half core 0.5m	HW WR	spa	spe	SW			✓	✓	
	DDH8253	42	42.5	DA26208	PQ half core 0.5m	HW WR	spa	spe	UW			✓		
	DDH8253	46.5	47	DA26211	PQ half core 0.5m	HW WR	spe	spa	UW			✓		
	DDH8253	109	110	DA26212	HQ half core	HW WR	spe		UW			✓		
	DDH8253	113	114	DA26213	HQ half core	HW WR	spa		UW			✓		
	DDH8257	183	184	DA26214	HQ half core	HW WR	spa		UW		0.05	✓		
	DDH8257	176	177	DA26215	HQ half core	HW WR	spa	spe	UW		0.01	✓		
	DDH8253	210	211	DA26216	HQ half core	HW WR	swpe		UW	0.1	0.3	✓		
	DDH8253	215	216	DA26217	HQ half core	WM WR	swpe		UW	0.1	0.3	✓		
	DDH8253	226	227	DA26218	HQ half core	IB WR	swpe	ls	UW	0.5	1.4	✓	✓	
	DDH8113	233.2	234.9	Column 2	Drill core	FW WR	No drill log data					✓		✓
Coronation	DDH8125	18	18.5	DA26240	PQ Whole Core 0.5m	HW WR	spe		SW		0.01	✓		
	DDH8125	23	23.5	DA26242		HW WR	spe		UW		0.05	✓		
	DDH8125	27	27.5	DA26244		HW WR	spe		UW		0.05	✓		
	DDH8125	49	50	Column 3	PQ core	HWWR	spe	flt	UW		0.1	✓		✓
	DDH8125	60	61	DA26246	HQ whole core	HW WR	spa		UW		0.01	✓		
	DDH8125	64	65	DA26247	HQ whole core	HW WR	spe	spa	UW		0.05	✓	✓	
	DDH8125	132	133	DA26248	HQ 1/2 core	HW WR	spe		UW		0.01	✓		
	DDH8125	137	138	DA26249	HQ 1/2 core	HW WR	spe	swpe	UW		0.1	✓		
	DDH8134	62	63.0	DA26250	HQ whole core	HW WR	spe	spa	UW		0.02	✓		
	DDH8134	66	67.0	DA26251	HQ whole core	HW WR	spa	spe	uw		0.02	✓		
	DDH8134	110	111	DA26252	HQ whole core	HW WR	spe	flt	uw		0.02	✓		
	DDH8134	115	115.4	DA26253	HQ whole core	HW WR	spe	spa	UW		0.01	✓		
	DDH8134	159.8	160.5	DA26256	retains	HW WR	spe	flt	UW		0.1	✓		
	DDH8134	173.5	174	DA26258	retains	IB WR	spe		UW		0.02	✓	✓	

Codes

Waste Rock Type

HW WR	Hanging wall waste rock
WM WR	weakly mineralised waste rock
IB WR	Intra-burden waste rock
FW WR	Foot wall waste rock

Lithology

spe	semi-pelite
spa	semi-psammite
swpe	Stockwork pelite
swpa	Stockwork psammite
ls	Lode schist
flt	Fault Zone
-	No drill log data

Weathering

UW	unweathered
SW	slightly weathered
MW	moderately weathered
HW	highly weathered

ATTACHMENT B – LEACHATE ANALYSIS SCHEDULE

Table B1: Proposed leachate analysis.

PARAMETER	UNIT	CLT	SHAKE FLASK EXTRACTION	SPLP
pH	pH units	✓	✓	✓
Hydroxide Alkalinity	mg $CaCO_3$/L	✓	✓	✓
Carbonate Alkalinity	mg $CaCO_3$/L	✓	✓	✓
Bicarbonate Alkalinity	mg $CaCO_3$/L	✓	✓	✓
Total Alkalinity	mg $CaCO_3$/L	✓	✓	✓
Acidity	mg $CaCO_3$/L	✓	✓	✓
Electrical Conductivity	µS/cm	✓	✓	✓
Aluminium	mg/L	✓	✓	✓
Antimony	mg/L	✓	✓	
Arsenic	mg/L	✓	✓	✓
Barium	mg/L		✓	
Boron	mg/L	✓	✓	✓
Cadmium	mg/L	✓	✓	✓
Calcium	mg/L	✓	✓	✓
Cobalt	mg/L	✓	✓	
Copper	mg/L	✓	✓	✓
Chromium	mg/L	✓	✓	✓
Fluoride	mg/L	✓	✓	
Iron	mg/L	✓	✓	✓
Lead	mg/L	✓	✓	✓
Magnesium	mg/L	✓	✓	✓
Manganese	mg/L		✓	
Mercury	mg/L	✓		
Molybdenum	mg/L	✓	✓	
Nickel	mg/L	✓	✓	✓
Potassium	mg/L	✓	✓	✓
Selenium	mg/L		✓	
Silver	mg/L		✓	
Sodium	mg/L	✓	✓	✓
Strontium	mg/L	✓	✓	
Thallium	mg/L		✓	
Tin	mg/L		✓	
Uranium	mg/L	✓	✓	
Vanadium	mg/L	✓	✓	
Tungsten	mg/L	✓	✓	
Zinc	mg/L	✓	✓	✓
Chloride	mg/L		✓	
Total Ammoniacal-N	mg/L		✓	
Nitrite-N	mg/L		✓	
Nitrate-N	mg/L		✓	
Total-N	mg/L		✓	
Total Phosphorus	mg/L		✓	
Total Antimony	mg/L	✓		
Total Arsenic	mg/L	✓		
Total Iron	mg/L	✓		
Sulfate	mg/L	✓	✓	✓

Note: Parameters presented are dissolved unless otherwise specified.

APPENDIX C ANALYSIS METHODOLOGY

METHODOLOGY

Paste pH and Paste EC

Paste pH was determined with electrochemical probes calibrated using certified buffers standards following the AMIRA (2002) methodology. Slurries are prepared at a 1:2 ratio of finely ground sample (typically < 75 µm) to deionised water. Paste pH is an industry standard test used to determine if the sample is already influenced by stored acidity / acid metalliferous drainage (e.g., AMIRA, 2002). Paste EC was also obtained during this test procedure.

Total Sulfur and Maximum Potential Acidity (MPA)

The total sulfur of the samples was determined by high temperature combustion in a LECO furnace and sulfur dioxide detection by an infra-red cell. The infra-red cell output is calibrated against the value of a known standard sample to provide the total sulfur concentration of the sample.

The acid generation potential of a rock is determined by measuring the sulfur (or sulfide) content of the sample and calculating the MPA that would be generated, assuming all the sulfur (or sulfide) is present as pyrite and completely oxidises where:

MPA (kg H_2SO_4/t) = S (wt%) x 30.6

This approach follows industry standard methodologies (AMIRA, 2002).

Acid Neutralisation Capacity (ANC)

The ANC of the sample was determined by the modified Sobek method (Sobek et al., 1978) where a known amount of standardised hydrochloric acid (HCl) is added to an accurately weighed sample, allowing the sample time to react, then back-titrating the mixture with standardised sodium hydroxide (NaOH) to determine the amount of unreacted HCl (AMIRA, 2002). The amount of acid consumed by reaction with the sample is then calculated. ANC is an industry standard test used to determine the acid neutralisation capacity of a sample.

Net Acid Producing Potential (NAPP)

The NAPP is a measure of the samples overall acid generating capacity and is calculated by subtracting the ANC from MPA. A negative NAPP indicates a net neutralisation capacity, and the sample can be classified as non-acid forming (NAF). A positive NAPP indicates a positive net acid producing potential and the sample can be classified as potentially acid forming (PAF). NAPP, MPA, and ANC are expressed in kg H_2SO_4/t.

Neutralisation Potential Ratio

The neutralisation potential ratio (NPR) is another common method to assess the potential to generate acid rock drainage, which is based on the Price (2009) classification methodology. The Price classification system uses the ratio between ANC and MPA to classify samples as PAF, NAF, or uncertain (UC), where the NPR = ANC/MPA. When ANC/MPA is less than 1, samples are classified as PAF. When ANC/MPA is greater than 2, sufficient neutralising capacity is inferred to account for acid

production and the samples are classified as NAF. When ANC/MPA is between 1 and 2, samples are classified as UC.

NAG Test

The single addition NAG test was undertaken where a pulverised sample (2.5 g) is digested with 250 mL of 15% (unstabilised) hydrogen peroxide and allowed to react to completion before measuring the pH of the NAG liquor. The NAG liquor is then titrated with NaOH to pH 4.5 and pH 7.0. Acidity measured by the titration to pH 4.5 is due to free hydrogen ions as well as acidity from aluminium and iron (AMIRA, 2002). Additional acidity measured by the titration to pH 7 can be attributed to metal hydrolysis reactions such as Cu (AMIRA, 2002).

Geochemical Abundance Index (GAI)

The pXRF results were assessed using the geochemical abundance index (GAI) methodology (Förstner et al., 1993). The GAI compares the actual concentration of an element in a sample with the median abundance for that element in the most relevant media (such as crustal abundance, soils, or a particular rock type). The main purpose of the GAI is to provide an indication of any elemental enrichments that may be of environmental importance. The GAI for an element is calculated as follows:

$$GAI = \log_2 [C / (1.5*S)]$$

where C is the concentration of the element in the sample and S is the median content for that element in the reference material (mean world soil, crustal abundance, etc). The GAI values are truncated to integer increments (0 through to 6, respectively) where a GAI of 0 indicates the element is present at a concentration similar to, or less than, median abundance and a GAI of 6 indicates approximately a 100-fold, or greater, enrichment above median abundance. The actual enrichment ranges for the GAI values are as follow:

- GAI=0 represents <3 times median soil content.
- GAI=1 represents 3 to 6 times median soil content.
- GAI=2 represents 6 to 12 times median soil content.
- GAI=3 represents 12 to 24 times median soil content.
- GAI=4 represents 24 to 48 times median soil content.
- GAI=5 represents 48 to 96 times median soil content.
- GAI=6 represents more than 96 times median soil content.

Generally, a GAI of 3 or greater signifies enrichment that warrants further examination such as leachate testing of rock samples. It is also important to note that elemental enrichment is not unexpected in samples from mineralised areas and that enrichment does not necessarily mean that specific elements will be environmentally mobile and bioavailable.

Static Leachate Testing

Static leachate testing uses a known amount of rock with a known amount of water where the sample is leached with deionised water normally for about 18-24 hours contact time. Leachate from that interaction is filtered to 0.45 µm then analysed to understand the concentration of dissolved parameters (mg/L) and then the quantity of dissolved constituents release from the material is determined (mg/kg). Static leachate testing was undertaken at two laboratories, both at a 1:10 ratio using deionised water for 18 hours.

Shake Flask Extraction

Shake flask extraction (SFE) was completed at SGS and ALS. For this project, the SFE at SGS involved an 18-hr extraction using 20 g of material (crushed to ~2 mm) with 200 mL of deionised water (1:10 ratio). Four bottles were prepared using this ratio to provide the volume of leachate required for testing.

Shake flask extraction (SFE) at ALS Brisbane involved an 18-hr extraction of 1:10 ratio using deionised water.

Portable XRF Geochemical Dataset QA/QC and Calibration Report

Prepared for Mine Waste Management

Project ID J-NZ0498

1. Scope and Purpose

This report documents the Quality Assurance and Quality Control (QA/QC) evaluation of the portable X-ray fluorescence (pXRF) dataset and the calibration corrections applied to the analytical results for Project ID J-NZ0498. The review assesses analytical reliability, evaluates Certified Reference Material (CRM) performance, examines duplicate precision, and produces a corrected dataset suitable for exploration geochemistry interpretation and integration with other analytical datasets. The final corrected dataset contains 56 representative field samples after averaging 6 duplicate pairs from 24 CRM analyses and 2 blank analyses.

2. Analytical Method

All measurements were obtained using an Olympus Vanta portable X-ray fluorescence analyser operating under the instrument's standard geochemical analytical method. Samples were analysed in sample cups fitted with polypropylene film and measured in a fixed sample stand to provide repeatable geometry and analytical conditions. The analytical sequence included field samples, Certified Reference Materials (CRMs), blank samples, and duplicate analyses. Duplicate measurements labelled _1 and _2 represent two independent pXRF analyses from the same sample bag.

3. QA/QC Sample Types

Multiple QA/QC sample types were incorporated into the analytical program. CRMs were used to evaluate instrument accuracy and derive calibration corrections. Blank samples were reviewed to monitor contamination and analytical carry-over. Duplicate analyses were used to evaluate analytical precision by comparing repeat measurements from the same sample bag.

4. Certified Reference Materials Used

The CRM suite used for calibration verification comprised OREAS 231b, OREAS 232b, OREAS 235b, OREAS 238b, and OREAS 240b. These standards provide a wide concentration range for key elements including arsenic (As), copper (Cu), zinc (Zn), lead (Pb), calcium (Ca), iron (Fe), manganese (Mn), and titanium (Ti).

5. Blank Performance

Blank samples were reviewed to assess potential contamination and analytical carry-over. Pathfinder elements As, Zn, and Pb were reported below detection in the blank material. Cu was detected at low levels (~18–19 ppm), while Ca and Fe showed minor background values consistent with blank matrix response rather than systematic carry-over. Overall, blank performance indicates acceptable background control for the pXRF analytical sequence.

6. Calibration Methodology

Calibration corrections were derived using ordinary least squares linear regression between measured CRM concentrations and certified CRM values. The regression relationship applied was: Corrected concentration = intercept + slope × raw concentration. Regression corrections were applied only where CRM coverage was sufficient and the relationship was considered analytically meaningful.

7. Criteria for Applying Calibration

Regression calibration was applied where multiple CRM concentrations were available, CRM concentrations spanned the range of field sample values, and the regression relationship demonstrated useful correlation. In practice, most corrected elements achieved very strong correlation (R^2 generally >0.98). Titanium displayed more variable behaviour but was retained as a corrected element because the CRM data demonstrated a clear monotonic relationship and a large systematic bias requiring adjustment.

8. Elements Subject to Calibration Correction

The following elements exhibited sufficient CRM coverage and robust regression relationships and were therefore corrected: As, Cu, Zn, Pb, Ca, Fe, Mn, and Ti. These elements are reported in the final dataset using the format Element_corrected_ppm.

9. Elements Reported as Raw Values

Elements lacking sufficient CRM calibration coverage, or where correction was not supported, were retained as raw analytical values. These elements are reported in the format Element_Raw_ppm. Tungsten (W) is a primary example of an element retained in raw form for interpretation despite a calculated regression being available, because it was not included in the corrected output structure for this dataset.

10. Duplicate Precision Assessment

Duplicate analyses were used to evaluate analytical precision by comparing repeated measurements from the same sample bag. Precision was assessed using Relative Percent Difference (RPD), calculated as $|A - B| / ((A + B) / 2) \times 100$. Duplicate results demonstrate good repeatability for the main corrected elements, particularly Ca, Fe, Zn, Mn, and Ti, with more variable precision for Cu and some low-level pathfinder elements, which is consistent with expected handheld pXRF performance.

11. Data Processing Rules

The final dataset was compiled using one column per element. Elements with calibration corrections are reported as Element_corrected_ppm, while elements without calibration are reported as Element_Raw_ppm. Duplicate measurements were averaged to produce a single representative value for each field sample. All numeric values in the corrected dataset were rounded to whole numbers to reflect the practical analytical precision of the pXRF instrument. Detection limit masking was applied using the Vanta Max 40 kV LOD table.

12. CRM Performance Table (Measured vs Certified)

Certified Reference Material performance was evaluated by comparing mean measured pXRF concentrations obtained during the analytical run with certified concentrations reported for each standard. Comparison of measured and certified values indicates consistent analytical performance across the dataset. As, Cu, Zn, and Pb show systematic but predictable positive bias in the raw data, supporting regression-based calibration. Ca and Fe show excellent reproducibility and minimal proportional bias. Ti is the most variable corrected element and was treated cautiously during interpretation.

13. Regression Calibration Equations

Regression calibration equations derived from CRM data demonstrate strong linear relationships for the principal corrected elements. The calibration summary table below reports the fitted intercept, slope, R^2, and CRM count used in each regression. These relationships were used to generate the corrected dataset.

14. Duplicate Precision Statistics

Duplicate analyses show strong repeatability across the dataset. The mean RPD table below summarises precision for the corrected elements. Selected duplicate examples are also reported to illustrate repeatability in low- to moderate-grade material.

15. Data Reliability Assessment

The QA/QC evaluation indicates acceptable analytical performance across the dataset. Blank samples confirm minimal contamination. CRM results demonstrate reliable calibration control, and regression correction successfully removes systematic analytical bias for the principal corrected elements. Duplicate analyses confirm acceptable analytical precision. On this basis the dataset is considered technically reliable for exploration geochemical interpretation and target generation.

16. Limitations of Portable XRF Data

Portable XRF data should be considered semi-quantitative. Analytical accuracy can be influenced by matrix effects, mineralogical composition, grain size distribution, and sample heterogeneity. For definitive geochemical determinations and any resource or compliance reporting, laboratory-based analytical methods should be used to confirm pXRF results.

Table 1. Regression calibration summary

Element	Intercept (ppm)	Slope	R^2	CRM count
As	4.90	0.9104	0.9914	5
Cu	-17.40	0.9339	0.9997	5
Zn	11.03	0.7991	0.9918	5
Pb	1.13	0.8758	0.9808	5
Ca	130.01	1.0084	0.9995	5
Fe	-1164.29	0.9602	0.9998	5
Mn	2.35	1.0075	0.9995	5
Ti	-4672.58	1.8296	0.7739	5

Table 2. Mean duplicate precision by corrected element

Element	Mean RPD (%)
As	5.11
Cu	15.67
Zn	4.00
Pb	6.86
Ca	1.15
Fe	0.61
Mn	3.39
Ti	2.74

Selected duplicate examples

- DA26228 (As): 10 and 11 ppm; RPD 9.5%
- DA26259 (As): 9 and 9 ppm; RPD 0.0%
- DA26256 (Cu): 40 and 44 ppm; RPD 9.5%

Appendix 1. CRM performance tables

Certified Reference Material performance is summarised below as mean measured pXRF concentrations versus certified concentrations, with bias calculated as (Measured − Certified) / Certified × 100. Values are shown in ppm.

Blank and OREAS 203 are omitted from the appendix tables because they were not used in the regression calibration suite.

Table 3. CRM231b performance (Measured vs Certified)

Element	Certified ppm	Measured mean ppm	Bias %
As	34	38.5	13.24
Cu	156	183.75	17.79
Zn	118	138.25	17.16
Pb	13.6	16.75	23.16
Ca	64300	64406	0.16
Fe	83100	87822.75	5.68
Mn	1580	1581.5	0.09
Ti	6380	5973.75	-6.37
Mg	—	37138.5	—
Al	—	65549.25	—
P	—	461.75	—
S	2640	2320.5	-12.10
K	4770	4399	-7.78
Rb	10.4	11.25	8.17
Sr	203	201.5	-0.74
Ba	299	340.25	13.80
Ni	—	131.25	—
Zr	45.4	71	56.39

Table 4. CRM232b performance (Measured vs Certified)

Element	Certified ppm	Measured mean ppm	Bias %
As	441	432.75	-1.87
Cu	26.7	47	76.03
Zn	91	102.25	12.36
Pb	19.2	20.25	5.47
Ca	9950	9733.5	-2.18
Fe	38500	41084.75	6.71
Mn	410	412.25	0.55
Ti	4430	5116.5	15.50
Mg	—	16569.25	—
Al	—	72374.25	—
P	—	819.75	—
S	1720	1725.25	0.31
K	25100	27303	8.78
Rb	144	159.5	10.76
Sr	134	135.75	1.31
Ba	694	743.75	7.17
Ni	—	79.5	—
Zr	140	258.75	84.82

Table 5. CRM235b performance (Measured vs Certified)

Element	Certified ppm	Measured mean ppm	Bias %
As	353	403.5	14.31
Cu	29.3	50.75	73.21
Zn	97	108	11.34
Pb	19.1	19.5	2.09
Ca	8600	8290.75	-3.60
Fe	41500	44922.75	8.25
Mn	410	399.75	-2.50
Ti	4890	5475.25	11.97
Mg	—	17176.5	—

Element	Certified ppm	Measured mean ppm	Bias %
Al	—	77377.75	—
P	—	874.5	—
S	1410	1359	-3.62
K	27600	30228.75	9.52
Rb	159	178	11.95
Sr	149	153.5	3.02
Ba	691	684	-1.01
Ni	—	83	—
Zr	140	238.5	70.36

Table 6. CRM238b performance (Measured vs Certified)

Element	Certified ppm	Measured mean ppm	Bias %
As	676	751.5	11.17
Cu	30.8	51.25	66.40
Zn	100	105.75	5.75
Pb	23.4	23.75	1.50
Ca	8550	8619	0.81
Fe	41000	43698.25	6.58
Mn	390	385.5	-1.15
Ti	4610	5031.75	9.15
Mg	—	17208.25	—
Al	—	75894	—
P	—	763	—
S	1750	2160.5	23.46
K	26900	29194	8.53
Rb	159	173.75	9.28
Sr	118	120.25	1.91
Ba	685	703.75	2.74
Ni	—	84.25	—
Zr	132	234.5	77.65

Table 7. CRM240b performance (Measured vs Certified)

Element	Certified ppm	Measured mean ppm	Bias %
As	98	106.5	8.67
Cu	164	196	19.51
Zn	173	201.25	16.33
Pb	40.5	45.5	12.35
Ca	56600	55077.5	-2.69
Fe	73100	77214.25	5.63
Mn	1400	1368	-2.29
Ti	5430	5241.25	-3.48
Mg	—	28484.75	—
Al	—	61106.25	—
P	—	470.5	—
S	5490	6300.5	14.76
K	7300	7547.25	3.39
Rb	21.1	23	9.00
Sr	196	193.5	-1.28
Ba	324	371.25	14.58
Ni	—	118	—
Zr	53	77.25	45.75

APPENDIX D COLUMN LEACH TEST REPORT

Factual Report: Column Leach Testing

Macraes Phase 4 Project

31 August 2026

J-NZ0498-009-R-FINAL

MINE WASTE MANAGEMENT
GREENROAD GROUP

OCEANAGOLD

DISCLAIMER

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Column Leach Test Report

Macraes Phase 4 Project

Document Number: J-NZ0498-009-R-FINAL

Document Date: 31 August 2026

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EXECUTIVE SUMMARY

OceanaGold (New Zealand) Limited (OGNZL) currently undertakes open pit and underground gold mining operations at the Macraes Operation located at Golden Point Road, Macraes Flat, East Otago. As part of their ongoing operations, OGNZL continually review the remaining life of the Macraes Operation in light of updated knowledge of the gold resource and the economics of mining.

Reflecting recent exploration success and optimisation work, together with higher gold prices, the Macraes Phase Four Project (MP4 or the Project) seeks to extend the life of mining at the Macraes Operation until at least 2039. The Project, which will enable ongoing gold production at a rate of approximately 130,000 ounces per annum, is identified as a Listed Project in Schedule 2 of the Fast-track Approvals Act 2024 (FTAA) as a project providing significant national or regional benefits.

To support the development of the substantive application for the Project, OGNZL has engaged Mine Waste Management (MWM) to provide an assessment of the Project's effects on surface water and groundwater quality and, to the extent required, identify any necessary management and operation measures to address any such effects.

Purpose

This report enhances the existing geochemical knowledge base for the Project to support the FTAA application. This scope of this report is to assess the leaching characteristics and solute mobility of MP4 waste rock utilising the following techniques:

- Static leach testing to determine short-term, readily soluble constituent release and initial solute mobility.
- Kinetic column leach testing (CLT) to provide long-term data on sulfide reactivity, metal(loid) solubility, and the leaching behaviour of these materials under controlled laboratory weathering conditions.

These data support the identification of potential constituents of concern to understand potential effects and guide operational waste management requirements.

Geoenvironmental Hazards

Ore from the Macraes Operation is a combination of mineralised sheared graphitic schist and associated mineralised quartz veins. Gold is associated with the sulfide minerals pyrite (FeS_2) and arsenopyrite (FeAsS). Additional studies indicate that sulfides can also contain copper, lead, antimony, and zinc (Golder, 2011; Weightman et al., 2022).

OGNZL has been regularly collecting acid base accounting (ABA) data for waste rock at the Macraes Operation since 2007. Previous investigations have indicated that the waste rock is generally non-acid forming with a low potential to generate acidity (MWM, 2024; MWM, 2026a). This is supported by the monitoring and analysis of site drainage waters (over 30 years), which are circum-neutral in pH.

Geochemical test work (static leach testing and portable X-ray fluorescence screening) and assessment of empirical data from the Macraes Operation indicate that the key potential constituents of concern are

arsenic, nitrogenous compounds (due to ammonium-nitrate-based blasting residues), and sulfate (SO_4). Occasionally, iron, zinc, and copper are also elevated (MWM, 2024).

Sample Selection

The testing sample selection occurred in conjunction with OGNZL geologists, in accordance with industry guidelines for the selection of material for kinetic testing (e.g., DFAT, 2016), and included the following:

- Four samples representative of waste rock from the Project were selected for CLT from drill core (3 samples) and rock chips (1 sample).
- Spatial Variation: Representative waste rock samples were selected across four pit domains (Southern Pit / Innes Mills (SPIM), Innes Mills, Coronation and Coronation North).
- Structural Variation: Waste rock zones were defined for sampling purposes to provide samples across the vertical extent of waste rock from:
    - Hanging wall waste rock
    - Intra-burden waste rock
    - Footwall waste rock

Acid Base Accounting

The selected kinetic samples were subjected to standard ABA testing methodologies (Table E1). Key analytical findings include:

- All four samples are classified as non-acid forming by the AMIRA (2002) and Price (2009) classification systems.
- The material selected for the CLT program covered a total sulfur range from 0.07 wt% to 0.35 wt%. The average total sulfur content for waste rock from the Macraes Operation is 0.16 wt% (MWM, 2026a).
- These results algin with the extensive historical ABA database available for the Macraes Operation, confirming that the waste rock is generally non-acid forming and is unlikely to generate acid rock drainage (MWM, 2026a).

Table E1: Summary of CLT sample details and ABA data.

COLUMN ID	PIT AREA / WASTE ROCK ZONE	SOURCE	DISTANCE TO HW*	PASTE pH (1:2)	NAG pH	TOTAL SULFUR	MPA	ANC	NAPP
			m	pH units		wt%		kg H_2SO_4/t	
Column 1 (IM8-5300-004)	Innes Mills Hanging wall waste rock	Blast hole RC rock chip	170	9.0	8.9	0.14	4.28	50.6	-46.31
Column 2 (DDH8113)	Coronation North Foot wall waste rock	Diamond core	Footwall	8.8	8.8	0.07	2.14	51.4	-49.26
Column 3 (DDH8125)	Coronation Hanging wall waste rock	Diamond core	105	8.6	8.8	0.35	10.71	66.3	-55.59
Column 4	SPIM	Diamond core	-105	9.0	8.8	0.13	3.98	41.0	-37.02

COLUMN ID	PIT AREA / WASTE ROCK ZONE	SOURCE	DISTANCE TO HW*	PASTE pH (1:2)	NAG pH	TOTAL SULFUR	MPA	ANC	NAPP
			m	pH units		wt%		kg H_2SO_4/t	
(DDH8047)	Intra-burden waste rock								

**Approximate distance above hanging wall as provided by OGNZL. NAG = Net acid generation; MPA = maximum potential acidity; ANC = acid neutralisation capacity; NAPP = net acid producing potential. RC = Reverse circulation.*

Identification of Potential Constituents of Concern

Water quality reference values are used as a screening framework in this report to identify potential constituents of concern that may be elevated in seepage relative to water quality guidelines or ecotoxicity thresholds. Laboratory leachate from CLT can be highly concentrated; direct comparison against the water quality reference values provides context for the assessment of data and what parameters are considered potentially elevated under CLT lab testing processes.

Leachate concentrations were compared against proposed water quality trigger values developed for the Project (Viridis, 2026). Where trigger values are not available, alternative guideline values were applied:

- The 95% ANZG (2018) default guideline values (DGVs) for aluminium, cadmium, chromium (VI), fluoride, and mercury.
- The British Columbia Ministry of Water, Land and Resource Stewardship (2023) water quality guideline for antimony[1].

Static Leach Testing

Static leach testing provides an indication of the solutes that can be readily dissolved from the rock sample (mg/L), which can be used to calculate constituent release rates from the material on a mass basis (mg/kg). Observations of note from the static leach testing include:

- Leachate pH was circum-neutral at 7.47 to 7.97.
- Sulfate concentrations ranged from 20 to 28 mg/L.
- Arsenic exceeded the water quality reference value in DDH8047 (Column 4).
- Aluminium exceeded the water quality reference value in DDH8125 (Column 3) and DDH8047 (Column 4).
- The majority of dissolved metals were consistently below the respective limit of reporting (cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc).

Column Leach Testing

Four free draining columns were set up by ALS Brisbane. The leachates collected were analysed for pH, acidity, alkalinity, major ions, and dissolved and total trace metal(loid)s. At the time of compiling this report, the CLT program had completed 10 leach cycles (~40 weeks). The testing remains ongoing to complete the planned 12 months (13 leach cycles) schedule. Key observations include:

[1] Selected for screening purposes as the ANZG (2018) default guideline values for antimony are for an undefined protection level.

- Concentrations of all analytes have stabilised or display decreasing trends after the initial 10 leach cycles.
- Leachate pH remained between 6.69 and 8.38, within water quality reference value boundaries.
- The maximum sulfate was 242 mg/L, achieved during leach cycle 6 for Column 4.
- Multiple dissolved metal(loid)s remained below the limit of reporting for the duration of testing, including cadmium, chromium, iron, mercury, lead, and vanadium.
- Solutes that remained below the water quality reference values for the duration of testing include fluoride, nickel, and antimony.
- Solutes which exceeded the water quality reference values over one or more leach cycles include aluminium, arsenic, boron, copper, and zinc.

Summary

Table E2 summarises the parameters that exceeded the water quality reference values during either the static leach testing or across the 10 completed CLT cycles.

Initial flushing of waste rock (as identified in Column 3 and Column 4) may be elevated in aluminium; however, evaluation of aluminium concentrations within surface water monitoring data and mine seepage data at the Macraes Operation by Viridis (2026) identified relatively low dissolved aluminium and concluded a trigger value for aluminium is not warranted. The elevated aluminium is likely to be related to colloidal aluminium that is measured as dissolved during the sample analysis process.

Table E2: Water quality reference value exceedances.

COLUMN ID	COLUMN 1 (IM8-5300-004)	COLUMN 2 (DDH8113)	COLUMN 3 (DDH8125)	COLUMN 4 (DDH8047)
SAMPLE SOURCE	INNES MILLS	CORONATION NORTH	CORONATION	SPIM
Waste Rock Zone	Hanging wall waste rock	Foot wall waste rock	Hanging wall waste rock	Intra-burden waste rock
Potential constituents of concern				
2 to 10 leach cycles	As, B, Cu, Zn	Zn	As, Zn	As, B, Zn
1 leach cycle	-	-	Al	-
Static leach procedure	-	-	Al	Al, As

As (arsenic), B (boron), Cu (copper), Zn (zinc) and Al (aluminium).

These studies, supported by extensive ABA test work, confirm that acid rock drainage is not expected at this site; however, neutral metalliferous drainage may occur, which is consistent with current site observations presented in Viridis (2026) (e.g. circumneutral drainage with elevated sulfate and certain potential contaminants of concern such as arsenic, iron, sulfate, and nitrogenous compounds).

Recommendations

Based on the geochemical assessment provided in this report, it is recommended that seepage from key mine domains (including waste rock stack seepage, tailing storage facility seepage, and pit sump water) are monitored for arsenic, boron, copper, and zinc. These parameters, alongside other potential constituents of concern (e.g., iron, zinc, sulfate, and nitrogenous compounds) identified in previous geochemical studies (MWM, 2024), are already accounted for within the recommended surface water quality compliance framework developed for the Project by Viridis (2026).

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1 INTRODUCTION

OceanaGold (New Zealand) Limited (OGNZL) currently undertakes open pit and underground gold mining operations at the Macraes Operation located at Golden Point Road, Macraes Flat, East Otago. As part of their ongoing operations, OGNZL continually review the remaining life of the Macraes Operation in light of updated knowledge of the gold resource and the economics of mining.

Reflecting recent exploration success and optimisation work, together with higher gold prices, the Macraes Phase Four Project (MP4 or the Project) seeks to extend the life of mining at the Macraes Operation until at least 2039. The Project, which will enable ongoing gold production at a rate of approximately 130,000 ounces per annum, is identified as a Listed Project in Schedule 2 of the Fast-track Approvals Act 2024 (FTAA) as a project providing significant national or regional benefits.

To support the development of the substantive application for the Project, OGNZL has engaged Mine Waste Management (MWM) to provide an assessment of the Project's effects on surface water and groundwater quality and, to the extent required, identify any necessary management and operation measures to address any such effects.

1.1 Report Purpose

This scope of this report is to assess the leaching characteristics and solute mobility of waste rock materials generated by the Project, utilising the following recognised techniques (e.g., DFAT, 2016) for geochemical characterisation:

- Static leach testing to quantify the immediate, readily soluble element load from waste materials.
- Kinetic column leach testing (CLT) to determine long-term sulfide reactivity, metal(loid) solubility, and the leaching behaviour of these materials under controlled laboratory weathering conditions.

These data support the geochemical characterisation program (MWM, 2026a) in the identification of potential constituents of concern (PCOC) to understand potential effects and guide operational management requirements.

1.2 Site Location and Description

OGNZL owns and operates the Macraes Operation at Macraes Flat, approximately 30 km northwest of Palmerston in the Otago Region. The Macraes Operation is the largest gold (Au) mine in New Zealand and, since commissioning in 1990, has produced more than 6 million ounces of Au. The current components of the Macraes Operation include:

- Numerous open pits (both operational and non-operational);
- Two underground mines (Frasers (now closed) and Golden Point, which is actively mined);
- Waste rock stacks at various stages of operation and rehabilitation;
- A network of haul roads and general mine service tracks;
- A Processing Plant;

- Five tailings storage facilities (TSFs) (three inactive, one active but nearing capacity, and one under staged construction and currently receiving tailings);
- An extensive network of water management infrastructure, including diversion drains, silt ponds, sumps, pit lakes, and freshwater storage reservoirs;
- Two consented but not yet constructed water storage reservoirs (Camp Creek Dam and Coal Creek Dam); and
- Associated infrastructure supporting ongoing operations, including district roads, powerlines, workshops, offices, and associated water and amenity facilities.

2 PROJECT BACKGROUND

This section outlines the geological setting, mineralogical characteristics, and historical geochemistry data relevant to the MP4 area.

2.1 Geology and Geochemistry

The Macraes Operation is a world-class orogenic gold deposit that has been in operation since 1990. It is hosted within a late metamorphic auriferous shear zone within greenschist facies Otago Schist of Textural Zone 3 (TZ3) (Turnbull et al., 2001). Two prominent structural features — the Hyde-Macraes Shear Zone (HMSZ) and the Macraes Fault — are associated with several deformation events and major discontinuities (GHD, 2021; OGNZL, 2011). The Macraes Fault offsets the HMSZ by approximately 250 m in a reverse sense (OGNZL, 2011). This deformation is accompanied by a number of smaller faults, both parallel and discordant to foliation (OGNZL, 2011).

Mineralisation originally occurred within the brittle-ductile transition zone at approximately 300°C, creating a 120 m thick hydrothermally altered zone enriched in sulfides, primarily pyrite (FeS_2), and arsenopyrite (FeAsS) (Weightman et al., 2022). The ore comprises a combination of mineralised sheared graphitic schist and associated mineralised quartz veins. Gold is associated with pyrite and arsenopyrite within the HMSZ, which forms the main Au bearing structure. Minor fine-grained chalcopyrite ($CuFeS_2$), sphalerite (ZnS), and galena (PbS) are also present (Golder, 2011), alongside boulangerite ($Pb_5Sb_4S_{11}$) (Weightman et al., 2022).

Craw (2002) reports that these mineralised rocks are variably enriched in arsenic (As), Au, antimony (Sb), tungsten (W), molybdenum (Mo), and bismuth (Bi), but not cobalt (Co) or cadmium (Cd). The PCOC (As, copper [Cu], iron [Fe], lead [Pb], sulfate [SO_4] and zinc [Zn]) associated with identified sulfide minerals are recognised under current resource consent conditions. Compliance monitoring is undertaken for these parameters to ensure that operational management processes are effective and risks to the receiving environment are minimised.

A key indicator for environmental geochemistry risks is the total sulfur (S) content of the rock. A stylised cross section of the Coronation orebody, which shows the overburden, interburden, and the hanging wall contact, is presented in Figure 1. Previous investigations by O'Kane Consultants (2016) suggested that interburden waste rock poses a slightly higher acid and metalliferous drainage (AMD) risk compared to overburden waste rock due to a marginally higher total S content.

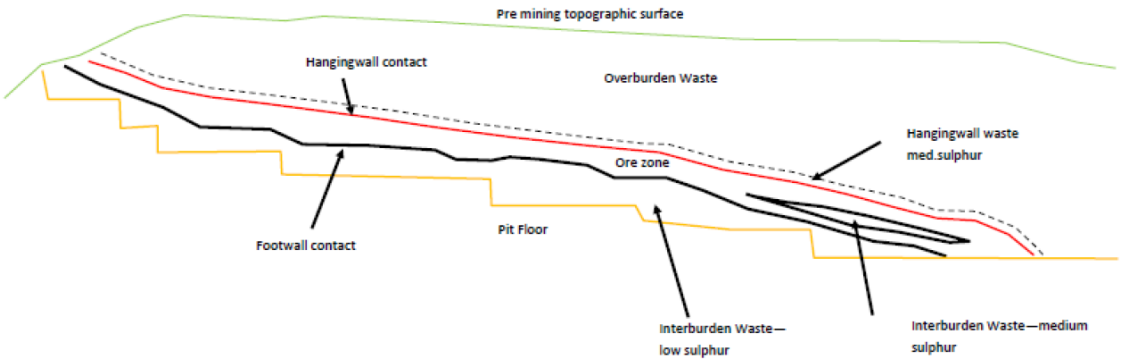

Figure 1: Coronation orebody stylised geological cross section.

Source: O'Kane Consultants (2016).

2.2 Geoenvironmental Hazards

Extensive geochemical analysis has previously been undertaken on materials from the Macraes Operation. The geoenvironmental hazards associated with waste rock, specifically regarding seepage from waste rock stacks (WRS) and pit lake backfill, are well understood (particularly for metals, SO_4, and nitrate (NO_3)).

OGNZL has maintained an acid base accounting (ABA) dataset for waste rock from the Macraes Operation since 2007. Previous investigations indicate that the waste rock is predominantly non-acid forming (NAF) with a low potential to generate acidity. This is validated by recent records from the OGNZL ABA database for WRS (Table 1), which show low average maximum potential acidity (MPA) values and high average acid neutralising capacity (ANC), resulting in a negative net acid production potential (NAPP)[2]. Classification by the AMIRA (2002) and Price (2009) classification systems confirm the materials are almost entirely NAF (MWM, 2026a). This is further supported by the ongoing monitoring of on-site drainage waters, which show circum-neutral conditions generally within the range of pH 6.5 to 9.0 (Viridis, 2026).

Table 1: Summary of ABA data (average values) for WRS domains.

PIT DOMAIN	SAMPLES (n)	TOTAL S (wt%)	MPA (kg H_2SO_4/t)	ANC (kg H_2SO_4/t)	NAPP (kg H_2SO_4/t)
Frasers West	201	0.14	4.42	63.97	-59.62
Trimbells	8	0.12	3.73	33.39	-29.67
Coronation North	48	0.10	3.11	31.87	-28.76
Coronation	39	0.16	4.90	40.59	-35.68
Innes Mills	36	0.15	4.52	61.65	-57.13
Golden Point	36	0.17	5.25	56.53	-51.28
ALL WASTE ROCK DATA - MACRAES OPERATION					
Average	854	0.16	5.05	58.05	-53.01
Minimum	854	0.005	0.15	6.36	-244.04
Maximum	854	1.45	44.46	246.76	38.11

Source: MWM (2026a).

Geochemical test work (static leach testing and portable XRF[3] screening) and the assessment of empirical site data indicate that the key PCOC are As, SO_4, and nitrogenous compounds derived from ammonium-nitrate-based blasting residues (MWM, 2024). Occasional elevated Fe, Zn, and Cu concentrations are also identified within the dataset. While these combined studies confirm that acid rock drainage (ARD) is not expected at this site, neutral metalliferous drainage (NMD) may occur. This is consistent with current site observations presented in Viridis (2026), which show circumneutral drainage with elevated SO_4 and specific metal(loid) concentrations under the existing compliance framework. Proposed water quality trigger values (Viridis, 2026) have been developed to target and monitor these specific NMD-associated parameters for the Project.

2.3 Water Quality Reference Values

Water Quality Reference (WQ Ref) Values are used in this report as a screening tool to determine whether leachate concentrations are elevated relative to water quality guidelines or proposed

[2] NAPP = MPA - ANC
[3] Portable X-ray fluorescence (pXRF)

ecotoxicity trigger values (Weber and Olds, 2016). This screening framework identifies potential PCOC for the MP4 using a conservative approach that omits toxicity modification factors and prioritises chronic exposure limits over acute thresholds.

Proposed surface water quality trigger values for the Project were applied (Viridis, 2026). Where no site specific limit was provided by the proposed trigger values, the 95% ANZG (2018) default guideline values (DGVs) were applied where available (aluminium [Al], Cd, chromium [Cr VI], fluoride [F], mercury [Hg], vanadium [V]), alongside the British Columbia Ministry of Water, Land and Resource Stewardship (2023) water quality guideline (WQG) for Sb[4], to establish a WQ Ref Value for assessment purposes. The compiled WQ Ref Values used in this report are provided in Table 2.

Direct comparison against the WQ Ref Values provides context for the assessment of data and what parameters are considered potentially elevated under CLT lab testing processes.

Table 2: Water quality reference limits used for geochemical assessments.

PARAMETER	PROPOSED TRIGGER VALUE	UNIT	COMMENTS	SOURCE
pH	6.5 – 9.0	pH units	Chronic limit	Viridis (2026)
SO_4	500	mg/L	Chronic limit, when hardness <100 mg/L	Viridis (2026)
Al	0.055	mg/L	95% protection level, pH > 6.5	ANZG (2018)
As	0.013	mg/L	Chronic limit	Viridis (2026)
B	0.94	mg/L	Chronic limit	Viridis (2026)
Cd	0.0002	mg/L	95% protection level, toxicity modifier available	ANZG (2018)
Cr (VI)	0.001	mg/L	95% protection level	ANZG (2018)
Cu	0.004	mg/L	Chronic limit, toxicity modifier available	Viridis (2026)
Fe	0.28	mg/L	Chronic limit	Viridis (2026)
F	1.7	mg/L	95% protection level	ANZG (2018)
Hg	0.0006	mg/L	95% protection level	ANZG (2018)
Ni	0.008	mg/L	Chronic limit, toxicity modifier available	Viridis (2026)
Pb	0.045	mg/L	Chronic limit, toxicity modifier available	Viridis (2026)
Sb	0.074	mg/L	Chronic limit	BC WQG (2023)*
Zn	0.016	mg/L	Chronic limit, toxicity modifier available	Viridis (2026)

Metals analysed in dissolved fraction.

** British Columbia Ministry of Water, Land and Resource Stewardship (2023).*

[4] Selected for screening purposes as the ANZG (2018) DGVs for Sb are for an undefined protection level.

3 SAMPLE SELECTION AND GEOCHEMICAL CHARACTERISATION

This section outlines the rationale, preparation, and geochemical characterisation of the samples selected for testing. Further details are provided in MWM (2026b).

3.1 Sample Selection

Industry guidelines recommend selecting one to two samples per key lithology for kinetic testing (e.g., DFAT, 2016). In conjunction with OGNZL geologists, four representative waste rock samples were selected for CLT (Table 3) using geological cross-sections, drillhole logs, and assay data provided by OGNZL. The sample selection targeted the major schistose lithologies, intra-shear zones, and areas with anomalous ABA data (MWM, 2026b).

To ensure spatial and vertical distribution across the MP4 area, one sample was allocated to each of the four primary pit domains: Innes Mills, Coronation North, Coronation, and SPIM[5]. These four samples represent three distinct waste rock zones to assess vertical profiles as follows:

- Hanging wall waste rock (HW WR) – two samples were selected, as this unit represents the highest volume of waste rock generated by the proposed pit expansions.
- Intra-burden waste rock (IB WR) – one sample was selected to represent waste rock within mineralised zones.
- Footwall waste rock (FW WR) – one sample was selected to provide background geochemical data.

Three of these samples were sourced from drill core, while the remaining sample (IM8-5300-004) was collected as a composite rock chip sample from reverse circulation (RC) blast hole drilling over an 11 m drilled interval.

Figure 2 illustrates the spatial locations of the CLT samples, and cross-sections are provided in Appendix B.

[5] *Southern Pit / Innes Mills*

Table 3: MP4 CLT samples.

COLUMN ID	PIT AREA	SOURCE	MATERIAL	DISTANCE ABOVE HW* (m)	DRILL HOLE DETAILS		
					HOLE ID	FROM (m)	TO (m)
Column 1	Innes Mills 8	Blast hole RC rock chips - 11m composite	HW WR	170	IM8-5300-004	0	11
Column 2	Coronation North	Diamond core	FW WR	Footwall	DDH8113	233.2	234.9
Column 3	Coronation Stage 7	Diamond core PQ	HW WR	105	DDH8125	49	50
Column 4	SPIM	Diamond core 1/2 PQ	IB WR	-105	DDH8047	37.5	39

**Approximate distance above hanging wall as provided by OGNZL; negative values indicate depth below the handing wall.*

Diameter of PQ drill core is 85.0 mm.

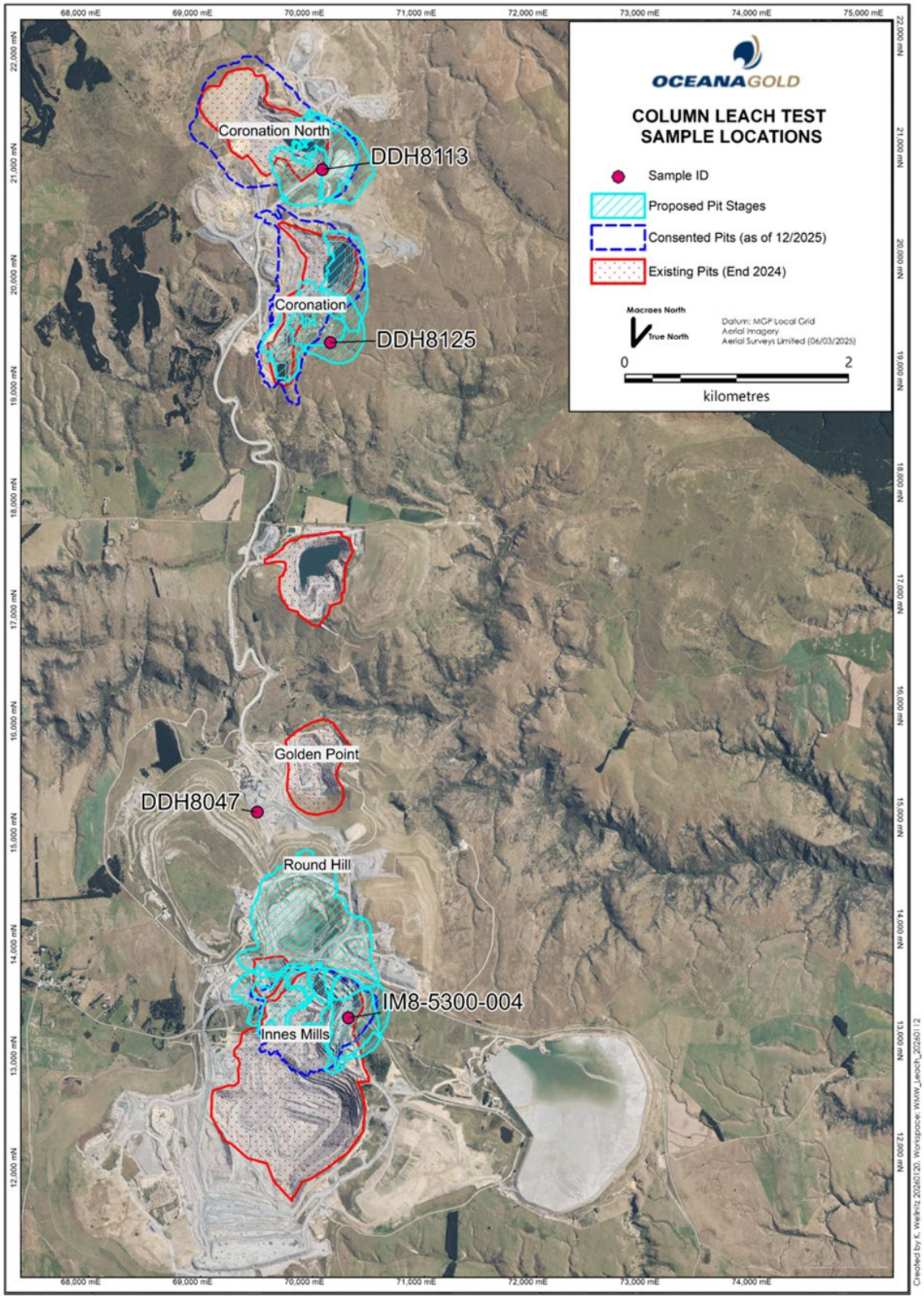

Figure 2: Spatial location of CLT samples.

Source: OGNZL[6].

[6] *OGNZL email dated 23 January 2026.*

3.2 Analysis Program

The selected waste rock samples were submitted to ALS Brisbane for analysis according to the following testing schedule:

- Standard ABA: Total S, total carbon (C), ANC, paste pH/electrical conductivity (EC), and net acid generation (NAG) testing (including NAG pH and NAG acidity).
- Static leaching procedure – direct water extraction (1:10 ratio with deionised water over an 18-hour leach period, filtered to 0.45 µm) to determine pH and EC, major anions and cations, and trace metal(loid)s.
- CLT – conducted in accordance with AMIRA (2002) to quantify long-term neutralisation rates, metal(loid) solubility, and the leaching behaviour of the test materials under controlled laboratory conditions. The CLT program is scheduled for a 12-month duration comprising 13 leach cycles at 4-weekly intervals. This report presents data from the initial 10 cycles, covering leachate pH, EC, major ions, and trace metal(loid)s.

3.3 Acid Base Accounting Results

ABA testing was undertaken on the CLT samples to provide supporting geochemical data. The results are summarised in Table 4, with laboratory certificates provided in Appendix D.

All four column samples are classified as NAF based on the following geochemical classification criteria:

- AMIRA (2002): All samples exhibited a NAG pH > 4.5 and a negative NAPP value (Figure 3).
- Price (2009): The samples have an NPR > 2.
- Resource Consent Condition RM10.351.10.V1 (Compliance Criteria iv) requires all waste rock to have an NPR > 3 (Figure 4).

The materials selected for CLT covered a total S range from 0.07 wt% to 0.35 wt% (Table 4). For comparison, the average total S within the broader site-wide waste rock database (compiled in Table 1) ranges from 0.10 wt% at Coronation North to 0.17 wt% at Golden Point. This indicates that the selected CLT samples align well with the representative average range of waste rock at the Macraes Operation, ensuring a robust assessment of long-term leaching risks for waste rock.

Table 4: ABA data summary for CLT samples.

COLUMN ID	pH (1:2)	TOTAL S	MPA	ANC	NAPP	NAG pH	AMIRA (2002)	NPR (Price, 2009)
UNITS	pH units	wt%	kg H_2SO_4/t	kg H_2SO_4/t	kg H_2SO_4/t	pH units		
Column 1 (Innes Mills HW)	9.0	0.14	4.28	50.6	-46.31	8.9	NAF	11.8
Column 2 (Coronation Nth FW)	8.8	0.07	2.14	51.4	-49.26	8.8	NAF	24.0
Column 3 (Coronation HW)	8.6	0.35	10.71	66.3	-55.59	8.8	NAF	6.2

COLUMN ID	pH (1:2)	TOTAL S	MPA	ANC	NAPP	NAG pH	AMIRA (2002)	NPR (Price, 2009)
UNITS	pH units	wt%	kg H_2SO_4/t	kg H_2SO_4/t	kg H_2SO_4/t	pH units		
Column 4 (SPIM IB)	9.0	0.13	3.98	41.0	-37.02	8.8	NAF	10.3

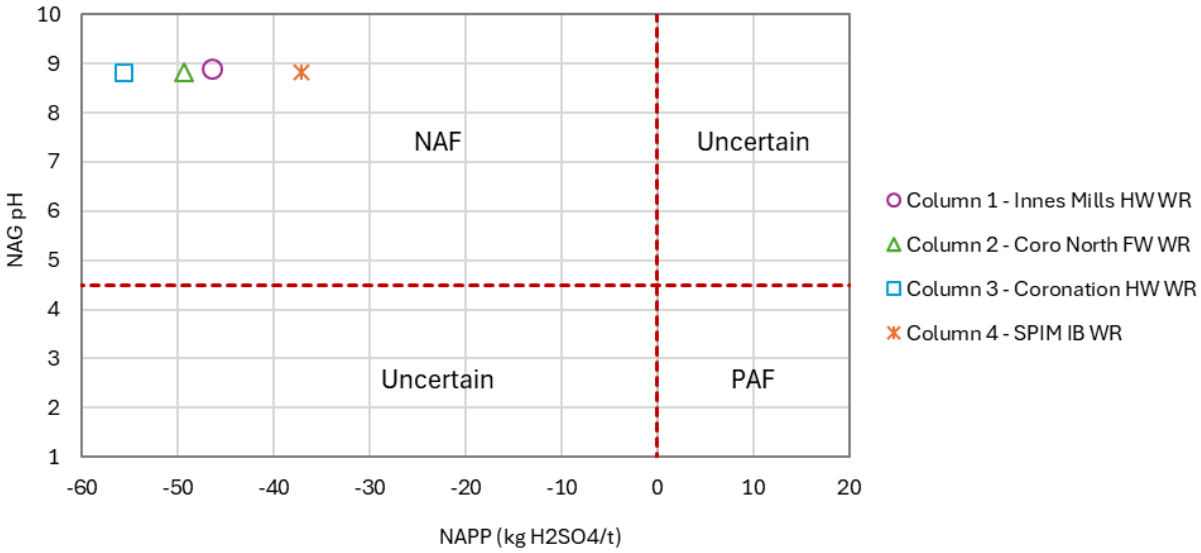

Figure 3: AMIRA (2002) classification based on NAPP and NAG pH data.

PAF = potentially acid forming

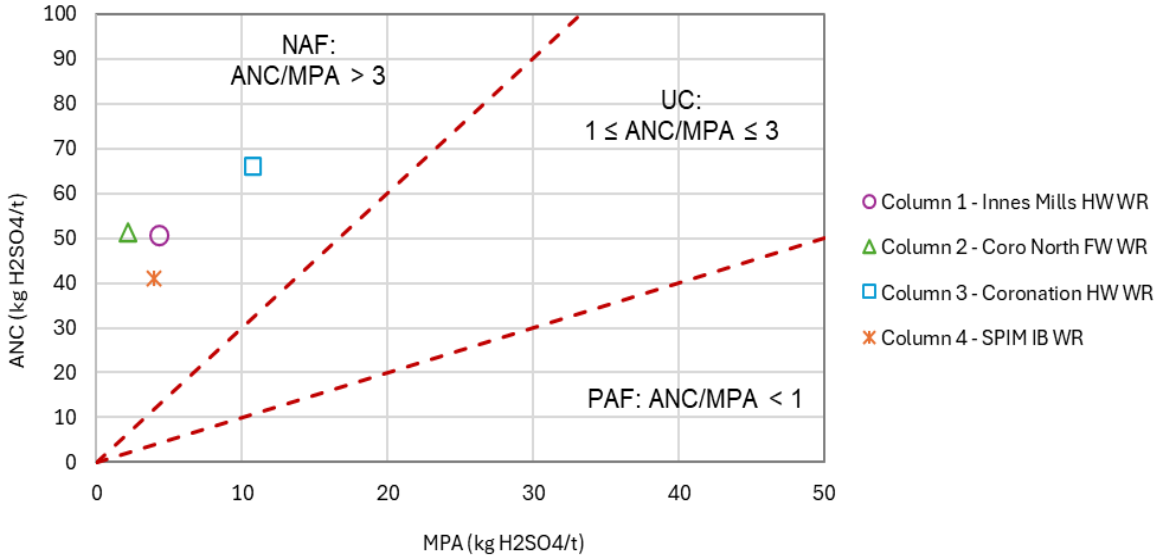

Figure 4: Price (2009) classification based on NPR.

Classification line (3:1) based on resource consent RM10.351.10.V1 – Compliance Criteria iv. Samples with 1 < NPR < 3 classified as uncertain and further work is required to validate whether acid drainage is an issue.

4 STATIC LEACH TESTING PROCEDURE

This section outlines the static leach test methodology and results. Full laboratory certificates are provided in Appendix D. The static leachate data (mg/L) are used to calculate mass-based constituent release rates (e.g., mg/kg) to evaluate the initial solute mobility of the waste rock.

4.1 Methodology

Static leach testing was conducted on the four CLT samples, following industry-standard regulatory protocols (e.g., US EPA Method 1312: SPLP[7] Test) to simulate meteoric leaching conditions. The test methodology incorporated the following procedures:

- Extraction: A split of the primary crushed material (approximately 80% passing 10 mm) was mixed with deionised water at a 1:10 solid-to-liquid ratio and agitated via end-on-end bottle rolling for approximately 18 hours to mobilise readily soluble mineral phases.
- Filtration: Following agitation, the fluid was filtered through a 0.45 µm glass fibre filter to separate the leachate from the solid phase and isolate the dissolved analytical fraction.
- Analysis: The filtered leachates were analysed to determine the concentrations of dissolved constituents.

4.2 Results

The analytical results of the static leachates are summarised in Table 5. Key observations include:

- Leachate pH ranged from 7.47 to 7.97.
- EC ranged from 93 to 110 µS/cm.
- Sulfate concentrations ranged from 20 to 28 mg/L.
- Arsenic exceeded the WQ Ref Value in the Column 4 sample.
- Aluminium exceeded the WQ Ref Value in the Column 3 and Column 4 samples.
- Concentrations of Cd, Cr, Cu, Fe, Pb, Hg, Ni, and Zn were consistently below their respective limits of reporting (LOR).

Table 5: Static leach analysis results.

COLUMN ID	UNIT	WQ REF VALUE	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
SAMPLE SOURCE			INNES MILLS	CORONATION NORTH	CORONATION	SPIM
WASTE ROCK ZONE			HW WR	FW WR	HW WR	IB WR
pH	pH units	6.5 - 9.0	7.92	7.81	7.97	7.47
EC	µS/cm	-	99	93	110	96
Acidity	mg/L as $CaCO_3$	-	4	2	2	2
OH	mg/L as $CaCO_3$	-	<1	<1	<1	<1
CO_3	mg/L as $CaCO_3$	-	<1	<1	<1	<1

[7] *Synthetic precipitate leaching procedure*

COLUMN ID	UNIT	WQ REF VALUE	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
SAMPLE SOURCE			INNES MILLS	CORONATION NORTH	CORONATION	SPIM
WASTE ROCK ZONE			HW WR	FW WR	HW WR	IB WR
HCO_3	mg/L as $CaCO_3$	-	30	36	44	32
Total Alkalinity	mg/L as $CaCO_3$	-	30	36	44	32
SO_4	mg/L	500	28	20	24	23
Ca	mg/L	-	4	7	10	6
Mg	mg/L	-	<1	2	3	1
Na	mg/L	-	12	8	3	10
K	mg/L	-	2	1	3	2
Al	mg/L	0.055	0.05	0.02	0.14	0.06
As	mg/L	0.013	0.006	0.003	0.002	0.132
B	mg/L	0.94	0.56	0.34	<0.05	0.34
Cd	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Cr	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Cu	mg/L	0.004	<0.001	<0.001	<0.001	<0.001
Fe	mg/L	0.28	<0.05	<0.05	<0.05	<0.05
Hg	mg/L	0.0006	<0.0001	<0.0001	<0.0001	<0.0001
Ni	mg/L	0.008	<0.001	<0.001	<0.001	<0.001
Pb	mg/L	0.045	<0.001	<0.001	<0.001	<0.001
Zn	mg/L	0.016	<0.005	<0.005	<0.005	<0.005

Red data indicates an exceedance of WQ Ref Values.

Blue data indicates values within 50% of the WQ Ref Value.

A hyphen '-' indicates no WQ Ref value available.

4.2.1 Water Soluble Load

Table 6 presents the static leachate data converted into a mass-based load (mg/kg) to determine the stored water-soluble load of the waste rock. These values indicate the initial mass of solute released upon wetting of the materials and can be applied to waste rock as a conservative estimate[8] of the stored soluble load in the absence of long-term field measurements (e.g. seepage data) or larger scale field trials. A solid to liquid (deionised [DI] water) ratio of 1:10 was applied in the static leachate procedure.

The water soluble load was calculated using Equation 1.

Equation 1:
$$SL_C\left(\frac{mg}{kg}\right) = C_{sample}\left(\frac{mg}{L}\right) \times \left(\frac{V_W\,(L)}{W_r(kg)}\right)$$

Where SL_C is the soluble load of solute C, C_{sample} is the concentration in the static leachate, W_r is the dry weight of waste rock and V_w is the volume of DI water. Where a solute concentration (Table 5) was below the LOR, a value of half the LOR was applied to calculate the load.

[8] *Solute data from static leach procedure yields higher concentrations than would be expected from in-situ waste rock due to the grain size of the waste rock sample used in static leach procedure (crushed to 80% passing 10 mm) and agitation of sample over 18 hours.*

Table 6: Calculated water-soluble loads.

COLUMN ID	UNIT	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
SAMPLE SOURCE		INNES MILLS	CORONATION NORTH	CORONATION	SPIM
WASTE ROCK ZONE		HW WR	FW WR	HW WR	IB WR
Total Alkalinity as $CaCO_3$	mg/kg	300	360	440	320
Acidity as $CaCO_3$	mg/kg	40	20	20	20
SO_4	mg/kg	280	200	240	230
Ca	mg/kg	40	70	100	60
K	mg/kg	20	10	30	20
Mg	mg/kg	5	20	30	10
Na	mg/kg	120	80	30	100
Al	mg/kg	0.5	0.2	1.4	0.6
As	mg/kg	0.06	0.03	0.02	1.32
B	mg/kg	5.6	3.4	0.25	3.4
Cd	mg/kg	0.0005	0.0005	0.0005	0.0005
Cr	mg/kg	0.005	0.005	0.005	0.005
Cu	mg/kg	0.005	0.005	0.005	0.005
Fe	mg/kg	0.25	0.25	0.25	0.25
Hg	mg/kg	0.0005	0.0005	0.0005	0.0005
Pb	mg/kg	0.005	0.005	0.005	0.005
Ni	mg/kg	0.005	0.005	0.005	0.005
Zn	mg/kg	0.025	0.025	0.025	0.025
Total S	wt %	0.14	0.07	0.35	0.13
% of S mobilised by static leach		6.7%	9.5%	2.3%	5.9%

Green data = below the LOR and calculated using ½ LOR.

5 COLUMN LEACH TESTING

CLT was undertaken following AMIRA (2002) procedures to simulate accelerated atmospheric weathering and evaluate the long-term geochemical behaviour of the waste rock. This testing provides an understanding of sulfide oxidation rates, neutralisation rates, and temporal solute solubility under controlled laboratory conditions. Full laboratory certificates are provided in Appendix D.

5.1 Methodology

Four free-draining columns were set up by ALS Brisbane following the procedures outlined in AMIRA (2002). A total of 2,000 g of crushed waste rock was placed in each column. The columns were subjected to wetting cycles comprising weekly rinses and 4-weekly flushing with deionised water. Between wetting cycles, heat lamps were used to dry the samples and promote unsaturated mineral oxidation. Following each flushing event, the generated leachates were collected, their volumes measured, and subsamples extracted for subsequent chemical analysis (Table 7).

The collected leachates were analysed for the following parameters:

- pH, EC, acidity, and alkalinity.
- Major anions and cations: SO_4, calcium (Ca), magnesium (Mg), sodium (Na), and potassium (K).
- Dissolved metal(loid)s: Al, As, B, Cd, Co, Cr, Cu, Fe, F, Hg, Mo, Ni, Pb, Sb, strontium (Sr), uranium (U), V, W and Zn.
- Total metal(loid)s: As, Fe, Sb.

At the time of reporting, the CLT program had completed 10 leach cycles (~40 weeks). The testing is ongoing to complete the planned 12-month schedule (13 cycles).

Leachate data are plotted to investigate trends over time as compared to WQ Ref Values to identify elements that are likely to be enriched in mine impacted drainage. Direct comparison of leachate data to WQ Ref Values represents a conservative screening approach for identifying PCOC for the MP4 due to the highly concentrated nature of leachate derived through CLT.

Table 7: Sample weights and leachate volumes.

COLUMN ID	SAMPLE WEIGHT (g)	LEACHATE VOLUME PER 4-WEEKLY FLUSH (mL)											
		0	1	2	3	4	5	6	7	8	9	10	Mean
Column 1	2000	500	550	600	610	580	610	660	710	650	560	670	609
Column 2	2000	410	440	480	490	500	500	610	500	530	520	520	500
Column 3	2000	430	450	510	480	520	530	630	520	540	530	530	515
Column 4	2000	440	480	500	490	500	530	590	520	550	550	560	519

5.2 Leachate Analysis Results

This section provides the leachate analytical results for the CLT program. Note that leach cycle (Cycle) 0 refers to the initial flushing of the columns with ~500 mL of deionised water after setup; this provides data on readily available pre-existing solutes.

5.2.1 pH and Conductivity

Figure 5 illustrates the time-series plots for leachate pH and EC. Key observations include:

- Leachate pH ranged between 6.69 and 8.38, remaining within the WQ Ref Values.
- Electrical conductivity trends peaked between Cycle 4 and Cycle 6.

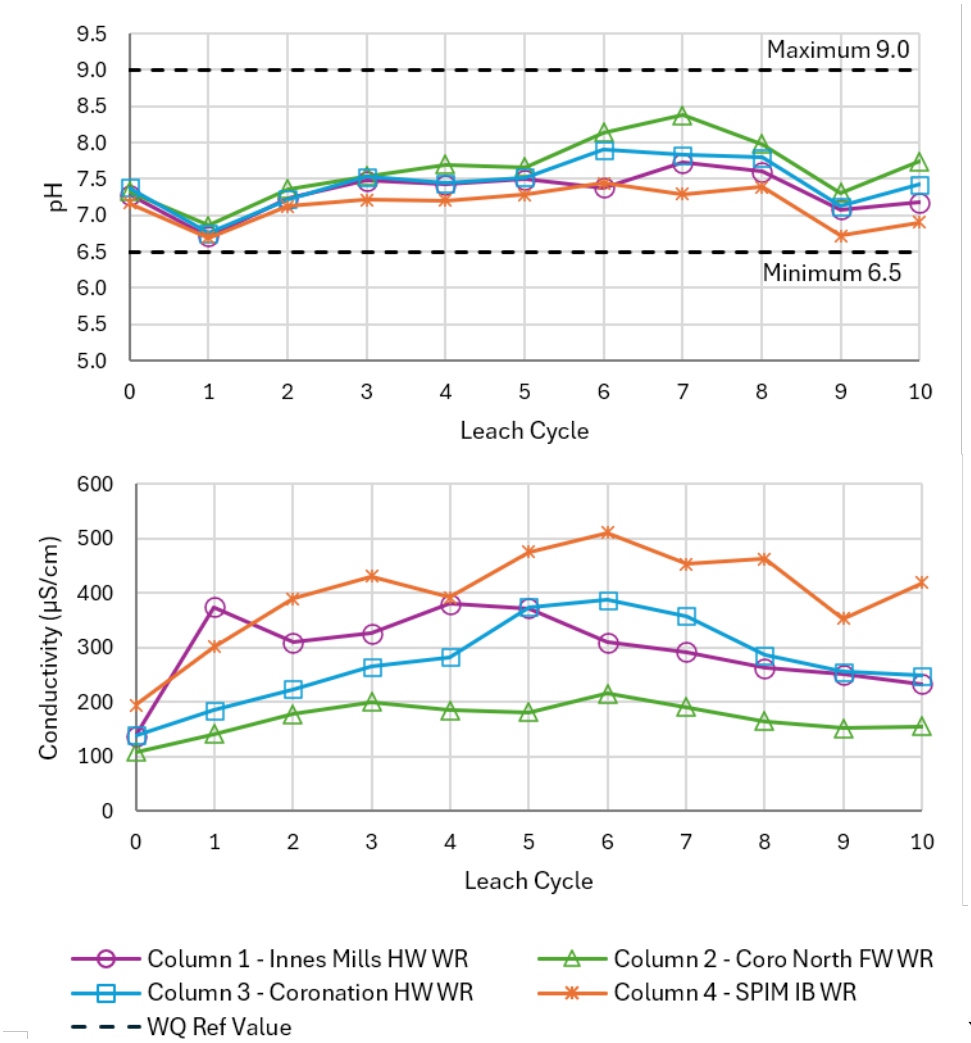

Figure 5: Leachate pH and conductivity trends (Cycles 0 to 10).

5.2.2 Acidity and Alkalinity

Figure 6 presents the time-series plots for total alkalinity and total acidity. These data indicate:

- Total acidity was negligible, ranging from below the LOR to 5 mg $CaCO_3$/L, which is consistent with the NAF classification of the materials.

- Columns 1, 2, and 3 exhibited similar trends throughout the program: an initially higher alkalinity in Cycle 0, followed by stabilisation between 20 and 60 mg $CaCO_3$/L. In contrast, total alkalinity for Column 4 was low, remaining at approximately 20 mg $CaCO_3$/L.

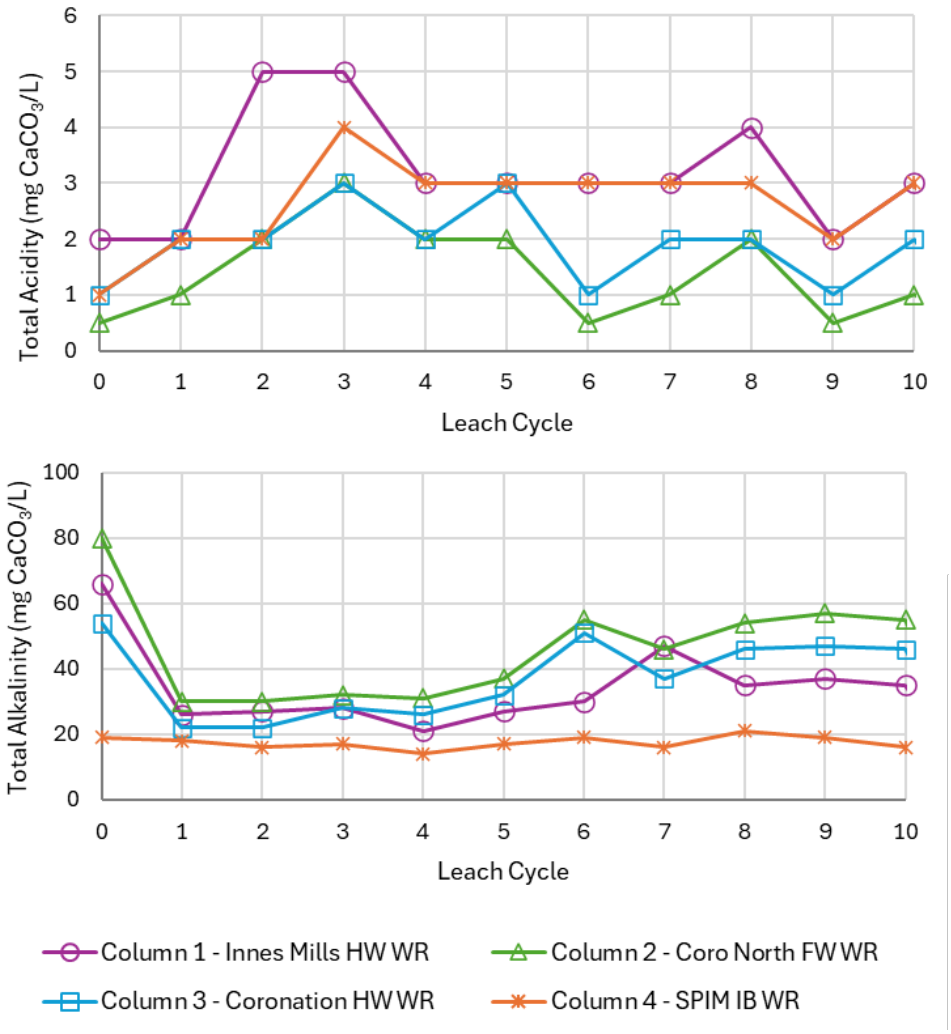

Figure 6: Total acidity and total alkalinity trends (Cycles 0 to 10).

5.2.3 Sulfate

Figure 7 provides the time-series plot for SO_4. Observations include:

- All SO_4 concentrations remained below the WQ Ref Value (500 mg/L), with a maximum concentration of 242 mg/L reported for Column 4.
- Sulfate concentrations initially increased to a peak between Cycles 3 and 6, after which all columns demonstrated a decreasing trend.
- Column 2 (Coronation North FW WR) produced consistently lower SO_4 concentrations; these results correlate with a lower total S content (0.07 wt%) relative to the other materials tested.
- Column 4 (SPIM IB WR) generated the highest SO_4 concentrations in leachate, despite having a lower total S content (0.13 wt%) than Column 3 (0.35 wt% S). This suggests a higher intrinsic sulfide oxidation rate for the Column 4 sample, which may relate to its lower observed leachate

alkalinities (i.e., available alkalinity was consumed in neutralising the higher rate of acid generation).

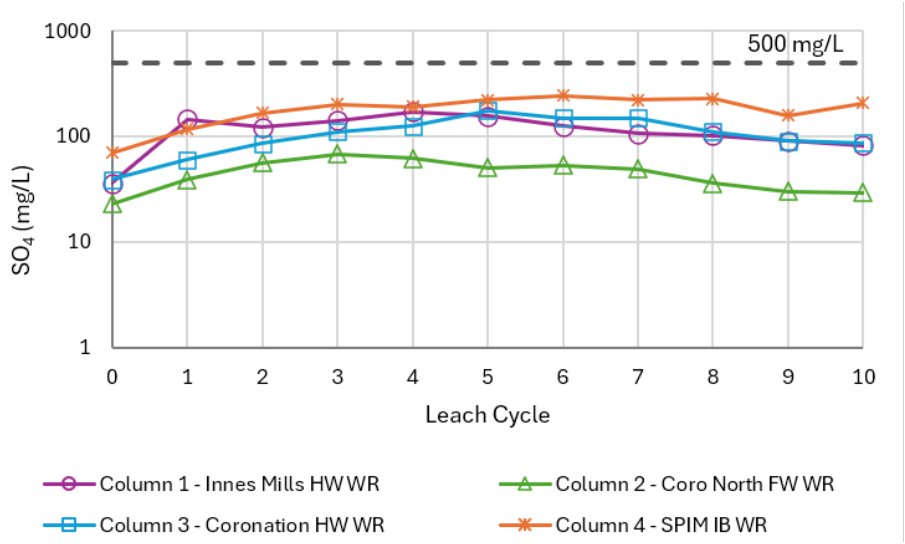

Figure 7: Sulfate concentration trends (Cycles 0 to 10).

5.2.4 Major Cations

Figure 8 provides the time-series plots for Ca, Mg, Na, and K. Key observations include:

- In general, major cation concentrations increased gradually from the first flush, peaking between Cycles 3 and 6, followed by a broad decrease or stabilisation in concentrations.
- Column 1 (Innes Mills HW WR) and Column 4 (SPIM IB WR) exhibited higher Ca concentrations, despite these materials possessing the lowest ANC values (50.6 and 41.0 kg H_2SO_4/t, respectively).

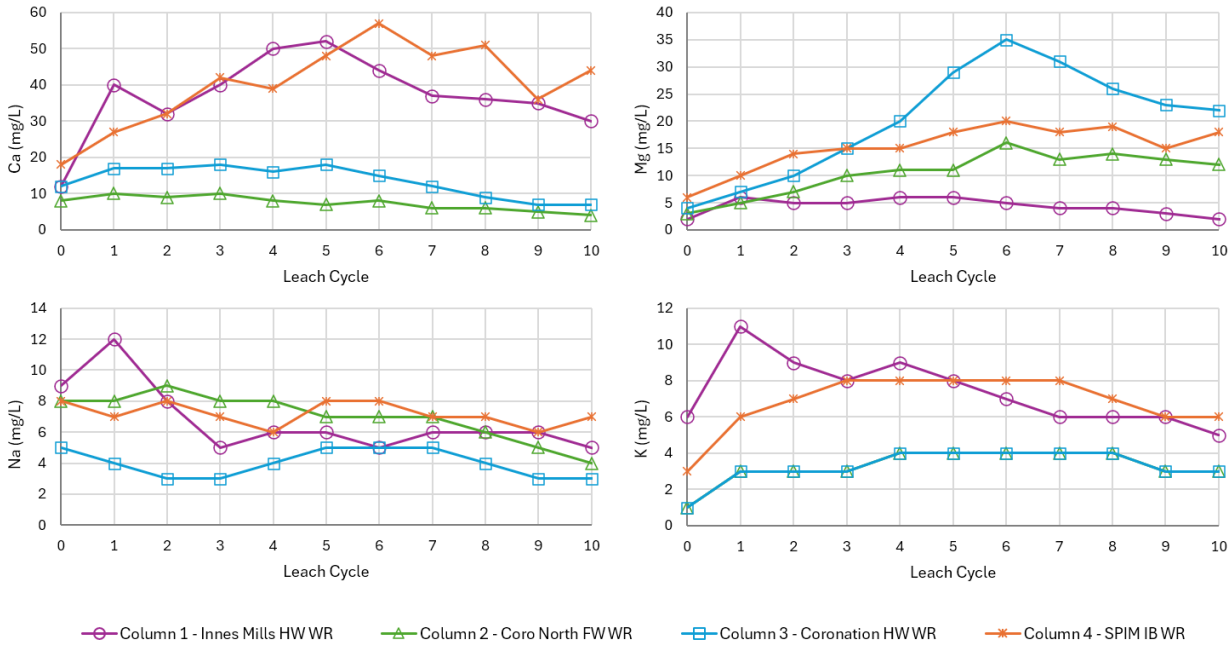

Figure 8: Major cation (Ca, Mg, Na, and K) concentration trends (Cycles 0 to 10).

As Column 2 data followed an identical trend to Column 3, the Column 2 data is visually obscured in this figure.

5.2.5 Dissolved Metal(loid)s

Dissolved metal(loid)s concentrations that exceeded WQ Ref Values over one or more leach cycles are presented as time series plots in Figure 9, and include:

- Aluminium exceeded the WQ Ref Value only during the initial flush (Cycle 0) for Column 3.
- Arsenic exceeded the WQ Ref Value for Column 1 (over nine cycles), Column 3 (over six cycles), and Column 4 (over 10 cycles).
- Boron exceeded the WQ Ref Value for Column 1 and Column 4. Concentrations gradually increased across all columns before stabilising around Cycle 6 for Column 2, Column 3 and Column 4, and Cycle 9 for Column 1.
- Copper exceeded the WQ Ref Value for Column 1 during Cycles 7 and 8; remaining data were below the LOR.
- Zinc exceeded the WQ Ref Values across all columns.

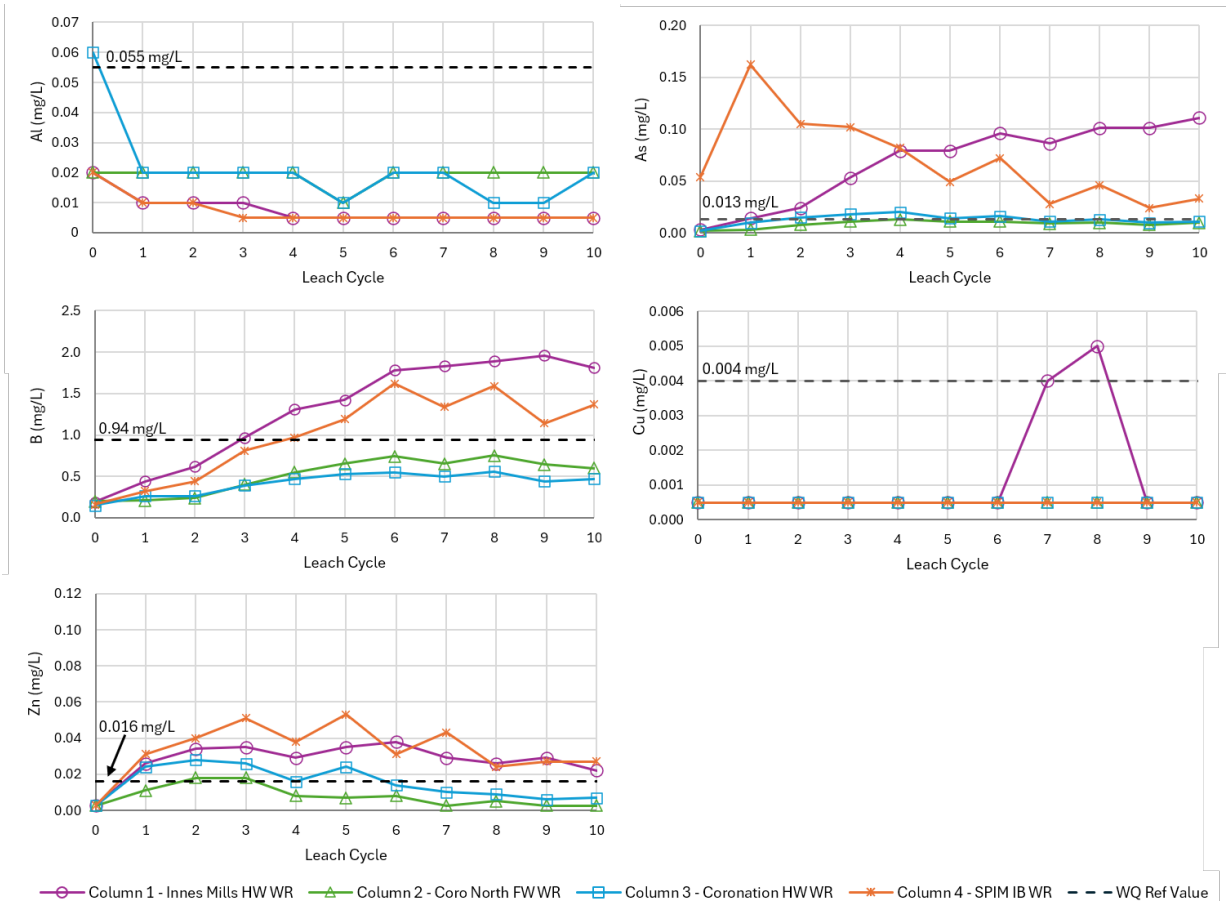

Figure 9: CLT time series plots for dissolved metals exceeding WQ Ref Values (Cycles 0 to 10).

Dissolved metal(loid)s which reported concentrations greater than the LOR for at least one cycle but remained below the WQ Ref Values (where available) are presented in Figure 10, comprising Co, F, Mo, Ni, Sb, Sr, W, and U.

In general, the time series trends for these dissolved metal(loid)s shown in Figure 10 indicate that concentrations have either stabilised or are decreasing. Notably, W demonstrated an increase in

concentration in Column 1 during Cycle 10; this trend will continue to be assessed through the remainder of the test program.

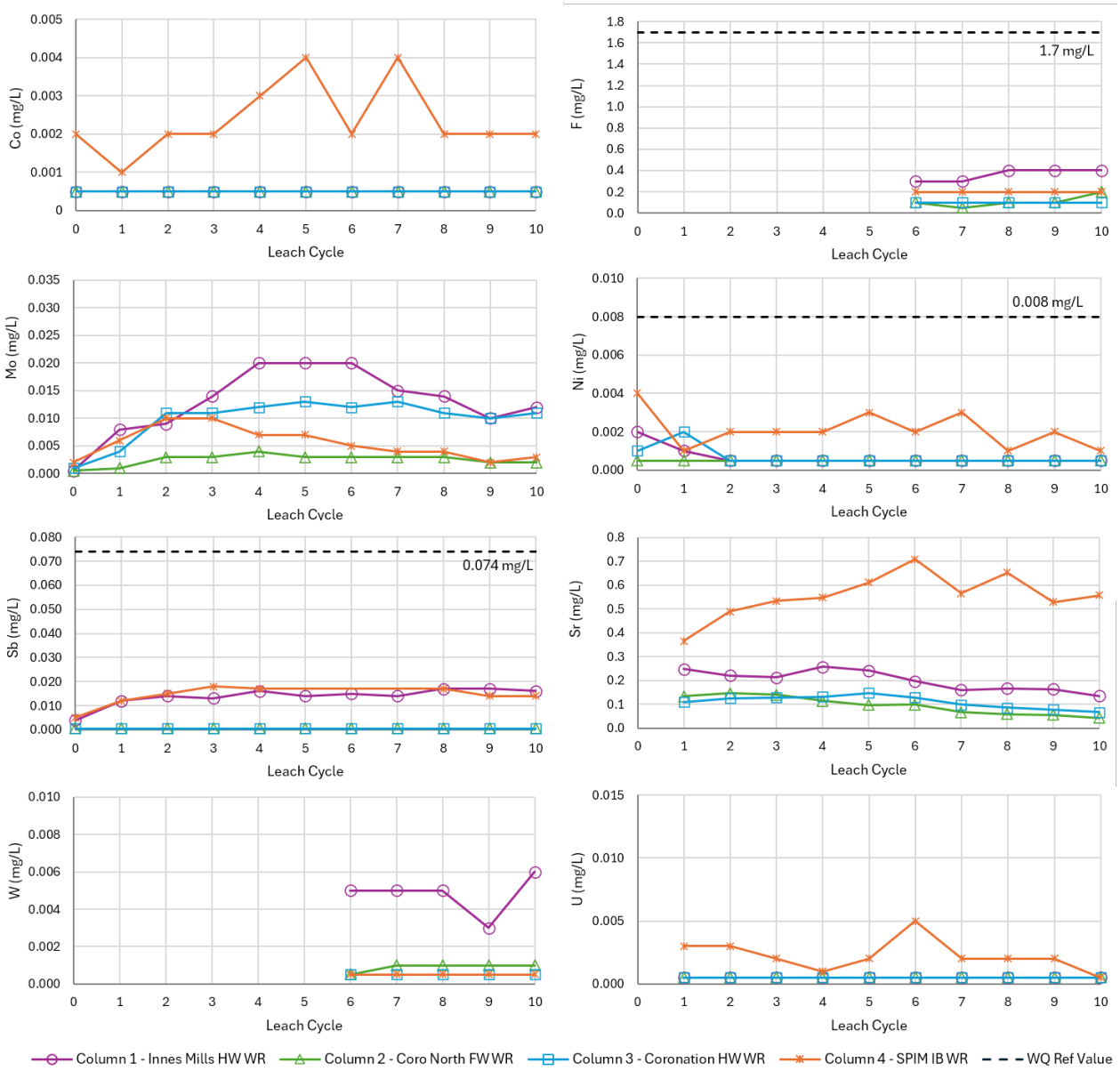

Figure 10: CLT time series plots for dissolved metal(loid)s >LOR (Cycles 0 to 10).

WQ Ref Value provided for each analyte where available.

Metal(loid) for which all leachate data fell below the LOR are omitted from graphic presentation and include Cd, Cr, Fe, Hg, Pb, and V. A summary of the specific cycles and total count of WQ Ref Value exceedances is provided in Table 8.

Table 8: Summary of exceedance of WQ Ref Values for CLT.

COLUMN ID	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
SAMPLE SOURCE	INNES MILLS	CORONATION NORTH	CORONATION	SPIM
Waste Rock Zone	HW WR	FW WR	HW WR	IB WR
Al	-	-	Leach 0 (1)	-

COLUMN ID	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
As	Leach 1 to 10 (10)	-	Leach 2 to 6, Leach 8 (6)	Leach 0 to 10 (11)
B	Leach 3 to 10 (8)	-	-	Leach 4 to 10 (7)
Cu	Leach 7 to 8 (2)	-	-	-
Zn	Leach 1 to 10 (9)	Leach 2 to 3 (2)	Leach 1 to 5 (5)	Leach 1 to 10 (9)

Data in brackets indicates total number of leach cycle exceedance of WQ Ref Values.

A hyphen '-' indicates no exceedance of WQ Ref Values.

As identified in Column 3 and the static leach testing, initial flushing of the waste rock can release elevated Al. However, under circum-neutral pH conditions, Al is predominantly present in hydroxide form as $Al(OH)_3$, which is less bioavailable. The measured concentrations are likely to be a function of colloidal Al being measured as dissolved Al. This interpretation is supported by an evaluation of historical surface water and mine seepage monitoring data at the Macraes Operation by Viridis (2026), which identified relatively low dissolved Al concentrations and concluded that a trigger value for Al is not warranted.

5.2.6 Total Metal(loid)s

Time series plots for total metal(loid) concentrations (Sb, As, and Fe) are presented in Figure 11, with analytical data available from Cycle 6 onwards. The analysis of total metals only commenced in Cycle 6 as a check on the proportion of total and dissolved fractions for these parameters. Key observations include:

- Concentrations of total As and Sb closely parallel the trends observed for their dissolved counterparts across all columns over time.
- Total Fe concentrations were higher than dissolved Fe (which remained below the LOR) for all columns.

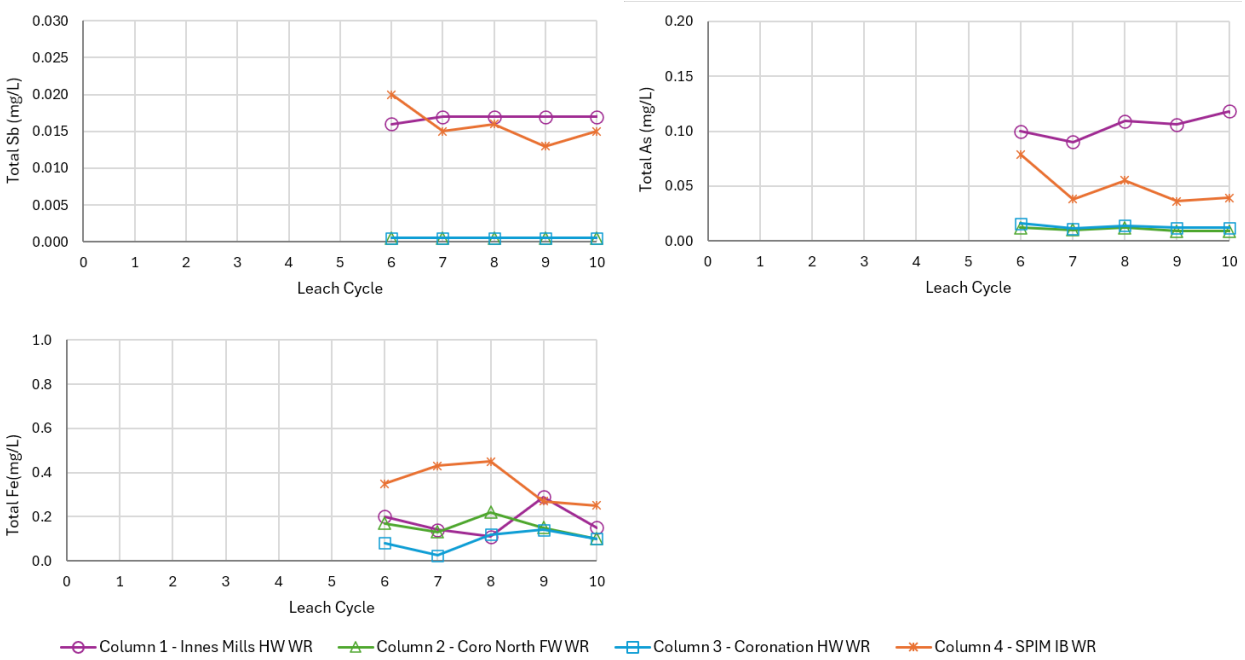

Figure 11: CLT time series plots for total metal(loid)s (As, Sb, Fe) from Cycle 6 onwards.

Figure 12 presents the relationship between total and dissolved fractions for these elements. Both Sb and As closely align along a 1:1 linear relationship, where the dissolved fraction constitutes 82% to 107% of total Sb, and 91% to 100% of total As. Iron is not included in the comparison as all dissolved Fe data were below the LOR, indicating that the total Fe results presented in Figure 11 are predominantly derived from the particulate or suspended fractions rather than dissolved species.

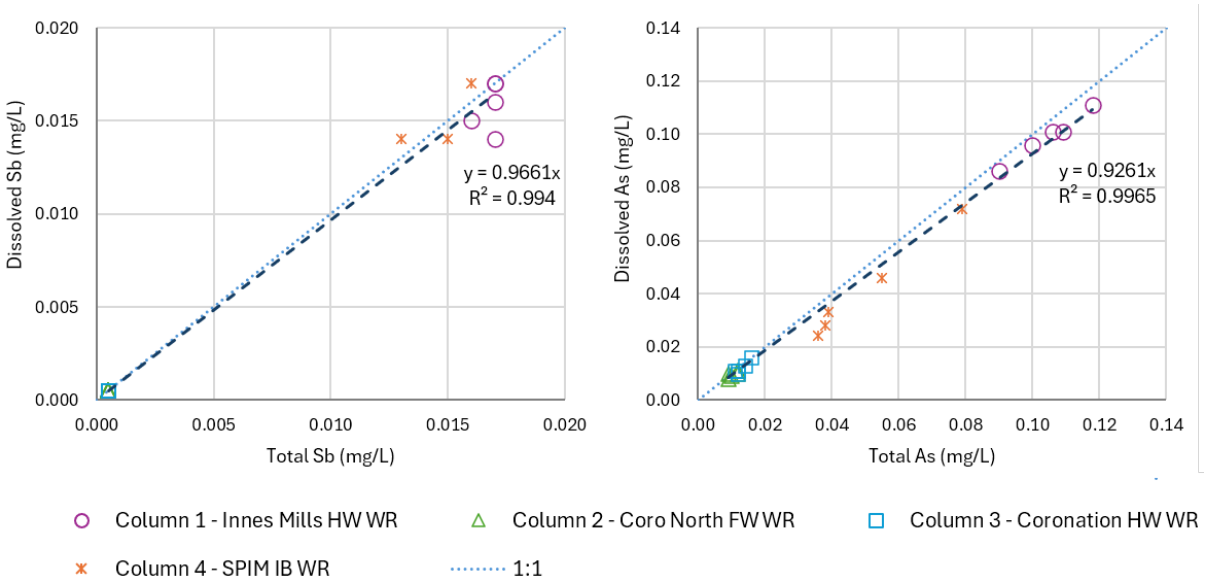

Figure 12: Correlation plots of total vs dissolved metals (Cycles 6 to 10).

5.3 Mass-Normalised Load

Column leach data (mg/L) were converted to mass-normalised loads (mg/kg/4-week) to determine the release rates of mobile constituents over time. The average mass-normalised load is a measure of total solute mass released over a given period of time, which provides a more comprehensive source term risk assessment than concentration data alone.

The mass-normalised load per cycle was calculated using Equation 2:

Equation 2:
$$ML_C\left(\frac{mg}{kg}\right) = \left(\frac{C_{cycle}(\frac{mg}{L}) \times V_l(L)}{W_r\,(kg)}\right)$$

Where ML_C is the average mass-normalised load of solute *C* released during the cycle; C_{cycle} is the concentration of the solute in the leachate sample; W_r is the total initial dry weight of the waste rock sample; and V_l is the volume of leachate collected per cycle. Where a solute concentration was below the LOR, half the LOR was applied.

The calculated average mass-normalised loads released per 4-week cycle across the first 10 cycles are presented in Table 9. These data can then be used to develop mass-normalised loads for WRS as a function of annual net percolation to derive water quality in the absence of empirical field data (e.g. WRS seepage).

Table 9: Average mass-normalised load (mg/kg) released per 4-week cycle for Cycles 0 to 10.

COLUMN ID	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
SAMPLE SOURCE	INNES MILLS	CORONATION NORTH	CORONATION	SPIM
WASTE ROCK ZONE	HW WR	FW WR	HW WR	IB WR
OH (as $CaCO_3$)	0.15	0.13	0.13	0.13
CO_3 (as $CaCO_3$)	0.15	0.13	0.13	0.13
HCO_3 (as $CaCO_3$)	10.42	11.52	9.72	4.54
Total Alkalinity (as $CaCO_3$)	10.42	11.52	9.72	4.54
Acidity (as $CaCO_3$)	1.0	0.4	0.5	0.7
SO_4	35.4	11.3	28.3	48.3
Ca	11.4	1.8	3.5	10.6
K	2.22	0.83	0.86	1.78
Mg	1.3	2.7	5.4	4.0
Na	2.0	1.7	1.0	1.9
Al	0.0023	0.0048	0.0052	0.0018
As	0.0214	0.0022	0.0033	0.0175
B	0.41	0.13	0.11	0.27
Cd	0.000015	0.000013	0.000013	0.000013
Co	0.00015	0.00013	0.00013	0.00062
Cr	0.00015	0.00013	0.00013	0.00013
Cu	0.00040	0.00013	0.00013	0.00013
F[1]	0.116	0.030	0.028	0.055
Fe	0.0076	0.0063	0.0064	0.0065
Hg	0.00002	0.00001	0.00001	0.00001
Mo	0.00404	0.00064	0.00262	0.00140

COLUMN ID	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
SAMPLE SOURCE	INNES MILLS	CORONATION NORTH	CORONATION	SPIM
WASTE ROCK ZONE	HW WR	FW WR	HW WR	IB WR
Ni	0.0002	0.0001	0.0002	0.0005
Pb	0.00015	0.00013	0.00013	0.00013
Sb	0.0043	0.0001	0.0001	0.0036
Sr	0.06139	0.02391	0.02876	0.14764
U	0.0002	0.0001	0.0001	0.0006
V	0.0015	0.0013	0.0013	0.0013
W[1]	0.0016	0.0002	0.0001	0.0001
Zn	0.0086	0.0019	0.0039	0.0087

[1] Cycles 6 to 10.

Text in green indicates all data is < LOR.

Text in blue indicate data heavily influenced by LOR where at least 50% of data is < LOR.

All data in mg/kg unless otherwise stated.

All loads calculated from dissolved solute concentrations.

Figure 13 shows the cumulative consumption and decay of SO_4 mass over the 10 leach cycles. The data indicate that between 86.4% (Column 4 – SPIM IB WR) and 97.0% (Column 3 – Coronation HW WR) of the initially available SO_4 mass remained within the columns.

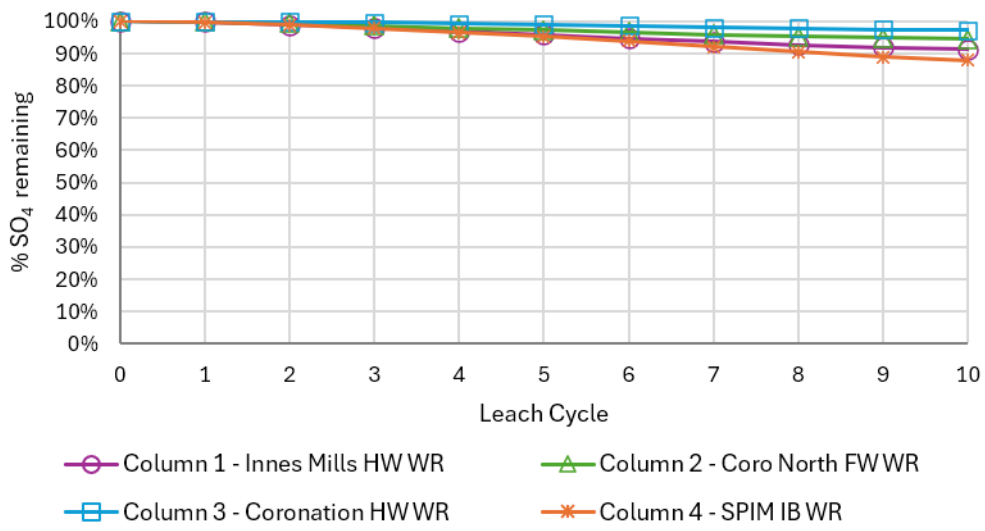

Figure 13: Cumulative SO_4 depletion and mass decay trends (Cycles 0 to 10).

5.4 Sulfate Relationship

Correlations between SO_4 and dissolved metal(loid) concentrations were assessed to determine whether SO_4 could serve as a reliable predictive proxy for metal(loid) loads. Dissolved metal(loid)s remaining consistently below the LOR (e.g., Cd, Cr, Pb, V, Fe, and Hg) were excluded from this assessment.

Relationships with an R2 value > 0.5 and at least 80% of data are greater than the LOR were considered suitable for predicting metal(loid) concentrations in the absence of, or to supplement, available empirical data (e.g. WRS seepage data). Selected results are presented in Figure 14 to Figure 16 and the following is noted:

- No relationship was observed between pH and SO_4, indicating that even though acidity is being generated (as evidenced by SO_4) it has little bearing on pH.
- An increasing trend for calcium indicates a co-dependency process of acid generation (e.g., SO_4 release) and acid neutralisation (by Ca-bearing carbonates) leading to circum-neutral pH values.
- Arsenic has a limited relationship to SO_4 and dissolved As is likely to be strongly influenced by adsorption to Fe minerals.
- There is a general increasing trend in boron with increasing SO_4. Column 1 (Innes Mills HW WR) indicates higher variation of B for similar SO_4 concentrations than other column data, e.g. for SO_4 between 100 to 150 mg/L, B varies from 0.44 to 1.83 mg/L.
- No relationship was observed between Mo and SO_4.
- There is a general increasing trend of Sr with increasing SO_4, but each sample was a very distinctive and separate trend.
- There is a general increasing trend of Zn with increasing SO_4, although each column sample population tends to be a cluster of data.
- No relationship between Cu and SO_4 was observed. However, only two datapoints were above the LOR.

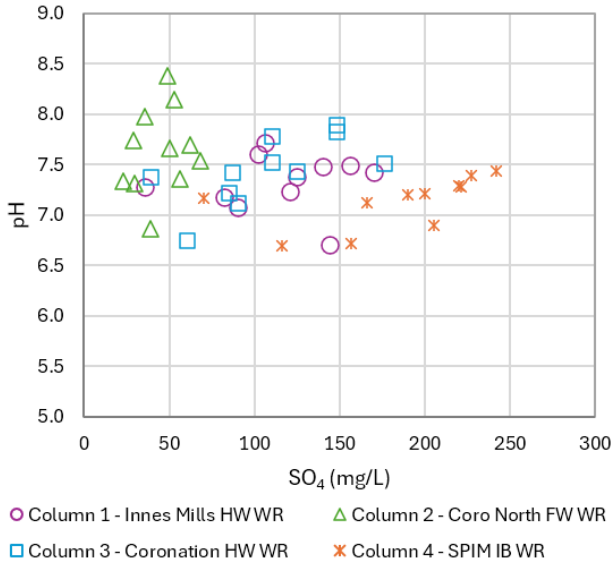

Figure 14: Relationship of SO_4 and pH.

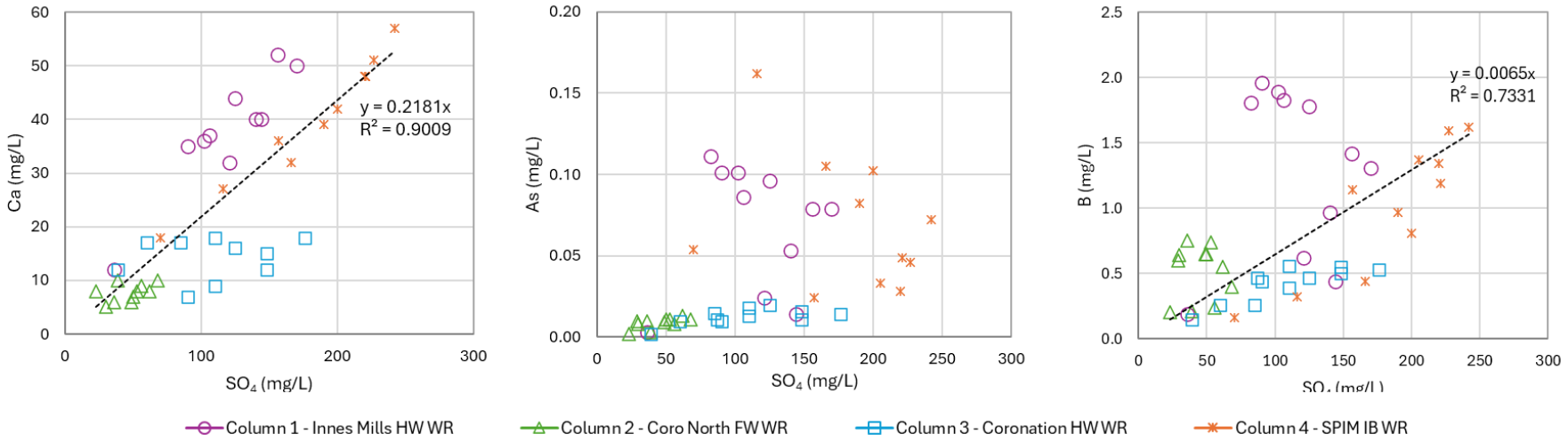

Figure 15: Relationship of SO_4 and dissolved metal(loid)s (Ca, As, B).

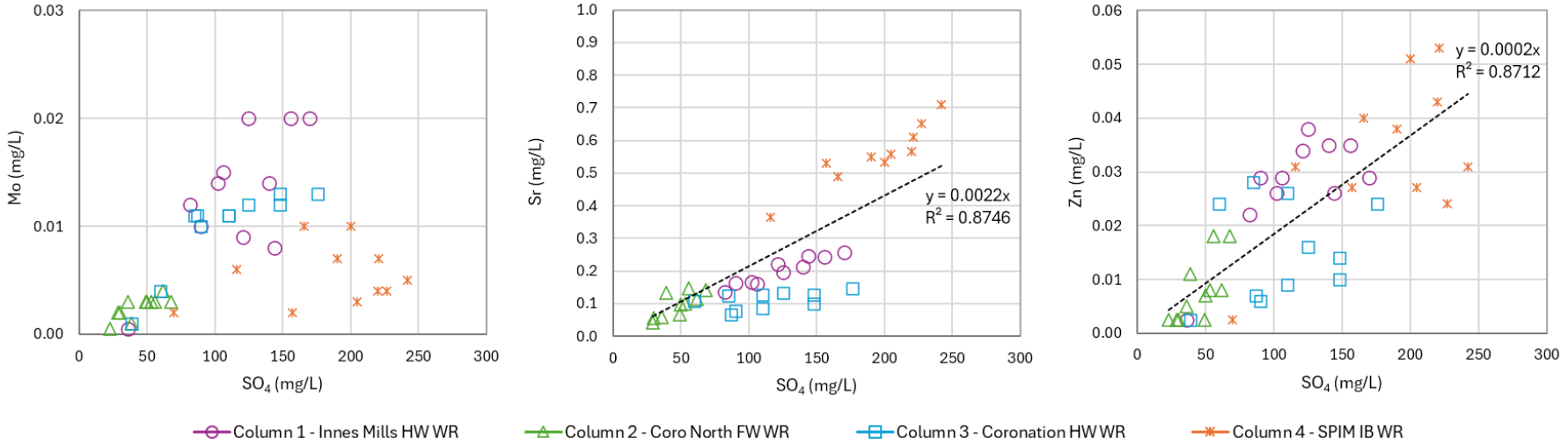

Figure 16: Relationship of SO_4 and dissolved metals (Mo, Sr, Zn).

5.5 Summary

WQ Ref Values provides context for the assessment of data and what parameters are considered potentially elevated under CLT lab testing processes. This can provide guidance on what PCOC could be elevated in the field. PCOC identified from CLT where data exceeds WQ Ref Values are provided in Table 10.

Table 10: Summary of PCOC identified from CLT.

COLUMN ID	COLUMN 1 IM8-5300-004	COLUMN 2 DDH8113	COLUMN 3 DDH8125	COLUMN 4 DDH8047
WR ZONE	HW WR	FW WR	HW WR	IB WR
SAMPLE SOURCE	Innes Mills	Coronation North	Coronation	SPIM
PCOC	As, B, Cu, Zn	Zn	Al, As, Zn	As, B, Zn

6 SUMMARY AND RECOMMENDATIONS

6.1 Introduction

The purpose of this work is to assess the environmental geochemistry hazards associated with the waste rock and determine the potential seepage and surface water quality that could be generated by these materials. To understand the behaviour of the waste rock, a laboratory testing program comprising ABA characterisation and leachate testing was conducted on representative samples.

Four waste rock samples were selected for kinetic column leach testing. The samples were collected across four pit domains (SPIM, Innes Mills, Coronation and Coronation North) to capture spatial variation. Waste rock zones were defined for sampling purposes to provide representative materials across the vertical extent of the waste rock from HW WR (2 samples), IB WR (1 sample) and FW WR (1 sample).

Leaching tests (comprising both static leach procedure and long-term CLT) were used to identify PCOC that may be mobilised from the waste rock under weathering conditions, providing a better understanding of long-term seepage trends associated with the MP4 expansion. Leachates extracted from leaching tests are highly concentrated; comparison against the WQ Ref Values serves as a screening tool for identifying PCOC.

These leachate data supplement the existing geochemical datasets available for the Macraes Operation, improving geological understanding and confidence when forecasting the long-term seepage and surface water quality generated by these materials. ABA testing was undertaken on the CLT samples to provide supporting geochemical data.

6.2 Geochemical Characterisation

The Macraes Operation, as a mature operating site, maintains an extensive geochemical database, and the geoenvironmental hazards (e.g., metals, SO_4, nitrate) associated with waste rock management (i.e., seepage from WRS and pit lake backfill) are well understood. The additional sampling presented in this report was undertaken to supplement this existing database and provide kinetic leach data in accordance with industry leading guidelines (e.g. DFAT, 2016) for the geochemical characterisation of waste rock.

The CLT samples were tested using standard ABA methodologies. Key findings include:

- All samples are classified as NAF by the AMIRA (2002) and Price (2009) classification systems.
- The material tested for the CLT program covered a total S range from 0.07 wt% to 0.35 wt%; the site-wide average total S (0.16 wt%) for the Macraes Operation falls within this range.

These analytical results align with historical ABA data demonstrating that waste rock from the Macraes Operation is predominantly NAF with a low total S content and is unlikely to generate ARD. However, NMD may occur, which is consistent with current site observations presented in Viridis (2026) (e.g. circumneutral drainage with elevated SO_4 and certain PCOC).

6.3 Static Leach Procedure Results

Key observations from the static leachate analytical results include:

- Leachate pH ranged from 7.47 to 7.97.
- EC ranged from 93 to 110 µS/cm.
- Sulfate concentrations ranged from 20 to 28 mg/L.
- Arsenic exceeded the WQ Ref Value in Column 4.
- Aluminium exceeded the WQ Ref Values in Column 3 and Column 4.
- Concentrations of Cd, Cr, Cu, Fe, Pb, Hg, Ni, Zn are consistently below their respective LOR.

6.4 Column Leach Testing

Four free draining CLTs were set up at ALS Brisbane. At the time of compiling this report, the columns had completed 10 leach cycles (40 weeks). The collected leachates were analysed for a comprehensive suite of parameters. Key observations of the analytical results include:

- Concentrations of all analytes have stabilised or show a decreasing trend over the testing period.
- Leachate pH remained between 6.69 and 8.38, within the WQ Ref Value range.
- The maximum SO_4 concentration was 242 mg/L (recorded in Column 4 during Cycle 6), below the WQ Ref Values of 500 mg/L.
- Several dissolved metal(loid)s remained below the LOR for the duration of the program, including Cd, Cr, Pb, V, Fe, and Hg; consequently, these elements are not expected to occur at elevated concentrations in actual waste rock seepage.
- Solutes which remained below the WQ Ref Values for the duration of testing include F, Ni and Sb.
- Solutes which exceeded the WQ Ref Values over one or more leach cycles include Al, As, B, Cu and Zn.

6.5 PCOC

Table 11 summarises the PCOC identified from the leaching tests (static leach and CLT) completed for this report. Given the highly concentrated nature of static leaching procedure and CLT leachate, direct comparison of leachate data against the WQ Ref Values represents a conservative screening approach for identifying PCOC.

Table 11: Summary of WQ Ref Value exceedance.

COLUMN ID	COLUMN 1 IM8-5300-004	COLUMN 2 DDH8113	COLUMN 3 DDH8125	COLUMN 4 DDH8047
SAMPLE SOURCE	INNES MILLS	CORONATION NORTH	CORONATION	SPIM
WASTE ROCK ZONE	HW WR	FW WR	HW WR	IB WR
PCOC				
2 to 10 leach cycles	As, B, Cu, Zn	Zn	As, Zn	As, B, Zn
1 leach cycle	-	-	Al	-
Static Leach Procedure	-	-	Al	Al, As

Initial flushing of the waste rock (as observed in Column 3 and Column 4) can result in elevated Al concentrations. However, under circum-neutral pH conditions, Al is present predominantly in hydroxide form as $Al(OH)_3$. Evaluation of Al concentrations within surface water and mine seepage monitoring data at the Macraes Operation by Viridis (2026) identified relatively low dissolved Al concentrations and concluded that a trigger value for Al is not warranted. This aligns with the assumptions of this report that the measured Al is a function of lab analysis processes associated with colloidal Al.

Previous geochemical studies at the Macraes Operation identified As and SO_4 as PCOC (pXRF and static leach testing) (MWM, 2024).

6.6 Recommendations

The following recommendations are provided:

- The CLT should be operated for the full 12-month cycle to confirm ongoing trends.
- CLT data tends should be validated against waste rock stack seepage data to understand site-specific geochemical processes.
- Based on the geochemical assessment results, it is recommended that seepage from key mine domains (WRS seepage, TSF seepage, and pit sump water) be monitored for As, B, Cu, and Zn. These parameters, along with the PCOC identified in previous geochemical test work (MWM, 2024) (Fe, Zn, SO_4, and nitrogenous compounds) are integrated within the proposed site-wide surface water quality compliance framework developed by Viridis (2026).

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8 LIMITATIONS

Attention is drawn to the document “Limitations”, which is included in Appendix E of this report. The statements presented in this document are intended to provide advice on what the realistic expectations of this report should be, and to present recommendations on how to minimise the risks associated with this project. The document is not intended to reduce the level of responsibility accepted by Mine Waste Management, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in doing so.

APPENDIX A ABBREVIATIONS

ABBREVIATION	DEFINITION
ABA	Acid base accounting
AMD	Acid and metalliferous drainage, which can also include low metal saline drainage
ANC	Acid neutralisation capacity
ARD	Acid rock drainage
CLT	Column leach test
Cycle	Leach cycle
DI	Deionised
DGVs	Default guideline values
EC	Electrical conductivity
FTAA	Fast-track Approvals Act 2024
FW	Foot wall
HMSZ	Hyde-Macraes Shear Zone
HW	Hanging wall
IB	Intra-burden
LOR	Limit of reporting
MP4	Macraes Phase 4
MPA	Maximum potential acidity
MWM	Mine Waste Management Limited
LOR	Limit of reporting
NAF	Non-acid forming
NAG	Net acid generation
NAPP	Net acid production potential
NMD	Neutral metalliferous drainage
NPR	Neutralisation potential ratio
OGNZL	OceanaGold (New Zealand) Limited
PAF	Potentially acid forming
PCOC	Potential constituents of concern
pXRF	Portable x-ray fluorescence
RC	Reverse circulation
TSF	Tailings storage facility
TZ3	Lower Greenschist facies Textural Zone 3 rocks of the Otago Schist
WQG	Water quality guideline
WQ Ref Values	Water quality reference values
WR	Waste Rock

WRS	Waste rock stack

APPENDIX B CROSS SECTIONS

Figure A1: IM8-5300-004 (Column 1) cross-section with CLT interval indicated.

Source: OGNZL. SZ = shear zone, FWF = Footwall Fault.

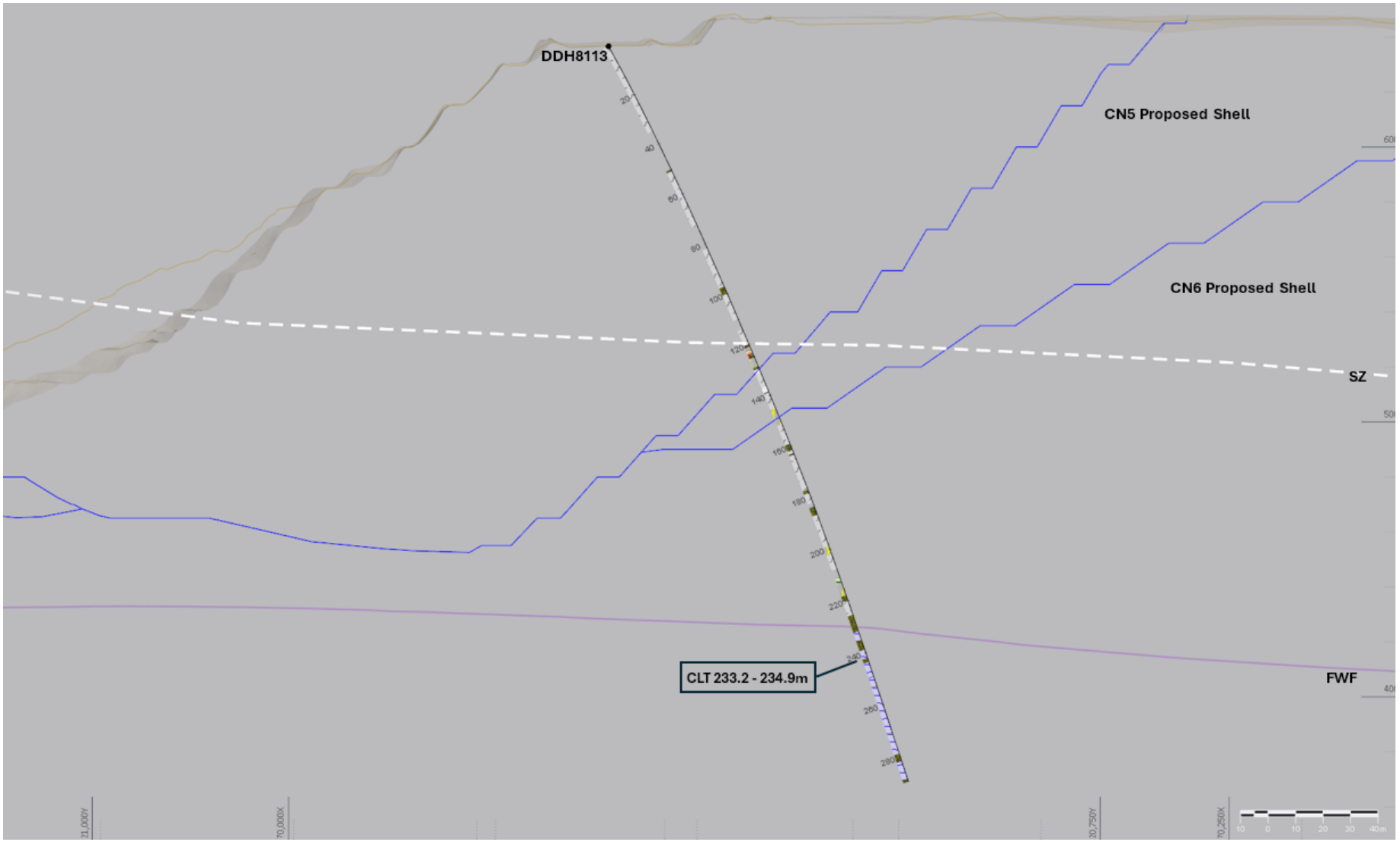

Figure A2: DDH8113 (Column 2) cross-section with CLT interval indicated.

Source: OGNZL. SZ = shear zone, FWF = Footwall Fault.

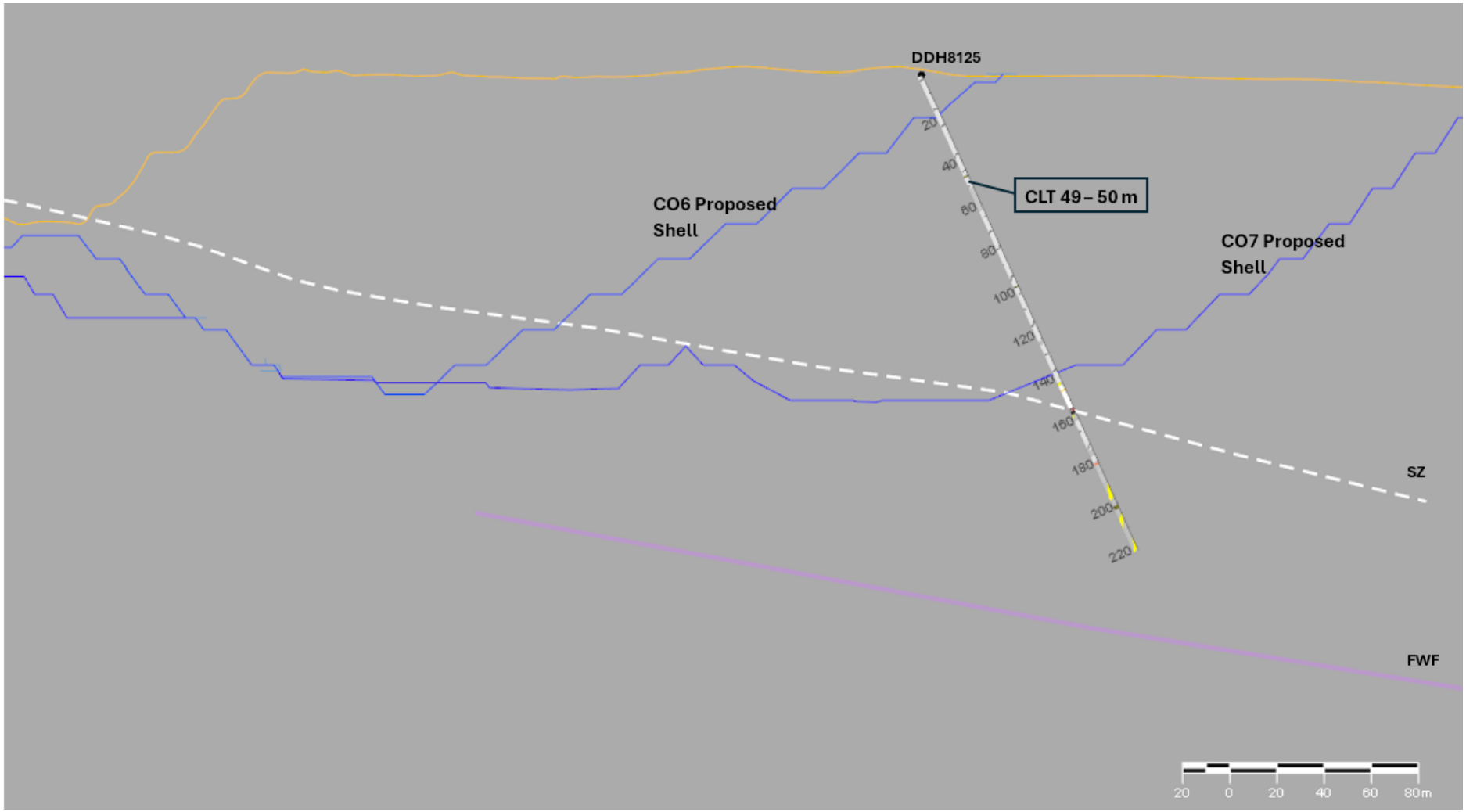

Figure A3: DDH8125 (Column 3) cross-section with CLT interval indicated.

Source: OGNZL. SZ = shear zone, FWF = Footwall Fault.

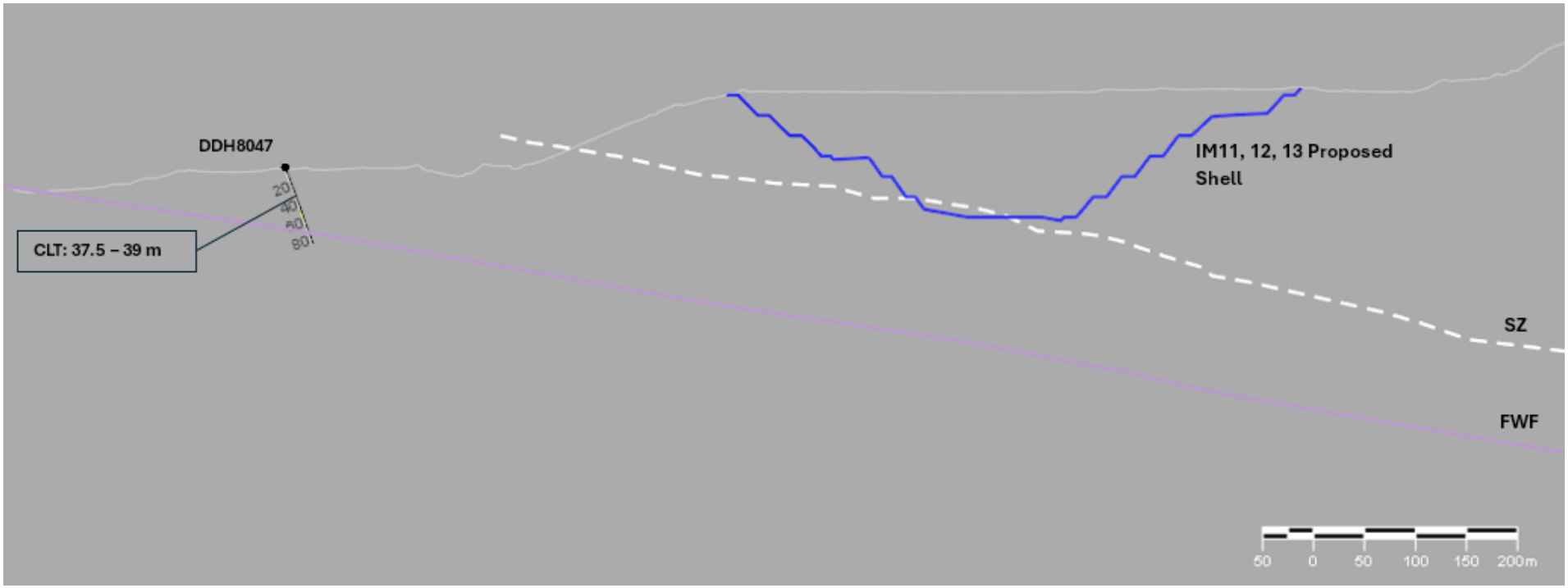

Figure A4: DDH8047 (Column 4) cross-section with CLT interval indicated.

Source: OGNZL. SZ = shear zone, FWF = Footwall Fault.

APPENDIX C COMPILED DATA

Analyte grouping		PH	EC	Alkalinity				Acidity	Major Anions	Major Cations				Dissolved Metals																				Total Metals			
Analyte		pH Value	EC @ 25°C	Hydroxide Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Bicarbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Acidity as CaCO3	Sulfate as SO4 2-	Calcium	Magnesium	Sodium	Potassium	Aluminium	Antimony	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Strontium	Uranium	Vanadium	Zinc	Boron	Iron	Tungsten	Mercury	Fluoride	Antimony	Arsenic	Iron	ALS Sample Number
Unit		pH Unit	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
LOR		0.01	1	1	1	1	1	1	1	1	1	1	1	0.01	0.001	0.001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.01	0.005	0.05	0.05	0.001	0.0001	0.1	0.001	0.001	0.05	
Column 1 - IM8-5300-004																																				
Leach	0	7.28	137.00	<1	<1	66	66	2	36	12	2	9	6	0.02	0.004	0.003	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	-	-	<0.01	<0.005	0.19	<0.05	-	<0.0001	-	-	-	-	EB2521309001
Cycle	1	6.71	374	<1	<1	26	26	2	144	40	6	12	11	0.01	0.012	0.014	<0.0001	<0.001	<0.001	<0.001	<0.001	0.008	0.001	0.247	<0.001	<0.01	0.026	0.44	<0.05	-	<0.0001	-	-	-	-	EB2525183001
	2	7.23	309	<1	<1	27	27	5	121	32	5	8	9	0.01	0.014	0.024	<0.0001	<0.001	<0.001	<0.001	<0.001	0.009	<0.001	0.22	<0.001	<0.01	0.034	0.62	<0.05	-	<0.0001	-	-	-	-	EB2528805001
	3	7.48	325	<1	<1	28	28	5	140	40	5	5	8	0.01	0.013	0.053	<0.0001	<0.001	<0.001	<0.001	<0.001	0.014	<0.001	0.212	<0.001	<0.01	0.035	0.97	<0.05	-	<0.0001	-	-	-	-	EB2531723001
	4	7.42	380	<1	<1	21	21	3	170	50	6	6	9	<0.01	0.016	0.079	<0.0001	<0.001	<0.001	<0.001	<0.001	0.02	<0.001	0.257	<0.001	<0.01	0.029	1.31	<0.05	-	<0.0001	-	-	-	-	EB2535040001
	5	7.49	372	<1	<1	27	27	3	156	52	6	6	8	<0.01	0.014	0.079	<0.0001	<0.001	<0.001	<0.001	<0.001	0.02	<0.001	0.242	<0.001	<0.01	0.035	1.42	<0.05	-	<0.0001	-	-	-	-	EB2539790001
	6	7.38	309	<1	<1	30	30	3	125	44	5	5	7	<0.01	0.015	0.096	<0.0001	<0.001	<0.001	<0.001	<0.001	0.02	<0.001	0.197	<0.001	<0.01	0.038	1.78	<0.05	0.005	<0.0001	0.3	0.016	0.1	0.2	EB2543745001
	7	7.72	292	<1	<1	47	47	3	106	37	4	6	6	<0.01	0.014	0.086	<0.0001	<0.001	<0.001	0.004	<0.001	0.015	<0.001	0.161	<0.001	<0.01	0.029	1.83	<0.05	0.005	<0.0001	0.3	0.017	0.09	0.14	EB2546019001
	8	7.6	262	<1	<1	35	35	4	102	36	4	6	6	<0.01	0.017	0.101	<0.0001	<0.001	<0.001	0.005	<0.001	0.014	<0.001	0.166	<0.001	<0.01	0.026	1.89	<0.05	0.005	<0.0001	0.4	0.017	0.109	0.11	EB2603717001
	9	7.08	250	<1	<1	37	37	2	90	35	3	6	6	<0.01	0.017	0.101	<0.0001	<0.001	<0.001	<0.001	<0.001	0.01	<0.001	0.163	<0.001	<0.01	0.029	1.96	<0.05	0.003	<0.0001	0.4	0.017	0.106	0.29	EB2606772001
	10	7.18	233	<1	<1	35	35	3	82	30	2	5	5	<0.01	0.016	0.111	<0.0001	<0.001	<0.001	<0.001	<0.001	0.012	<0.001	0.135	<0.001	<0.01	0.022	1.81	<0.05	0.006	<0.0001	0.4	0.017	0.118	0.15	EB2610471001
Column 2 - DDH8113																																				
Leach	0	7.33	108	<1	<1	80	80	<1	23	8	3	8	1	0.02	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	<0.01	<0.005	0.2	<0.05	-	<0.0001	-	-	-	-	EB2521309002
Cycle	1	6.86	141	<1	<1	30	30	1	39	10	5	8	3	0.02	<0.001	0.003	<0.0001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.134	<0.001	<0.01	0.011	0.21	<0.05	-	<0.0001	-	-	-	-	EB2525183002
	2	7.36	177	<1	<1	30	30	2	56	9	7	9	3	0.02	<0.001	0.008	<0.0001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	0.146	<0.001	<0.01	0.018	0.24	<0.05	-	<0.0001	-	-	-	-	EB2528805002
	3	7.54	200	<1	<1	32	32	3	68	10	10	8	3	0.02	<0.001	0.011	<0.0001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	0.14	<0.001	<0.01	0.018	0.4	<0.05	-	<0.0001	-	-	-	-	EB2531723002
	4	7.7	184	<1	<1	31	31	2	62	8	11	8	4	0.02	<0.001	0.013	<0.0001	<0.001	<0.001	<0.001	<0.001	0.004	<0.001	0.114	<0.001	<0.01	0.008	0.55	<0.05	-	<0.0001	-	-	-	-	EB2535040002
	5	7.66	181	<1	<1	37	37	2	50	7	11	7	4	0.01	<0.001	0.011	<0.0001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	0.096	<0.001	<0.01	0.007	0.65	<0.05	-	<0.0001	-	-	-	-	EB2539790002
	6	8.14	215	<1	<1	55	55	<1	53	8	16	7	4	0.02	<0.001	0.011	<0.0001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	0.099	<0.001	<0.01	0.008	0.74	<0.05	<0.001	<0.0001	0.1	<0.001	0.012	0.17	EB2543745002
	7	8.38	190	<1	<1	46	46	1	49	6	13	7	4	0.02	<0.001	0.009	<0.0001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	0.067	<0.001	<0.01	<0.005	0.65	<0.05	0.001	<0.0001	<0.1	<0.001	0.01	0.13	EB2546019002
	8	7.98	164	<1	<1	54	54	2	36	6	14	6	4	0.02	<0.001	0.01	<0.0001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	0.059	<0.001	<0.01	0.005	0.75	<0.05	0.001	<0.0001	0.1	<0.001	0.012	0.22	EB2603717002
	9	7.31	152	<1	<1	57	57	<1	30	5	13	5	3	0.02	<0.001	0.008	<0.0001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.055	<0.001	<0.01	<0.005	0.64	<0.05	0.001	<0.0001	0.1	<0.001	0.009	0.15	EB2606772002
	10	7.74	155	<1	<1	55	55	1	29	4	12	4	3	0.02	<0.001	0.01	<0.0001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.042	<0.001	<0.01	<0.005	0.6	<0.05	0.001	<0.0001	0.2	<0.001	0.009	0.1	EB2610471002
Column 3 - DDH8125																																				
Leach	0	7.38	138.00	<1	<1	54	54	1	39	12	4	5	1	0.06	<0.001	0.00	<0.0001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	-	-	<0.01	<0.005	0.15	<0.05	-	<0.0001	-	-	-	-	EB2521309003
Cycle	1	6.75	184	<1	<1	22	22	2	60	17	7	4	3	0.02	<0.001	0.01	<0.0001	<0.001	<0.001	<0.001	<0.001	0.004	0.002	0.109	<0.001	<0.01	0.024	0.26	<0.05	-	<0.0001	-	-	-	-	EB2525183003
	2	7.22	223	<1	<1	22	22	2	85	17	10	3	3	0.02	<0.001	0.015	<0.0001	<0.001	<0.001	<0.001	<0.001	0.011	<0.001	0.125	<0.001	<0.01	0.028	0.26	<0.05	-	<0.0001	-	-	-	-	EB2528805003
	3	7.53	264	<1	<1	28	28	3	110	18	15	3	3	0.02	<0.001	0.018	<0.0001	<0.001	<0.001	<0.001	<0.001	0.011	<0.001	0.128	<0.001	<0.01	0.026	0.39	<0.05	-	<0.0001	-	-	-	-	EB2531723003
	4	7.44	282	<1	<1	26	26	2	125	16	20	4	4	0.02	<0.001	0.02	<0.0001	<0.001	<0.001	<0.001	<0.001	0.012	<0.001	0.132	<0.001	<0.01	0.016	0.47	<0.05	-	<0.0001	-	-	-	-	EB2535040003
	5	7.52	374	<1	<1	32	32	3	176	18	29	5	4	0.01	<0.001	0.014	<0.0001	<0.001	<0.001	<0.001	<0.001	0.013	<0.001	0.148	<0.001	<0.01	0.024	0.53	<0.05	-	<0.0001	-	-	-	-	EB2539790003
	6	7.9	387	<1	<1	51	51	1	148	15	35	5	4	0.02	<0.001	0.016	<0.0001	<0.001	<0.001	<0.001	<0.001	0.012	<0.001	0.128	<0.001	<0.01	0.014	0.55	<0.05	<0.001	<0.0001	0.1	<0.001	0.016	0.08	EB2543745003
	7	7.83	357	<1	<1	37	37	2	148	12	31	5	4	0.02	<0.001	0.011	<0.0001	<0.001	<0.001	<0.001	<0.001	0.013	<0.001	0.099	<0.001	<0.01	0.01	0.5	<0.05	<0.001	<0.0001	0.1	<0.001	0.011	<0.05	EB2546019003
	8	7.79	286	<1	<1	46	46	2	110	9	26	4	4	0.01	<0.001	0.013	<0.0001	<0.001	<0.001	<0.001	<0.001	0.011	<0.001	0.085	<0.001	<0.01	0.009	0.56	<0.05	<0.001	<0.0001	0.1	<0.001	0.014	0.12	EB2603717003
	9	7.12	255	<1	<1	47	47	1	90	7	23	3	3	0.01	<0.001	0.01	<0.0001	<0.001	<0.001	<0.001	<0.001	0.01	<0.001	0.077	<0.001	<0.01	0.006	0.44	<0.05	<0.001	<0.0001	0.1	<0.001	0.012	0.14	EB2606772003
	10	7.42	248	<1	<1	46	46	2	87	7	22	3	3	0.02	<0.001	0.011	<0.0001	<0.001	<0.001	<0.001	<0.001	0.011	<0.001	0.066	<0.001	<0.01	0.007	0.47	<0.05	<0.001	<0.0001	0.1	<0.001	0.012	0.1	EB2610471003
Column 4 - DDH8047																																				
Leach	0	7.17	194	<1	<1	19	19	1	70	18	6	8	3	0.02	0.005	0.054	<0.0001	<0.001	0.002	<0.001	<0.001	0.002	0.004	-	-	<0.01	<0.005	0.16	<0.05	-	<0.0001	-	-	-	-	EB2521309004
Cycle	1	6.69	301	<1	<1	18	18	2	116	27	10	7	6	0.01	0.012	0.162	<0.0001	<0.001	0.001	<0.001	<0.001	0.006	0.001	0.365	0.003	<0.01	0.031	0.32	<0.05	-	<0.0001	-	-	-	-	EB2525183004
	2	7.12	389	<1	<1	16	16	2	166	32	14	8	7	0.01	0.015	0.105	<0.0001	<0.001	0.002	<0.001	<0.001	0.01	0.002	0.489	0.003	<0.01	0.04	0.44	<0.05	-	<0.0001	-	-	-	-	EB2528805004
	3	7.21	430	<1	<1	17	17	4	200	42	15	7	8	<0.01	0.018	0.102	<0.0001	<0.001	0.002	<0.001	<0.001	0.01	0.002	0.533	0.002	<0.01	0.051	0.81	<0.05	-	<0.0001	-	-	-	-	EB2531723004
	4	7.2	391	<1	<1	14	14	3	190	39	15	6	8	<0.01	0.017	0.082	<0.0001	<0.001	0.003	<0.001	<0.001	0.007	0.002	0.548	0.001	<0.01	0.038	0.97	<0.05	-	<0.0001	-	-	-	-	EB2535040004
	5	7.28	475	<1	<1	17	17	3	221	48	18	8	8	<0.01	-	0.049	<0.0001	<0.001	0.004	<0.001	<0.001	0.007	0.003	0.611	0.002	<0.01	0.053	1.19	<0.05	-	<0.0001	-	-	-	-	EB2539790004
	6	7.44	510	<1	<1	19	19	3	242	57	20	8	8	<0.01	-	0.072	<0.0001	<0.001	0.002	<0.001	<0.001	0.005	0.002	0.708	0.005	<0.01	0.031	1.62	<0.05	<0.001	<0.0001	0.2	0.02	0.079	0.35	EB2543745004
	7	7.29	452	<1	<1	16	16	3	220	48	18	7	8	<0.01	-	0.028	<0.0001	<0.001	0.004	<0.001	<0.001	0.004	0.003	0.566	0.002	<0.01	0.043	1.34	<0.05	<0.001	<0.0001	0.2	0.015	0.038	0.43	EB2546019004
	8	7.39	462	<1	<1	21	21	3	227	51	19	7	7	<0.01	0.017	0.046	<0.0001	<0.001	0.002	<0.001	<0.001	0.004	0.001	0.652	0.002	<0.01	0.024	1.59	<0.05	<0.001	<0.0001	0.2	0.016	0.055	0.45	EB2603717004
	9	6.72	353	<1	<1	19	19	2	157	36	15	6	6	<0.01	0.014	0.024	<0.0001	<0.001	0.002	<0.001	<0.001	0.002	0.002	0.529	0.002	<0.01	0.027	1.14	<0.05	<0.001	<0.0001	0.2	0.013	0.036	0.27	EB2606772004
	10	6.9	419	<1	<1	16	16	3	205	44	18	7	6	<0.01	0.014	0.033	<0.0001	<0.001	0.002	<0.001	<0.001	0.003	0.001	0.558	<0.001	<0.01	0.027	1.37	<0.05	<0.001	<0.0001	0.2	0.015	0.039	0.25	EB2610471004

A hyphen '-' indicates no data available.

APPENDIX D LABORATORY CERTIFICATES

CERTIFICATE OF ANALYSIS

Work Order	: **EB2510135**	Page	: 1 of 5
Client	: **MINE WASTE MANAGEMENT**	Laboratory	: Environmental Division Brisbane
Contact	: SIMONE HOODHILLS	Contact	: Carsten Emrich
Address	: 12/7 O'CONNELL TERRACE BOWEN HILLS 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: ----	Date Samples Received	: 24-Mar-2025 13:00
Order number	: ----	Date Analysis Commenced	: 31-Mar-2025
C-O-C number	: ----	Issue Date	: 07-Apr-2025 16:06
Sampler	: OCEANS GOLD LTD		
Site	: MACRAES		
Quote number	: EB24MINWAS0005		
No. of samples received	: 7		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Particular samples have been crushed prior to preparation and analysis as per client request on the Chain of Custody. Please refer to SRN for further details.
- ASS: EA013 (ANC) Fizz Rating: 0- None; 1- Slight; 2- Moderate; 3- Strong; 4- Very Strong; 5- Lime.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: LEACHATE (Matrix: WATER)				Sample ID	IM8-5300-004 LEACHATE	DDH8113 LEACHATE	DDH8125 LEACHATE	DDH8047 LEACHATE	----
				Sampling date / time	04-Mar-2025 00:00	04-Mar-2025 00:00	04-Mar-2025 00:00	04-Mar-2025 00:00	----
Compound	CAS Number	LOR	Unit		EB2510135-001	EB2510135-005	EB2510135-006	EB2510135-007	--------
					Result	Result	Result	Result	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.92	7.81	7.97	7.47	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		99	93	110	96	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		30	36	44	32	----
Total Alkalinity as CaCO3	----	1	mg/L		30	36	44	32	----
ED038: Acidity									
Acidity as CaCO3	----	1	mg/L		4	2	2	2	----
ED040F: Dissolved Major Anions									
Sulfate as SO4 2-	14808-79-8	1	mg/L		28	20	24	23	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		4	7	10	6	----
Magnesium	7439-95-4	1	mg/L		<1	2	3	1	----
Sodium	7440-23-5	1	mg/L		12	8	3	10	----
Potassium	7440-09-7	1	mg/L		2	1	3	2	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		0.05	0.02	0.14	0.06	----
Arsenic	7440-38-2	0.001	mg/L		0.006	0.003	0.002	0.132	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	<0.005	<0.005	----
Boron	7440-42-8	0.05	mg/L		0.56	0.34	<0.05	0.34	----

Analytical Results

Sub-Matrix: LEACHATE (Matrix: WATER)				Sample ID	IM8-5300-004 LEACHATE	DDH8113 LEACHATE	DDH8125 LEACHATE	DDH8047 LEACHATE	----
				Sampling date / time	04-Mar-2025 00:00	04-Mar-2025 00:00	04-Mar-2025 00:00	04-Mar-2025 00:00	----
Compound	CAS Number	LOR	Unit		EB2510135-001	EB2510135-005	EB2510135-006	EB2510135-007	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	**----**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	**----**

Analytical Results

Sub-Matrix: **ROCK** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	IM8-5300-004 LEACHATE	DDH8113	DDH8125	DDH8047	----
				Sampling date / time	04-Mar-2025 00:00	04-Mar-2025 00:00	04-Mar-2025 00:00	04-Mar-2025 00:00	----
					EB2510135-001	EB2510135-002	EB2510135-003	EB2510135-004	--------
					Result	Result	Result	Result	----
EA002: pH									
ø pH (1:2 pulp slurry)	----	0.1	pH Unit		**9.0**	**8.8**	**8.6**	**9.0**	**----**
EA009: Net Acid Production Potential									
Net Acid Production Potential	----	0.5	kg H2SO4/t		**-46.3**	**-49.2**	**-55.6**	**-37.0**	**----**
EA010: Conductivity									
ø Conductivity (1:2 pulp slurry)	----	1	µS/cm		**136**	**160**	**147**	**170**	**----**
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		**7.6**	**10.2**	**9.7**	**8.6**	**----**
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	**----**
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	**----**
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		**50.6**	**51.4**	**66.3**	**41.0**	**----**
ANC as CaCO3	----	0.1	% CaCO3		**5.2**	**5.2**	**6.8**	**4.2**	**----**
Fizz Rating	----	0	Fizz Unit		**2**	**2**	**2**	**2**	**----**
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		**0.14**	**0.07**	**0.35**	**0.13**	**----**
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	TC	0.02	%		**0.76**	**1.24**	**1.92**	**0.69**	**----**

CERTIFICATE OF ANALYSIS

Work Order	: **EB2521309**	Page	: 1 of 5
Amendment	: **2**		
Client	: **MINE WASTE MANAGEMENT**	Laboratory	: Environmental Division Brisbane
Contact	: SIMONE HOODHILLS	Contact	: Carsten Emrich
Address	: 12/7 O'CONNELL TERRACE BOWEN HILLS 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: Oceana Gold - KLC - Leach 0	Date Samples Received	: 20-Jun-2025 14:18
Order number	: ----	Date Analysis Commenced	: 24-Jun-2025
C-O-C number	: ----	Issue Date	: 03-Dec-2025 12:24
Sampler	: ----		
Site	: ----		
Quote number	: EB24MINWAS0005		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Amendment (03/12/2025): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020F:Sb for all samples.
- Amendment (11/07/25): This report has been amended and re-released to allow the reporting of additional analytical data, specifically dissolved Co, Mo and V for all samples as requested by Simone Hoodhills on 11/07/25.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	23-Jun-2025 00:00	23-Jun-2025 00:00	23-Jun-2025 00:00	23-Jun-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2521309-001	EB2521309-002	EB2521309-003	EB2521309-004	--------
				Result	Result	Result	Result	----
EA047 Free Draining Leach Column								
ø Initial weight of sample	----	0.001	g	**2000**	**2000**	**2000**	**2000**	**----**
ø Leachate added	----	0.01	mL	**800**	**800**	**800**	**800**	**----**
ø Leachate collected	----	0.01	mL	**500**	**410**	**430**	**440**	**----**
ø Initial pH	----	0.01	pH Unit	**7.68**	**7.56**	**7.62**	**7.38**	**----**
ø Initial Electrical Conductivity	----	1	µS/cm	**140**	**106**	**134**	**194**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	23-Jun-2025 00:00	23-Jun-2025 00:00	23-Jun-2025 00:00	23-Jun-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2521309-001	EB2521309-002	EB2521309-003	EB2521309-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.28**	**7.33**	**7.38**	**7.17**	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**137**	**108**	**138**	**194**	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**66**	**80**	**54**	**19**	----
Total Alkalinity as CaCO3	----	1	mg/L	**66**	**80**	**54**	**19**	----
ED038: Acidity								
Acidity as CaCO3	----	1	mg/L	**2**	<1	**1**	**1**	----
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	**36**	**23**	**39**	**70**	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**12**	**8**	**12**	**18**	----
Magnesium	7439-95-4	1	mg/L	**2**	**3**	**4**	**6**	----
Sodium	7440-23-5	1	mg/L	**9**	**8**	**5**	**8**	----
Potassium	7440-09-7	1	mg/L	**6**	**1**	**1**	**3**	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.02**	**0.02**	**0.06**	**0.02**	----
Antimony	7440-36-0	0.001	mg/L	**0.004**	<0.001	<0.001	**0.005**	----
Arsenic	7440-38-2	0.001	mg/L	**0.003**	**0.002**	**0.002**	**0.054**	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	----
Nickel	7440-02-0	0.001	mg/L	**0.002**	<0.001	**0.001**	**0.004**	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
				Sampling date / time	23-Jun-2025 00:00	23-Jun-2025 00:00	23-Jun-2025 00:00	23-Jun-2025 00:00	----
Compound	CAS Number	LOR	Unit		EB2521309-001	EB2521309-002	EB2521309-003	EB2521309-004	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	<0.005	<0.005	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	**0.001**	**0.002**	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	----
Boron	7440-42-8	0.05	mg/L		**0.19**	**0.20**	**0.15**	**0.16**	----
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----

CERTIFICATE OF ANALYSIS

Work Order	: **EB2525183**	Page	: 1 of 5
Amendment	: **1**		
Client	: **MINE WASTE MANAGEMENT**	Laboratory	: Environmental Division Brisbane
Contact	: SIMONE HOODHILLS	Contact	: Carsten Emrich
Address	: 12/7 O'CONNELL TERRACE BOWEN HILLS 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: Oceana Gold - KLC - Leach 1	Date Samples Received	: 22-Jul-2025 09:35
Order number	: ----	Date Analysis Commenced	: 23-Jul-2025
C-O-C number	: ----	Issue Date	: 03-Dec-2025 12:28
Sampler	: ----		
Site	: ----		
Quote number	: EB24MINWAS0005		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
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- Analytical Results

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Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Beatriz Llarinas	Senior Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- **Amendment (05/12/2025): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020F:Sb for sample all samples.**
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	22-Jul-2025 00:00	22-Jul-2025 00:00	22-Jul-2025 00:00	22-Jul-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2525183-001	EB2525183-002	EB2525183-003	EB2525183-004	--------
				Result	Result	Result	Result	----
EA047 Free Draining Leach Column								
ø Initial weight of sample	----	0.001	g	**2000**	**2000**	**2000**	**2000**	**----**
ø Leachate added	----	0.01	mL	**800**	**800**	**800**	**800**	**----**
ø Leachate collected	----	0.01	mL	**550**	**440**	**450**	**480**	**----**
ø Initial pH	----	0.01	pH Unit	**7.06**	**7.39**	**7.38**	**7.22**	**----**
ø Initial Electrical Conductivity	----	1	µS/cm	**371**	**141**	**180**	**296**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	22-Jul-2025 00:00	22-Jul-2025 00:00	22-Jul-2025 00:00	22-Jul-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2525183-001	EB2525183-002	EB2525183-003	EB2525183-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.71**	**6.86**	**6.75**	**6.69**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**374**	**141**	**184**	**301**	**----**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	**----**
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	**----**
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**26**	**30**	**22**	**18**	**----**
Total Alkalinity as CaCO3	----	1	mg/L	**26**	**30**	**22**	**18**	**----**
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	**144**	**39**	**60**	**116**	**----**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**40**	**10**	**17**	**27**	**----**
Magnesium	7439-95-4	1	mg/L	**6**	**5**	**7**	**10**	**----**
Sodium	7440-23-5	1	mg/L	**12**	**8**	**4**	**7**	**----**
Potassium	7440-09-7	1	mg/L	**11**	**3**	**3**	**6**	**----**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.01**	**0.02**	**0.02**	**0.01**	**----**
Antimony	7440-36-0	0.001	mg/L	**0.012**	<0.001	<0.001	**0.012**	**----**
Arsenic	7440-38-2	0.001	mg/L	**0.014**	**0.003**	**0.010**	**0.162**	**----**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	**----**
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	**0.001**	**----**
Nickel	7440-02-0	0.001	mg/L	**0.001**	<0.001	**0.002**	**0.001**	**----**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Zinc	7440-66-6	0.005	mg/L	**0.026**	**0.011**	**0.024**	**0.031**	**----**
Molybdenum	7439-98-7	0.001	mg/L	**0.008**	**0.001**	**0.004**	**0.006**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
				Sampling date / time	22-Jul-2025 00:00	22-Jul-2025 00:00	22-Jul-2025 00:00	22-Jul-2025 00:00	----
Compound	CAS Number	LOR	Unit		EB2525183-001	EB2525183-002	EB2525183-003	EB2525183-004	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Strontium	7440-24-6	0.001	mg/L		**0.247**	**0.134**	**0.109**	**0.365**	**----**
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	**0.003**	**----**
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	**----**
Boron	7440-42-8	0.05	mg/L		**0.44**	**0.21**	**0.26**	**0.32**	**----**
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	**----**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	**----**
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	----	1	mg/L		**2**	**1**	**2**	**2**	**----**

CERTIFICATE OF ANALYSIS

Work Order	: **EB2528805**	Page	: 1 of 5
Amendment	: **1**		
Client	: **MINE WASTE MANAGEMENT**	Laboratory	: Environmental Division Brisbane
Contact	: SIMONE HOODHILLS	Contact	: Carsten Emrich
Address	: 12/7 O'CONNELL TERRACE BOWEN HILLS 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: Oceana Gold - KLC - Leach 2	Date Samples Received	: 20-Aug-2025 08:41
Order number	: ----	Date Analysis Commenced	: 20-Aug-2025
C-O-C number	: ----	Issue Date	: 03-Dec-2025 12:29
Sampler	: ----		
Site	: ----		
Quote number	: EB24MINWAS0005		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
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- Analytical Results

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Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Layla Hafner	Acid Sulphate Soils - Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

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~ = Indicates an estimated value.

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- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	20-Aug-2025 00:00	20-Aug-2025 00:00	20-Aug-2025 00:00	20-Aug-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2528805-001	EB2528805-002	EB2528805-003	EB2528805-004	--------
				Result	Result	Result	Result	----
EA047 Free Draining Leach Column								
ø Initial weight of sample	----	0.001	g	**2000**	**2000**	**2000**	**2000**	**----**
ø Leachate added	----	0.01	mL	**800**	**800**	**800**	**800**	**----**
ø Leachate collected	----	0.01	mL	**600**	**480**	**510**	**500**	**----**
ø Initial pH	----	0.01	pH Unit	**7.05**	**7.49**	**7.44**	**7.23**	**----**
ø Initial Electrical Conductivity	----	1	µS/cm	**327**	**188**	**237**	**405**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	20-Aug-2025 00:00	20-Aug-2025 00:00	20-Aug-2025 00:00	20-Aug-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2528805-001	EB2528805-002	EB2528805-003	EB2528805-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.23**	**7.36**	**7.22**	**7.12**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**309**	**177**	**223**	**389**	**----**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	**----**
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	**----**
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**27**	**30**	**22**	**16**	**----**
Total Alkalinity as CaCO3	----	1	mg/L	**27**	**30**	**22**	**16**	**----**
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	**121**	**56**	**85**	**166**	**----**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**32**	**9**	**17**	**32**	**----**
Magnesium	7439-95-4	1	mg/L	**5**	**7**	**10**	**14**	**----**
Sodium	7440-23-5	1	mg/L	**8**	**9**	**3**	**8**	**----**
Potassium	7440-09-7	1	mg/L	**9**	**3**	**3**	**7**	**----**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.01**	**0.02**	**0.02**	**0.01**	**----**
Antimony	7440-36-0	0.001	mg/L	**0.014**	<0.001	<0.001	**0.015**	**----**
Arsenic	7440-38-2	0.001	mg/L	**0.024**	**0.008**	**0.015**	**0.105**	**----**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	**----**
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	**----**
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	**----**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Zinc	7440-66-6	0.005	mg/L	**0.034**	**0.018**	**0.028**	**0.040**	**----**
Molybdenum	7439-98-7	0.001	mg/L	**0.009**	**0.003**	**0.011**	**0.010**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
				Sampling date / time	20-Aug-2025 00:00	20-Aug-2025 00:00	20-Aug-2025 00:00	20-Aug-2025 00:00	----
Compound	CAS Number	LOR	Unit		EB2528805-001	EB2528805-002	EB2528805-003	EB2528805-004	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Strontium	7440-24-6	0.001	mg/L		**0.220**	**0.146**	**0.125**	**0.489**	**----**
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	**0.003**	**----**
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	**----**
Boron	7440-42-8	0.05	mg/L		**0.62**	**0.24**	**0.26**	**0.44**	**----**
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	**----**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	**----**
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	----	1	mg/L		**5**	**2**	**2**	**2**	**----**

CERTIFICATE OF ANALYSIS

Work Order	: **EB2531723**	Page	: 1 of 5
Amendment	: **1**		
Client	: **MINE WASTE MANAGEMENT**	Laboratory	: Environmental Division Brisbane
Contact	: SIMONE HOODHILLS	Contact	: Carsten Emrich
Address	: 12/7 O'CONNELL TERRACE BOWEN HILLS 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: Oceana Gold - KLC - Leach 3	Date Samples Received	: 17-Sep-2025 06:00
Order number	: ----	Date Analysis Commenced	: 17-Sep-2025
C-O-C number	: ----	Issue Date	: 03-Dec-2025 17:05
Sampler	: ----		
Site	: ----		
Quote number	: EB24MINWAS0005		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Beatriz Llarinas	Senior Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Amendment (03/12/2025): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020F:Sb for all samples.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	15-Sep-2025 00:00	15-Sep-2025 00:00	15-Sep-2025 00:00	15-Sep-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2531723-001	EB2531723-002	EB2531723-003	EB2531723-004	--------
				Result	Result	Result	Result	----
EA047 Free Draining Leach Column								
ø Initial weight of sample	----	0.001	g	**2000**	**2000**	**2000**	**2000**	**----**
ø Leachate added	----	0.01	mL	**800**	**800**	**800**	**800**	**----**
ø Leachate collected	----	0.01	mL	**610**	**490**	**480**	**490**	**----**
ø Initial pH	----	0.01	pH Unit	**7.27**	**7.60**	**7.51**	**7.30**	**----**
ø Initial Electrical Conductivity	----	1	µS/cm	**327**	**198**	**260**	**418**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	15-Sep-2025 00:00	15-Sep-2025 00:00	15-Sep-2025 00:00	15-Sep-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2531723-001	EB2531723-002	EB2531723-003	EB2531723-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.48**	**7.54**	**7.53**	**7.21**	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**325**	**200**	**264**	**430**	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**28**	**32**	**28**	**17**	----
Total Alkalinity as CaCO3	----	1	mg/L	**28**	**32**	**28**	**17**	----
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	**140**	**68**	**110**	**200**	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**40**	**10**	**18**	**42**	----
Magnesium	7439-95-4	1	mg/L	**5**	**10**	**15**	**15**	----
Sodium	7440-23-5	1	mg/L	**5**	**8**	**3**	**7**	----
Potassium	7440-09-7	1	mg/L	**8**	**3**	**3**	**8**	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.01**	**0.02**	**0.02**	<0.01	----
Antimony	7440-36-0	0.001	mg/L	**0.013**	<0.001	<0.001	**0.018**	----
Arsenic	7440-38-2	0.001	mg/L	**0.053**	**0.011**	**0.018**	**0.102**	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	----
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L	**0.035**	**0.018**	**0.026**	**0.051**	----
Molybdenum	7439-98-7	0.001	mg/L	**0.014**	**0.003**	**0.011**	**0.010**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
				Sampling date / time	15-Sep-2025 00:00	15-Sep-2025 00:00	15-Sep-2025 00:00	15-Sep-2025 00:00	----
Compound	CAS Number	LOR	Unit		EB2531723-001	EB2531723-002	EB2531723-003	EB2531723-004	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Strontium	7440-24-6	0.001	mg/L		**0.212**	**0.140**	**0.128**	**0.533**	**----**
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	**0.002**	**----**
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	**----**
Boron	7440-42-8	0.05	mg/L		**0.97**	**0.40**	**0.39**	**0.81**	**----**
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	**----**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	**----**
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	----	1	mg/L		**5**	**3**	**3**	**4**	**----**

CERTIFICATE OF ANALYSIS

Work Order	: **EB2535040**	Page	: 1 of 5
Amendment	: **1**		
Client	: **MINE WASTE MANAGEMENT**	Laboratory	: Environmental Division Brisbane
Contact	: SIMONE HOODHILLS	Contact	: Carsten Emrich
Address	: 12/7 O'CONNELL TERRACE BOWEN HILLS 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: Oceana Gold - KLC - Leach 4	Date Samples Received	: 17-Oct-2025 07:00
Order number	: ----	Date Analysis Commenced	: 17-Oct-2025
C-O-C number	: ----	Issue Date	: 03-Dec-2025 12:26
Sampler	: ----		
Site	: ----		
Quote number	: EB24MINWAS0005		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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- Analytical Results

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Signatories	*Position*	*Accreditation Category*
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

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Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
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~ = Indicates an estimated value.

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- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	15-Oct-2025 00:00	15-Oct-2025 00:00	15-Oct-2025 00:00	15-Oct-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2535040-001	EB2535040-002	EB2535040-003	EB2535040-004	--------
				Result	Result	Result	Result	----
EA047 Free Draining Leach Column								
ø Initial weight of sample	----	0.001	g	**2000**	**2000**	**2000**	**2000**	**----**
ø Leachate added	----	0.01	mL	**800**	**800**	**800**	**800**	**----**
ø Leachate collected	----	0.01	mL	**580**	**500**	**520**	**500**	**----**
ø Initial pH	----	0.01	pH Unit	**7.19**	**7.61**	**7.45**	**7.23**	**----**
ø Initial Electrical Conductivity	----	1	µS/cm	**385**	**195**	**300**	**410**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	15-Oct-2025 00:00	15-Oct-2025 00:00	15-Oct-2025 00:00	15-Oct-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2535040-001	EB2535040-002	EB2535040-003	EB2535040-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.42**	**7.70**	**7.44**	**7.20**	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**380**	**184**	**282**	**391**	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**21**	**31**	**26**	**14**	----
Total Alkalinity as CaCO3	----	1	mg/L	**21**	**31**	**26**	**14**	----
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	**170**	**62**	**125**	**190**	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**50**	**8**	**16**	**39**	----
Magnesium	7439-95-4	1	mg/L	**6**	**11**	**20**	**15**	----
Sodium	7440-23-5	1	mg/L	**6**	**8**	**4**	**6**	----
Potassium	7440-09-7	1	mg/L	**9**	**4**	**4**	**8**	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	**0.02**	**0.02**	<0.01	----
Antimony	7440-36-0	0.001	mg/L	**0.016**	<0.001	<0.001	**0.017**	----
Arsenic	7440-38-2	0.001	mg/L	**0.079**	**0.013**	**0.020**	**0.082**	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	**0.003**	----
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L	**0.029**	**0.008**	**0.016**	**0.038**	----
Molybdenum	7439-98-7	0.001	mg/L	**0.020**	**0.004**	**0.012**	**0.007**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
				Sampling date / time	15-Oct-2025 00:00	15-Oct-2025 00:00	15-Oct-2025 00:00	15-Oct-2025 00:00	----
Compound	*CAS Number*	*LOR*	*Unit*		**EB2535040-001**	**EB2535040-002**	**EB2535040-003**	**EB2535040-004**	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Strontium	7440-24-6	0.001	mg/L		**0.257**	**0.114**	**0.132**	**0.548**	**----**
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	**0.001**	**----**
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	**----**
Boron	7440-42-8	0.05	mg/L		**1.31**	**0.55**	**0.47**	**0.97**	**----**
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	**----**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	**----**
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	----	1	mg/L		**3**	**2**	**2**	**3**	**----**

CERTIFICATE OF ANALYSIS

Work Order	: **EB2539790**	Page	: 1 of 5
Amendment	: **1**		
Client	: **MINE WASTE MANAGEMENT**	Laboratory	: Environmental Division Brisbane
Contact	: SIMONE HOODHILLS	Contact	: Carsten Emrich
Address	: 12/7 O'CONNELL TERRACE BOWEN HILLS 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: Oceana Gold - KLC - Leach 5	Date Samples Received	: 11-Nov-2025 06:00
Order number	: ----	Date Analysis Commenced	: 12-Nov-2025
C-O-C number	: ----	Issue Date	: 03-Dec-2025 12:29
Sampler	: ----		
Site	: ----		
Quote number	: EB24MINWAS0005		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Amendment (05/12/2025): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020F:Sb for samples -001, -002, -003.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	10-Nov-2025 00:00	10-Nov-2025 00:00	10-Nov-2025 00:00	10-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2539790-001	EB2539790-002	EB2539790-003	EB2539790-004	--------
				Result	Result	Result	Result	----
EA047 Free Draining Leach Column								
ø Initial weight of sample	----	0.001	g	**2000**	**2000**	**2000**	**2000**	**----**
ø Leachate added	----	0.01	mL	**800**	**800**	**800**	**800**	**----**
ø Leachate collected	----	0.01	mL	**610**	**500**	**530**	**530**	**----**
ø Initial pH	----	0.01	pH Unit	**7.34**	**7.56**	**7.45**	**7.26**	**----**
ø Initial Electrical Conductivity	----	1	µS/cm	**403**	**187**	**409**	**477**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	10-Nov-2025 00:00	10-Nov-2025 00:00	10-Nov-2025 00:00	10-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2539790-001	EB2539790-002	EB2539790-003	EB2539790-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.49**	**7.66**	**7.52**	**7.28**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**372**	**181**	**374**	**475**	**----**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	**----**
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	**----**
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**27**	**37**	**32**	**17**	**----**
Total Alkalinity as CaCO3	----	1	mg/L	**27**	**37**	**32**	**17**	**----**
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	**156**	**50**	**176**	**221**	**----**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**52**	**7**	**18**	**48**	**----**
Magnesium	7439-95-4	1	mg/L	**6**	**11**	**29**	**18**	**----**
Sodium	7440-23-5	1	mg/L	**6**	**7**	**5**	**8**	**----**
Potassium	7440-09-7	1	mg/L	**8**	**4**	**4**	**8**	**----**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	**0.01**	**0.01**	<0.01	**----**
Antimony	7440-36-0	0.001	mg/L	**0.014**	<0.001	<0.001	**----**	**----**
Arsenic	7440-38-2	0.001	mg/L	**0.079**	**0.011**	**0.014**	**0.049**	**----**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	**----**
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	**0.004**	**----**
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	**0.003**	**----**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Zinc	7440-66-6	0.005	mg/L	**0.035**	**0.007**	**0.024**	**0.053**	**----**
Molybdenum	7439-98-7	0.001	mg/L	**0.020**	**0.003**	**0.013**	**0.007**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
				Sampling date / time	10-Nov-2025 00:00	10-Nov-2025 00:00	10-Nov-2025 00:00	10-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit		EB2539790-001	EB2539790-002	EB2539790-003	EB2539790-004	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Strontium	7440-24-6	0.001	mg/L		**0.242**	**0.096**	**0.148**	**0.611**	**----**
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	**0.002**	**----**
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	**----**
Boron	7440-42-8	0.05	mg/L		**1.42**	**0.65**	**0.53**	**1.19**	**----**
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	**----**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	**----**
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	----	1	mg/L		**3**	**2**	**3**	**3**	**----**

CERTIFICATE OF ANALYSIS

Work Order	: **EB2543745**	Page	: 1 of 5
Amendment	: **1**		
Client	: **MINE WASTE MANAGEMENT**	Laboratory	: Environmental Division Brisbane
Contact	: SIMONE HOODHILLS	Contact	: Carsten Emrich
Address	: 12/7 O'CONNELL TERRACE BOWEN HILLS 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: Oceana Gold - KLC - Leach 6	Date Samples Received	: 30-Dec-2025 06:00
Order number	: ----	Date Analysis Commenced	: 31-Dec-2025
C-O-C number	: ----	Issue Date	: 22-Jan-2026 12:39
Sampler	: ----		
Site	: ----		
Quote number	: EB24MINWAS0005		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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- Analytical Results

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Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Layla Hafner	Acid Sulphate Soils - Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
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~ = Indicates an estimated value.

- Amendment (22/01/26): This report has been amended and re-released to allow the reporting of additional analytical data, specifically Fluoride, Diss W, Total Sb, Fe and As as requested by Simone Hoodhills
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	08-Dec-2025 00:00	08-Dec-2025 00:00	08-Dec-2025 00:00	08-Dec-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2543745-001	EB2543745-002	EB2543745-003	EB2543745-004	--------
				Result	Result	Result	Result	----
EA047 Free Draining Leach Column								
ø Initial weight of sample	----	0.001	g	**2000**	**2000**	**2000**	**2000**	**----**
ø Leachate added	----	0.01	mL	**800**	**800**	**800**	**800**	**----**
ø Leachate collected	----	0.01	mL	**660**	**610**	**630**	**590**	**----**
ø Initial pH	----	0.01	pH Unit	**7.54**	**8.45**	**8.25**	**7.86**	**----**
ø Initial Electrical Conductivity	----	1	µS/cm	**312**	**213**	**374**	**501**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	08-Dec-2025 00:00	08-Dec-2025 00:00	08-Dec-2025 00:00	08-Dec-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2543745-001	EB2543745-002	EB2543745-003	EB2543745-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.38**	**8.14**	**7.90**	**7.44**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**309**	**215**	**387**	**510**	**----**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	----	1	mg/L	<1	<1	<1	<1	**----**
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	**----**
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**30**	**55**	**51**	**19**	**----**
Total Alkalinity as CaCO3	----	1	mg/L	**30**	**55**	**51**	**19**	**----**
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	**125**	**53**	**148**	**242**	**----**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**44**	**8**	**15**	**57**	**----**
Magnesium	7439-95-4	1	mg/L	**5**	**16**	**35**	**20**	**----**
Sodium	7440-23-5	1	mg/L	**5**	**7**	**5**	**8**	**----**
Potassium	7440-09-7	1	mg/L	**7**	**4**	**4**	**8**	**----**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	**0.02**	**0.02**	<0.01	**----**
Antimony	7440-36-0	0.001	mg/L	**0.015**	<0.001	<0.001	**0.019**	**----**
Arsenic	7440-38-2	0.001	mg/L	**0.096**	**0.011**	**0.016**	**0.072**	**----**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	**----**
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	**----**
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	**----**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Zinc	7440-66-6	0.005	mg/L	**0.038**	**0.008**	**0.014**	**0.031**	**----**
Molybdenum	7439-98-7	0.001	mg/L	**0.020**	**0.003**	**0.012**	**0.005**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
				Sampling date / time	08-Dec-2025 00:00	08-Dec-2025 00:00	08-Dec-2025 00:00	08-Dec-2025 00:00	----
Compound	CAS Number	LOR	Unit		EB2543745-001	EB2543745-002	EB2543745-003	EB2543745-004	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Strontium	7440-24-6	0.001	mg/L		**0.197**	**0.099**	**0.128**	**0.708**	----
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	**0.005**	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	----
Boron	7440-42-8	0.05	mg/L		**1.78**	**0.74**	**0.55**	**1.62**	----
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	----
Tungsten	7440-33-7	0.001	mg/L		**0.005**	<0.001	<0.001	<0.001	----
EG020T: Total Metals by ICP-MS									
Antimony	7440-36-0	0.001	mg/L		**0.016**	<0.001	<0.001	**0.020**	----
Arsenic	7440-38-2	0.001	mg/L		**0.100**	**0.012**	**0.016**	**0.079**	----
Iron	7439-89-6	0.05	mg/L		**0.20**	**0.17**	**0.08**	**0.35**	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L		**0.3**	**0.1**	**0.1**	**0.2**	----
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	----	1	mg/L		**3**	<1	**1**	**3**	----

CERTIFICATE OF ANALYSIS

Work Order	: **EB2546019**	Page	: 1 of 5
Amendment	: **1**		
Client	: **MINE WASTE MANAGEMENT**	Laboratory	: Environmental Division Brisbane
Contact	: SIMONE HOODHILLS	Contact	: Carsten Emrich
Address	: 12/7 O'CONNELL TERRACE BOWEN HILLS 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: Oceana Gold - KLC - Leach 7	Date Samples Received	: 07-Jan-2026 06:00
Order number	: ----	Date Analysis Commenced	: 08-Jan-2026
C-O-C number	: ----	Issue Date	: 22-Jan-2026 12:43
Sampler	: ----		
Site	: ----		
Quote number	: EB24MINWAS0005		
No. of samples received	: 4		
No. of samples analysed	: 4		

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Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Mark Hallas	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Mark Hallas	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

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~ = Indicates an estimated value.

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- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	05-Jan-2026 00:00	05-Jan-2026 00:00	05-Jan-2026 00:00	05-Jan-2026 00:00	----
Compound	CAS Number	LOR	Unit	EB2546019-001	EB2546019-002	EB2546019-003	EB2546019-004	--------
				Result	Result	Result	Result	----
EA047 Free Draining Leach Column								
ø Initial weight of sample	----	0.001	g	**2000**	**2000**	**2000**	**2000**	**----**
ø Leachate added	----	0.01	mL	**800**	**800**	**800**	**800**	**----**
ø Leachate collected	----	0.01	mL	**710**	**500**	**520**	**520**	**----**
ø Initial pH	----	0.01	pH Unit	**7.30**	**8.07**	**7.90**	**7.55**	**----**
ø Initial Electrical Conductivity	----	1	µS/cm	**281**	**188**	**350**	**453**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	05-Jan-2026 00:00	05-Jan-2026 00:00	05-Jan-2026 00:00	05-Jan-2026 00:00	----
Compound	CAS Number	LOR	Unit	EB2546019-001	EB2546019-002	EB2546019-003	EB2546019-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.72**	**8.38**	**7.83**	**7.29**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**292**	**190**	**357**	**452**	**----**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	----	1	mg/L	<1	<1	<1	<1	**----**
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	**----**
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**47**	**46**	**37**	**16**	**----**
Total Alkalinity as CaCO3	----	1	mg/L	**47**	**46**	**37**	**16**	**----**
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	**106**	**49**	**148**	**220**	**----**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**37**	**6**	**12**	**48**	**----**
Magnesium	7439-95-4	1	mg/L	**4**	**13**	**31**	**18**	**----**
Sodium	7440-23-5	1	mg/L	**6**	**7**	**5**	**7**	**----**
Potassium	7440-09-7	1	mg/L	**6**	**4**	**4**	**8**	**----**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	**0.02**	**0.02**	<0.01	**----**
Antimony	7440-36-0	0.001	mg/L	**0.014**	<0.001	<0.001	**0.014**	**----**
Arsenic	7440-38-2	0.001	mg/L	**0.086**	**0.009**	**0.011**	**0.028**	**----**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	**----**
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Copper	7440-50-8	0.001	mg/L	**0.004**	<0.001	<0.001	<0.001	**----**
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	**0.004**	**----**
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	**0.003**	**----**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Zinc	7440-66-6	0.005	mg/L	**0.029**	<0.005	**0.010**	**0.043**	**----**
Molybdenum	7439-98-7	0.001	mg/L	**0.015**	**0.003**	**0.013**	**0.004**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
				Sampling date / time	05-Jan-2026 00:00	05-Jan-2026 00:00	05-Jan-2026 00:00	05-Jan-2026 00:00	----
Compound	CAS Number	LOR	Unit		EB2546019-001	EB2546019-002	EB2546019-003	EB2546019-004	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Strontium	7440-24-6	0.001	mg/L		**0.161**	**0.067**	**0.099**	**0.566**	----
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	**0.002**	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	----
Boron	7440-42-8	0.05	mg/L		**1.83**	**0.65**	**0.50**	**1.34**	----
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	----
Tungsten	7440-33-7	0.001	mg/L		**0.005**	**0.001**	<0.001	<0.001	----
EG020T: Total Metals by ICP-MS									
Antimony	7440-36-0	0.001	mg/L		**0.017**	<0.001	<0.001	**0.015**	----
Arsenic	7440-38-2	0.001	mg/L		**0.090**	**0.010**	**0.011**	**0.038**	----
Iron	7439-89-6	0.05	mg/L		**0.14**	**0.13**	<0.05	**0.43**	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L		**0.3**	<0.1	**0.1**	**0.2**	----
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	----	1	mg/L		**3**	**1**	**2**	**3**	----

CERTIFICATE OF ANALYSIS

Work Order	: **EB2603717**	Page	: 1 of 5
Client	: **MINE WASTE MANAGEMENT**	Laboratory	: Environmental Division Brisbane
Contact	: SIMONE HOODHILLS	Contact	: Carsten Emrich
Address	: 12/7 O'CONNELL TERRACE BOWEN HILLS 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: Oceana Gold - KLC - Leach 8	Date Samples Received	: 03-Feb-2026 06:00
Order number	: ----	Date Analysis Commenced	: 03-Feb-2026
C-O-C number	: ----	Issue Date	: 09-Feb-2026 16:28
Sampler	: ----		
Site	: ----		
Quote number	: EB24MINWAS0005		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Layla Hafner	Acid Sulphate Soils - Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- It is recognised that EG020T (Total Metals by ICP-MS) is less than EG020F (Dissolved Metals by ICP-MS) for 'Column 4 - DDH8047' (EB2603717-004). However, the difference is within experimental variation of the methods.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
				Sampling date / time	02-Feb-2026 00:00	02-Feb-2026 00:00	02-Feb-2026 00:00	02-Feb-2026 00:00	----
					EB2603717-001	EB2603717-002	EB2603717-003	EB2603717-004	--------
					Result	Result	Result	Result	----
EA047 Free Draining Leach Column									
ø Initial weight of sample	----	0.001	g		**2000**	**2000**	**2000**	**2000**	**----**
ø Leachate added	----	0.01	mL		**800**	**800**	**800**	**800**	**----**
ø Leachate collected	----	0.01	mL		**650**	**530**	**540**	**550**	**----**
ø Initial pH	----	0.01	pH Unit		**7.43**	**8.33**	**8.10**	**7.64**	**----**
ø Initial Electrical Conductivity	----	1	µS/cm		**273**	**171**	**295**	**480**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	02-Feb-2026 00:00	02-Feb-2026 00:00	02-Feb-2026 00:00	02-Feb-2026 00:00	----
Compound	CAS Number	LOR	Unit	EB2603717-001	EB2603717-002	EB2603717-003	EB2603717-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.60**	**7.98**	**7.79**	**7.39**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**262**	**164**	**286**	**462**	**----**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	----	1	mg/L	<1	<1	<1	<1	**----**
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	**----**
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**35**	**54**	**46**	**21**	**----**
Total Alkalinity as CaCO3	----	1	mg/L	**35**	**54**	**46**	**21**	**----**
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	**102**	**36**	**110**	**227**	**----**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**36**	**6**	**9**	**51**	**----**
Magnesium	7439-95-4	1	mg/L	**4**	**14**	**26**	**19**	**----**
Sodium	7440-23-5	1	mg/L	**6**	**6**	**4**	**7**	**----**
Potassium	7440-09-7	1	mg/L	**6**	**4**	**4**	**7**	**----**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	**0.02**	**0.01**	<0.01	**----**
Antimony	7440-36-0	0.001	mg/L	**0.017**	<0.001	<0.001	**0.017**	**----**
Arsenic	7440-38-2	0.001	mg/L	**0.101**	**0.010**	**0.013**	**0.046**	**----**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	**----**
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Copper	7440-50-8	0.001	mg/L	**0.005**	<0.001	<0.001	<0.001	**----**
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	**----**
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	**0.001**	**----**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Zinc	7440-66-6	0.005	mg/L	**0.026**	**0.005**	**0.009**	**0.024**	**----**
Molybdenum	7439-98-7	0.001	mg/L	**0.014**	**0.003**	**0.011**	**0.004**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
				Sampling date / time	02-Feb-2026 00:00	02-Feb-2026 00:00	02-Feb-2026 00:00	02-Feb-2026 00:00	----
Compound	CAS Number	LOR	Unit		EB2603717-001	EB2603717-002	EB2603717-003	EB2603717-004	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Strontium	7440-24-6	0.001	mg/L		**0.166**	**0.059**	**0.085**	**0.652**	----
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	**0.002**	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	----
Boron	7440-42-8	0.05	mg/L		**1.89**	**0.75**	**0.56**	**1.59**	----
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	----
Tungsten	7440-33-7	0.001	mg/L		**0.005**	**0.001**	<0.001	<0.001	----
EG020T: Total Metals by ICP-MS									
Antimony	7440-36-0	0.001	mg/L		**0.017**	<0.001	<0.001	**0.016**	----
Arsenic	7440-38-2	0.001	mg/L		**0.109**	**0.012**	**0.014**	**0.055**	----
Iron	7439-89-6	0.05	mg/L		**0.11**	**0.22**	**0.12**	**0.45**	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L		**0.4**	**0.1**	**0.1**	**0.2**	----
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	----	1	mg/L		**4**	**2**	**2**	**3**	----

CERTIFICATE OF ANALYSIS

Work Order	: **EB2606772**	Page	: 1 of 5
Amendment	: **1**		
Client	: **MINE WASTE MANAGEMENT**	Laboratory	: Environmental Division Brisbane
Contact	: SIMONE HOODHILLS	Contact	: Carsten Emrich
Address	: 12/7 O'CONNELL TERRACE BOWEN HILLS 4006	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3552 8616
Project	: Oceana Gold - KLC - Leach 9	Date Samples Received	: 04-Mar-2026 06:00
Order number	: ----	Date Analysis Commenced	: 04-Mar-2026
C-O-C number	: ----	Issue Date	: 17-Mar-2026 15:42
Sampler	: ----		
Site	: Mine Waste - Oceana Gold		
Quote number	: EB24MINWAS0005		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Beatriz Llarinas	Senior Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Dave Gitsham	Metals Instrument Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- It is recognised that EG020T (Total Metals by ICP-MS) is less than EG020F (Dissolved Metals by ICP-MS) for 'Column 4 - DDH8047' (EB2606772-004). However, the difference is within experimental variation of the methods.
- Amendment (17/03/2026): This report has been amended following changes to the analytical data reported. The specific data affected includes EG020F (Dissolved Metals by ICP-MS) for sample Column 1 - IM8-5300-004 (EB2606772 – 001). All details are recorded in client query 26BNCC088 and a full investigation will be detailed in corrective action request 26BNC032.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	[02-Mar-2026]	[02-Mar-2026]	[02-Mar-2026]	[02-Mar-2026]	----
Compound	CAS Number	LOR	Unit	EB2606772-001	EB2606772-002	EB2606772-003	EB2606772-004	--------
				Result	Result	Result	Result	----
EA047 Free Draining Leach Column								
ø Initial weight of sample	----	0.001	g	**2000**	**2000**	**2000**	**2000**	**----**
ø Leachate added	----	0.01	mL	**800**	**800**	**800**	**800**	**----**
ø Leachate collected	----	0.01	mL	**560**	**520**	**530**	**550**	**----**
ø Room temperature	----	0.1	°C	**32.0**	**32.0**	**32.0**	**32.0**	**----**
ø Initial pH	----	0.01	pH Unit	**7.37**	**7.97**	**7.62**	**7.15**	**----**
ø Initial Electrical Conductivity	----	1	µS/cm	**272**	**166**	**275**	**380**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	[02-Mar-2026]	[02-Mar-2026]	[02-Mar-2026]	[02-Mar-2026]	----
Compound	CAS Number	LOR	Unit	EB2606772-001	EB2606772-002	EB2606772-003	EB2606772-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.08**	**7.31**	**7.12**	**6.72**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**250**	**152**	**255**	**353**	**----**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	----	1	mg/L	<1	<1	<1	<1	**----**
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	**----**
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**37**	**57**	**47**	**19**	**----**
Total Alkalinity as CaCO3	----	1	mg/L	**37**	**57**	**47**	**19**	**----**
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	**90**	**30**	**90**	**157**	**----**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**35**	**5**	**7**	**36**	**----**
Magnesium	7439-95-4	1	mg/L	**3**	**13**	**23**	**15**	**----**
Sodium	7440-23-5	1	mg/L	**6**	**5**	**3**	**6**	**----**
Potassium	7440-09-7	1	mg/L	**6**	**3**	**3**	**6**	**----**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	**0.02**	**0.01**	<0.01	**----**
Antimony	7440-36-0	0.001	mg/L	**0.017**	<0.001	<0.001	**0.014**	**----**
Arsenic	7440-38-2	0.001	mg/L	**0.101**	**0.008**	**0.010**	**0.024**	**----**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	**----**
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	**----**
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	**----**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Zinc	7440-66-6	0.005	mg/L	**0.029**	<0.005	**0.006**	**0.027**	**----**
Molybdenum	7439-98-7	0.001	mg/L	**0.010**	**0.002**	**0.010**	**0.002**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
				Sampling date / time	[02-Mar-2026]	[02-Mar-2026]	[02-Mar-2026]	[02-Mar-2026]	----
Compound	CAS Number	LOR	Unit		EB2606772-001	EB2606772-002	EB2606772-003	EB2606772-004	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Strontium	7440-24-6	0.001	mg/L		**0.163**	**0.055**	**0.077**	**0.529**	----
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	**0.002**	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	----
Boron	7440-42-8	0.05	mg/L		**1.96**	**0.64**	**0.44**	**1.14**	----
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	----
Tungsten	7440-33-7	0.001	mg/L		**0.003**	**0.001**	<0.001	<0.001	----
EG020T: Total Metals by ICP-MS									
Antimony	7440-36-0	0.001	mg/L		**0.017**	<0.001	<0.001	**0.013**	----
Arsenic	7440-38-2	0.001	mg/L		**0.106**	**0.009**	**0.012**	**0.036**	----
Iron	7439-89-6	0.05	mg/L		**0.29**	**0.15**	**0.14**	**0.27**	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L		**0.4**	**0.1**	**0.1**	**0.2**	----
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	----	1	mg/L		**2**	<1	**1**	**2**	----

CERTIFICATE OF ANALYSIS

Work Order	: **EB2610471**	Page	: 1 of 5
Client	: **MINE WASTE MANAGEMENT**	Laboratory	: Environmental Division Brisbane
Contact	: KARAN JAIN	Contact	: Carsten Emrich
Address	: Level 1, 8A/232 Churchill Ave Subiaco 6008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: 0469 348 420	Telephone	: +61 7 3552 8616
Project	: Oceana Gold - Kinetic Columns - Leach 10	Date Samples Received	: 31-Mar-2026 06:00
Order number	: ----	Date Analysis Commenced	: 31-Mar-2026
C-O-C number	: ----	Issue Date	: 08-Apr-2026 15:49
Sampler	: ----		
Site	: Mine Waste - Oceana Gold		
Quote number	: EB24MINWAS0005		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Beatriz Llarinas	Senior Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- It is recognised that EG020T (Total Metals by ICP-MS) is less than EG020F (Dissolved Metals by ICP-MS) for 'Column 2 - DDH8113' (EB2610471-002). However, the difference is within experimental variation of the methods.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	[30-Mar-2026]	[30-Mar-2026]	[30-Mar-2026]	[30-Mar-2026]	----
Compound	CAS Number	LOR	Unit	EB2610471-001	EB2610471-002	EB2610471-003	EB2610471-004	--------
				Result	Result	Result	Result	----
EA047 Free Draining Leach Column								
ø Leachate added	----	0.01	mL	**800**	**800**	**800**	**800**	**----**
ø Leachate collected	----	0.01	mL	**670**	**520**	**530**	**560**	**----**
ø Initial pH	----	0.01	pH Unit	**7.01**	**7.71**	**7.50**	**7.10**	**----**
ø Initial Electrical Conductivity	----	1	µS/cm	**224**	**151**	**245**	**416**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
			Sampling date / time	[30-Mar-2026]	[30-Mar-2026]	[30-Mar-2026]	[30-Mar-2026]	----
Compound	CAS Number	LOR	Unit	EB2610471-001	EB2610471-002	EB2610471-003	EB2610471-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.18**	**7.74**	**7.42**	**6.90**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**233**	**155**	**248**	**419**	**----**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	----	1	mg/L	<1	<1	<1	<1	**----**
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	**----**
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**35**	**55**	**46**	**16**	**----**
Total Alkalinity as CaCO3	----	1	mg/L	**35**	**55**	**46**	**16**	**----**
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	**82**	**29**	**87**	**205**	**----**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**30**	**4**	**7**	**44**	**----**
Magnesium	7439-95-4	1	mg/L	**2**	**12**	**22**	**18**	**----**
Sodium	7440-23-5	1	mg/L	**5**	**4**	**3**	**7**	**----**
Potassium	7440-09-7	1	mg/L	**5**	**3**	**3**	**6**	**----**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	**0.02**	**0.02**	<0.01	**----**
Antimony	7440-36-0	0.001	mg/L	**0.016**	<0.001	<0.001	**0.014**	**----**
Arsenic	7440-38-2	0.001	mg/L	**0.111**	**0.010**	**0.011**	**0.033**	**----**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	**----**
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	**----**
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	**0.001**	**----**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Zinc	7440-66-6	0.005	mg/L	**0.022**	<0.005	**0.007**	**0.027**	**----**
Molybdenum	7439-98-7	0.001	mg/L	**0.012**	**0.002**	**0.011**	**0.003**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Column 1 - IM8-5300-004	Column 2 - DDH8113	Column 3 - DDH8125	Column 4 - DDH8047	----
				Sampling date / time	[30-Mar-2026]	[30-Mar-2026]	[30-Mar-2026]	[30-Mar-2026]	----
Compound	CAS Number	LOR	Unit		EB2610471-001	EB2610471-002	EB2610471-003	EB2610471-004	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Strontium	7440-24-6	0.001	mg/L		**0.135**	**0.042**	**0.066**	**0.558**	**----**
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	**----**
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	**----**
Boron	7440-42-8	0.05	mg/L		**1.81**	**0.60**	**0.47**	**1.37**	**----**
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	**----**
Tungsten	7440-33-7	0.001	mg/L		**0.006**	**0.001**	<0.001	<0.001	**----**
EG020T: Total Metals by ICP-MS									
Antimony	7440-36-0	0.001	mg/L		**0.017**	<0.001	<0.001	**0.015**	**----**
Arsenic	7440-38-2	0.001	mg/L		**0.118**	**0.009**	**0.012**	**0.039**	**----**
Iron	7439-89-6	0.05	mg/L		**0.15**	**0.10**	**0.10**	**0.25**	**----**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	**----**
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L		**0.4**	**0.2**	**0.1**	**0.2**	**----**
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	----	1	mg/L		**3**	**1**	**2**	**3**	**----**

APPENDIX E LIMITATIONS

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MWM acknowledges that this report will be relied on by a Panel appointed under the Fast-track Approvals Act 2024 and these disclaimers do not prevent that reliance.

MINE WASTE MANAGEMENT

GREENROAD GROUP

APPENDIX E RAW DATA

		Raw Data										Calculated		
	Analyte Name	S	C	pH (1:2) aged	Conductivity (1:2) aged	ANC	ANC % CaCO3 equiv.	NAPP	NAG pH	NAG to pH 4.5	NAG	NAPP	MPA	NPR
	Units	%	%	pH unit	µS/cm	kg H_2SO_4/t	%	kg H_2SO_4/t	pH unit	kg H_2SO_4/t	kg H_2SO_4/t	kg H_2SO_4/t	kg H_2SO_4/t	-
SGS	Reporting Limit	0.005	0.01	2	2	-1000	-100	-1000	2	0	0	-	-	-
Job Number / Sample	Sample ID													
WP26-16714.004	DA26265	0.369	0.91	8.8	720	69	7.0	-58	7.5	0	0	-57.71	11.29	6.11
WP26-16714.005	DA26272	0.100	1.09	9.1	280	72	7.3	-69	7.3	0	0	-68.94	3.06	23.53
WP26-16714.006	DA26274	0.175	0.49	9.0	400	36	3.7	-31	6.3	0	7	-30.65	5.36	6.72
WP26-16714.007	DA26225	0.350	0.61	9.0	330	42	4.3	-32	6.4	0	4	-31.29	10.71	3.92
WP26-16714.008	DA26230	0.099	0.60	9.1	330	39	4.0	-36	6.6	0	2	-35.97	3.03	12.87
WP26-16714.009	DA26206	0.010	0.09	8.9	150	21	2.1	-21	5.3	0	20	-20.69	0.31	68.63
WP26-16714.010	DA26218	0.425	2.48	8.9	230	137	14.0	-124	7.3	0	0	-124.00	13.01	10.53
WP26-16714.011	DA26247	0.218	0.94	8.8	240	66	6.7	-59	6.6	0	3	-59.33	6.67	9.89
WP26-16714.012	DA26258	0.048	0.48	9.0	380	35	3.5	-33	6.5	0	4	-33.53	1.47	23.83
WP26-16714.013	DA26259	0.323	0.25	7.3	1200	18	1.8	-8	4.8	0	20	-8.12	9.88	1.82
WP26-16714.014	DA26261	0.328	0.33	8.2	640	19	1.9	-9	5.0	0	13	-8.96	10.04	1.89
WP26-16714.015	DA26263	0.275	0.64	9.1	290	48	4.9	-40	6.5	0	3	-39.59	8.42	5.70
WP26-16714.016	DA26268	0.217	0.37	9.2	400	37	3.7	-30	6.2	0	7	-30.36	6.64	5.57
WP26-16714.017	DA26269	0.052	0.29	9.2	310	32	3.3	-31	6.5	0	6	-30.41	1.59	20.11
WP26-16714.018	DA26270	0.061	1.90	9.0	350	80	8.2	-78	7.3	0	0	-78.13	1.87	42.86
WP26-16714.019	DA26271	0.136	0.46	9.0	420	33	3.4	-29	6.1	0	13	-28.84	4.16	7.93
WP26-16714.020	DA26273	0.084	0.83	9.1	220	64	6.5	-61	6.7	0	1	-61.43	2.57	24.90
WP26-16714.021	DA26275	0.068	0.47	9.1	370	39	3.9	-37	6.5	0	5	-36.92	2.08	18.74
WP26-16714.022	DA26239	0.019	0.14	8.4	140	13	1.3	-12	6.3	0	3	-12.42	0.58	22.36
WP26-16714.023	DA26231	0.352	0.50	8.8	280	34	3.5	-23	6.4	0	3	-23.23	10.77	3.16
WP26-16714.024	DA26233	0.472	0.66	8.9	330	38	3.9	-24	7.6	0	0	-23.56	14.44	2.63
WP26-16714.025	DA26234	0.431	0.76	8.8	360	47	4.8	-34	6.3	0	4	-33.81	13.19	3.56
WP26-16714.026	DA26235	0.171	1.53	8.9	250	101	10.3	-96	6.6	0	4	-95.77	5.23	19.30
WP26-16714.027	DA26236	0.266	1.04	8.9	290	72	7.4	-64	6.3	0	11	-63.86	8.14	8.85
WP26-16714.028	DA26219	0.174	0.60	9.0	350	50	5.1	-44	6.2	0	11	-44.68	5.32	9.39
WP26-16714.029	DA26221	0.231	0.65	9.0	330	51	5.2	-44	6.1	0	14	-43.93	7.07	7.22
WP26-16714.030	DA26224	0.282	0.65	8.9	420	50	5.1	-42	6.1	0	13	-41.37	8.63	5.79
WP26-16714.031	DA26226	0.263	0.85	9.0	270	63	6.4	-54	6.3	0	9	-54.95	8.05	7.83
WP26-16714.032	DA26227	0.197	0.41	9.0	380	34	3.5	-28	5.8	0	22	-27.97	6.03	5.64
WP26-16714.033	DA26228	0.205	0.50	8.7	250	41	4.2	-35	6.0	0	16	-34.73	6.27	6.54
WP26-16714.034	DA26229	0.145	1.33	8.9	240	43	4.4	-39	6.5	0	6	-38.56	4.44	9.69
WP26-16714.035	DA26208	0.115	0.22	8.9	280	24	2.4	-20	5.2	0	25	-20.48	3.52	6.82
WP26-16714.036	DA26211	0.097	0.17	8.9	300	30	3.0	-27	5.4	0	27	-27.03	2.97	10.11
WP26-16714.037	DA26212	0.134	0.77	8.9	320	44	4.5	-40	6.2	0	11	-39.90	4.10	10.73
WP26-16714.038	DA26213	0.067	0.52	9.1	290	40	4.1	-38	6.0	0	14	-37.95	2.05	19.51
WP26-16714.039	DA26214	0.112	0.52	8.9	190	50	5.1	-47	6.1	0	18	-46.57	3.43	14.59
WP26-16714.040	DA26215	0.075	1.01	8.9	210	79	8.0	-76	6.7	0	3	-76.71	2.30	34.42
WP26-16714.041	DA26216	0.091	0.54	8.8	260	37	3.8	-34	6.3	0	12	-34.22	2.78	13.29
WP26-16714.042	DA26217	0.066	0.78	9.1	310	56	5.8	-54	6.6	0	5	-53.98	2.02	27.73
WP26-16714.043	DA26240	0.323	0.23	7.5	520	15	1.6	-5	6.4	0	14	-5.12	9.88	1.52
WP26-16714.044	DA26242	0.163	0.28	8.6	300	18	1.9	-13	5.5	0	19	-13.01	4.99	3.61
WP26-16714.045	DA26244	0.143	0.38	8.2	280	18	1.9	-14	4.8	0	32	-13.62	4.38	4.11
WP26-16714.046	DA26246	0.188	2.22	8.6	330	97	9.9	-92	6.7	0	2	-91.25	5.75	16.86
WP26-16714.047	DA26248	0.262	0.52	8.8	420	36	3.6	-28	5.9	0	17	-27.98	8.02	4.49
WP26-16714.048	DA26249	0.214	0.68	8.9	340	43	4.4	-36	6.1	0	16	-36.45	6.55	6.57
WP26-16714.049	DA26250	0.250	1.13	8.6	460	81	8.2	-73	6.5	0	8	-73.35	7.65	10.59
WP26-16714.050	DA26251	0.073	0.84	9.0	260	68	6.9	-65	6.4	0	13	-65.77	2.23	30.44
WP26-16714.051	DA26252	0.164	1.28	8.5	350	86	8.8	-81	6.4	0	11	-80.98	5.02	17.14
WP26-16714.052	DA26253	0.306	0.55	8.5	440	40	4.1	-30	6.0	0	15	-30.64	9.36	4.27
WP26-16714.053	DA26256	0.217	0.93	8.7	330	53	5.4	-46	6.3	0	12	-46.36	6.64	7.98
ALS	Limit of reporting	0.01	0.02	0.1	1	0.5	0.1	0.5	0.1	0.1	0.1	-	-	-
Job Number / Sample	Sample ID													
EB2510135001	IM8-5300-004	0.14	0.76	9	136	50.6	5.2	-46.3	7.6	<0.1	<0.1	-46.32	4.28	11.81
EB2510135005	DDH8113	0.07	1.24	8.8	160	51.4	5.2	-49.2	10.2	<0.1	<0.1	-49.26	2.14	24.00
EB2510135006	DDH8125	0.35	1.92	8.6	147	66.3	6.8	-55.6	9.7	<0.1	<0.1	-55.59	10.71	6.19
EB2510135007	DDH8047	0.13	0.69	9	170	41	4.2	-37	8.6	<0.1	<0.1	-37.02	3.98	10.31

Sample_ID	As corrected ppm	Cu corrected ppm	Zn corrected ppm	Pb corrected ppm	Ca corrected ppm	Fe corrected ppm	Mn corrected ppm	Ti corrected ppm	Ag Raw ppm	Al Raw ppm	Ba Raw ppm	Bi Raw ppm	Cd Raw ppm	Ce Raw ppm	Co Raw ppm	Cr Raw ppm	Hg Raw ppm	K Raw ppm	La Raw ppm
DA26206	11	26	96	13	20171	48090	906	4481	<LOD	78739	478	<LOD	<LOD	135	135	62	<LOD	19479	116
DA26208	16	22	107	13	13925	52682	870	5522	<LOD	89485	905	<LOD	<LOD	118	131	87	<LOD	31345	<LOD
DA26211	17	24	93	13	14355	48996	934	5313	<LOD	80761	673	<LOD	21	136	178	80	<LOD	20370	112
DA26212	13	19	92	14	13455	41755	682	4025	<LOD	82866	492	<LOD	<LOD	112	89	44	<LOD	23818	<LOD
DA26213	11	28	93	20	19488	43914	1284	3337	<LOD	72192	666	<LOD	18	<LOD	<LOD	71	<LOD	22553	<LOD
DA26214	19	28	92	15	22068	45399	869	4973	<LOD	74662	606	<LOD	18	111	100	99	<LOD	20280	82
DA26215	17	21	103	15	35870	49172	1079	5227	<LOD	71203	532	<LOD	22	120	162	76	<LOD	18087	<LOD
DA26216	18	25	101	14	12237	44324	652	4814	<LOD	80985	572	<LOD	<LOD	163	152	59	<LOD	28300	<LOD
DA26217	26	21	96	19	21524	38368	726	3182	<LOD	79441	503	<LOD	<LOD	154	139	58	<LOD	24973	101
DA26218	7651	4	69	21	73115	35137	743	189	<LOD	57734	391	<LOD	<LOD	<LOD	98	65	<LOD	21207	104
DA26219	27	26	89	15	27047	45777	1065	3584	<LOD	78518	506	<LOD	<LOD	127	141	80	<LOD	20175	105
DA26221	71	26	114	20	18789	45793	744	4058	<LOD	84763	606	<LOD	<LOD	164	148	<LOD	<LOD	27152	98
DA26224	15	21	104	15	25039	41676	563	3661	<LOD	83337	660	<LOD	<LOD	148	113	58	<LOD	23658	<LOD
DA26225	19	32	111	14	18555	43004	598	4208	<LOD	84235	557	<LOD	<LOD	117	157	48	<LOD	26528	<LOD
DA26226	15	25	106	16	33709	41372	619	4188	<LOD	81891	583	<LOD	20	105	122	46	7	22513	98
DA26227	18	39	131	14	16163	50307	856	5198	<LOD	86038	609	<LOD	20	<LOD	139	93	<LOD	25476	<LOD
DA26228	14	18	115	16	16415	49700	869	5493	<LOD	84658.5	699.5	<LOD	19	164.5	131.5	53	<LOD	21476	97
DA26229	17	17	99	16	14992	41023	535	4419	<LOD	86187	534	<LOD	<LOD	99	125	69	<LOD	24051	119
DA26230	39	23	106	16	11748	44720	699	3271	<LOD	86846.5	699	<LOD	20	136	137	86	<LOD	32042	110
DA26231	13	29	97	12	17781	45762	640	4889	<LOD	84283	516	<LOD	19	135	150	51	6	21659	<LOD
DA26233	11	21	105	16	21038	45109	638	3947	<LOD	84445	591	<LOD	22	145	107	68	7	24110	91
DA26234	14	33	109	18	22518	45040	600	4345	<LOD	82330	621	<LOD	<LOD	139	128	86	<LOD	25257	82
DA26235	19	18	101	15	51603	42642	951	3707	<LOD	76337	519	<LOD	<LOD	145	85	51	<LOD	20359	98
DA26236	29	23	97	15	32447	43632	846	3798	<LOD	80282	628	<LOD	<LOD	132	84	76	<LOD	23369	145
DA26239	12	35	98	13	9525	48874	751	5176	<LOD	82876	477	<LOD	22	156	191	72	<LOD	21327	126
DA26240	10	21	163	22	4281	49244	598	4510	<LOD	87551	563	<LOD	<LOD	129	166	65	<LOD	25997	86
DA26242	17	25	123	20	8269	45814	927	4117	<LOD	78989	452	<LOD	<LOD	95	131	53	<LOD	19133	<LOD
DA26244	16	23	131	19	6166	49233	587	5908	<LOD	87287	665	<LOD	<LOD	162	130	79	<LOD	26371	<LOD
DA26246	14	17	106	16	34163	44284	735	3957	<LOD	83703	544	<LOD	<LOD	151	164	67	<LOD	20526	121
DA26247	19	17	105	16	28903	41778	545	4336	<LOD	80431	549	<LOD	<LOD	104	79	57	<LOD	22373	<LOD
DA26248	13	22	117	18	18352	45971	588	4128	<LOD	86226	618	<LOD	<LOD	135	97	82	<LOD	25880	<LOD
DA26249	18	23	110	17	19768	45601	546	4166	<LOD	87327	605	<LOD	21	109	89	57	<LOD	26378	107
DA26250	13	24	113	15	44134	40428	581	3484	<LOD	76874	593	<LOD	<LOD	148	112	78	<LOD	21862	<LOD
DA26251	15	5	80	12	34081	35316	583	3030	<LOD	73335	384	<LOD	<LOD	181	<LOD	48	<LOD	15172	142
DA26252	13	15	93	16	39116	39231	586	3937	<LOD	81931	609	<LOD	19	<LOD	111	64	<LOD	23727	115
DA26253	15	27	109	14	15615	46591	866	4742	<LOD	83553	721	<LOD	<LOD	128	142	94	<LOD	23703	97
DA26256	25	22	108	16	19655	44549	533	4800	<LOD	88699	597	<LOD	<LOD	140.5	139	75	<LOD	28551.5	94
DA26258	39	22	104	15	10208	43116	658	3780	<LOD	86607	747	<LOD	20	148	113	75	<LOD	29024	134
DA26259	13	28	119	18	9220	43889	563	4468	<LOD	87584.5	639.5	<LOD	17	167	149	76.5	8	26672	<LOD
DA26261	13	26	110	17	7690	46388	765	4223	<LOD	88450	681	<LOD	25	110	138	56	<LOD	29227	<LOD
DA26263	20	26	126	19	19411	49251	781	4799	<LOD	83288	630	<LOD	17	158	113	89	<LOD	25974	106
DA26265	18	20	108	18	24075	42710	573	3683	<LOD	79620	574	<LOD	17	<LOD	119	72	<LOD	22832	<LOD
DA26268	21	25	113	18	17431	49313	898	4426	<LOD	80898	631	<LOD	19	188	154	85	6	24731	98
DA26269	13	41	121	18	16798	51785	856	5143	<LOD	85301	561	<LOD	25	109	176	122	<LOD	23051	113
DA26270	28	27	92	15	19353	46981	750	3979	<LOD	85212	544	<LOD	<LOD	135	166	93	<LOD	23003	<LOD
DA26271	16	20	109	17	12116	42291	465	4691	<LOD	85115.5	507.5	<LOD	16	110.5	94	66.5	<LOD	25370.5	111
DA26272	32	19	94	16	27978	43139	762	3969	<LOD	80055.5	537.5	<LOD	18	147	107	65	<LOD	21906.5	92
DA26273	29	26	94	13	22928	45633	829	3965	<LOD	76288	479	<LOD	<LOD	109	121	94	<LOD	19341	<LOD
DA26274	22	26	98	13	10708	39729	592	3998	<LOD	79225	658	<LOD	<LOD	178	152	82	<LOD	25693	99
DA26275	26	20	101	15	11652	42745	654	4053	<LOD	82964	638	<LOD	<LOD	129	150	88	<LOD	28493	97

LOD = level of detection

Sample_ID	LE Raw ppm	Mg Raw ppm	Mo Raw ppm	Nb Raw ppm	Nd Raw ppm	Ni Raw ppm	P Raw ppm	Pr Raw ppm	Rb Raw ppm	S Raw ppm	Sb Raw ppm	Si Raw ppm	Sr Raw ppm	Th Raw ppm	U Raw ppm	V Raw ppm	W Raw ppm	Y Raw ppm	Zr Raw ppm
DA26206	537173	16929	<LOD	4	246	46	982	<LOD	75	<LOD	<LOD	267423	359	15	<LOD	154	<LOD	30	176
DA26208	526011	21254	<LOD	7	<LOD	41	867	<LOD	130	415	<LOD	251778	669	16	<LOD	170	<LOD	29	164
DA26211	554876	16848	<LOD	5	<LOD	33	919	<LOD	84	153	<LOD	250995	542	16	<LOD	98	<LOD	26	172
DA26212	558355	10724	5	<LOD	<LOD	29	829	<LOD	97	407	<LOD	258173	132	17	<LOD	98	<LOD	29	181
DA26213	556888	14058	5	6	224	34	772	<LOD	91	<LOD	<LOD	259816	285	12	<LOD	128	<LOD	32	178
DA26214	570624	14310	7	5	206	39	820	<LOD	93	195	<LOD	240612	250	17	<LOD	122	<LOD	21	159
DA26215	573385	13823	6	6	286	33	867	<LOD	80	<LOD	<LOD	226212	202	10	<LOD	159	<LOD	34	166
DA26216	570494	13574	<LOD	6	262	32	671	206	122	144	31	238391	106	14	<LOD	95	19	20	186
DA26217	562141	9726	5	6	332	29	743	203	106	<LOD	<LOD	253169	301	10	<LOD	<LOD	54	32	187
DA26218	540284	6777	<LOD	4	228	26	486	<LOD	96	1640	<LOD	248105	463	10	<LOD	<LOD	23	60	108
DA26219	537130	17708	<LOD	<LOD	<LOD	34	873	<LOD	84	718	<LOD	261719	353	17	<LOD	152	35	28	168
DA26221	539770	11533	<LOD	7	<LOD	42	659	<LOD	114	910	<LOD	260208	231	17	<LOD	148	52	20	172
DA26224	535701	14043	<LOD	6	294	29	761	<LOD	102	1425	<LOD	264401	277	18	<LOD	128	12	28	188
DA26225	541366	11539	6	4	239	31	681	<LOD	117	2074	<LOD	261826	210	16	<LOD	125	<LOD	26	174
DA26226	541989	13490	5	5	<LOD	34	756	<LOD	96	1643	<LOD	252675	313	16	<LOD	140	<LOD	27	178
DA26227	540211	13385	<LOD	<LOD	<LOD	40	879	<LOD	105	826	<LOD	255562	249	16	<LOD	176	<LOD	29	164
DA26228	540435.5	16074	6	7	301	29	938.5	158.5	91.5	669.5	<LOD	257859	273.5	13.5	<LOD	127.5	13	25	161
DA26229	555998	6847	<LOD	6	218	25	852	142	101	605	<LOD	259151	177	15	<LOD	128	<LOD	26	175
DA26230	538120	12855.5	6	7.5	237.5	37.5	820	162	151.5	268	<LOD	262267.5	204	18	<LOD	133	70	28.5	182.5
DA26231	545381	10042	5	<LOD	<LOD	29	917	<LOD	89	1747	<LOD	261907	229	16	<LOD	196	<LOD	29	181
DA26233	534605	10080	<LOD	7	244	31	818	<LOD	100	2726	<LOD	266754	250	15	<LOD	128	<LOD	30	176
DA26234	550122	11307	5	5	221	29	759	157	110	2336	<LOD	249681	249	13	<LOD	105	<LOD	33	178
DA26235	558702	10076	5	7	<LOD	32	1034	<LOD	88	494	<LOD	228942	303	17	<LOD	142	<LOD	30	163
DA26236	545461	12569	<LOD	4	<LOD	33	775	<LOD	99	1131	<LOD	250174	328	13	<LOD	115	39	27	155
DA26239	554177	11124	<LOD	<LOD	248	36	1017	<LOD	83	<LOD	<LOD	259698	238	13	<LOD	159	<LOD	32	187
DA26240	541832	11967	7	5	<LOD	31	816	<LOD	111	2201	<LOD	265532	109	16	<LOD	106	14	28	183
DA26242	551700	11349	<LOD	4	<LOD	41	681	<LOD	82	859	<LOD	272952	217	16	<LOD	108	<LOD	24	175
DA26244	546582	12021	7	7	<LOD	36	858	185	112	677	<LOD	259241	171	17	<LOD	102	34	25	176
DA26246	558685	8551	7	<LOD	<LOD	29	563	158	87	807	<LOD	238483	291	16	<LOD	125	15	26	173
DA26247	556576	11793	<LOD	4	255	28	647	199	98	840	<LOD	246492	215	18	<LOD	125	<LOD	27	183
DA26248	544566	11615	6	5	<LOD	28	859	<LOD	108	1392	<LOD	255021	245	23	<LOD	139	<LOD	30	173
DA26249	540838	9304	<LOD	5	398	34	728	157	110	1038	<LOD	258257	342	13	<LOD	140	<LOD	25	169
DA26250	553471	11117	5	5	<LOD	32	633	<LOD	93	1517	<LOD	240653	316	9	<LOD	97	<LOD	26	177
DA26251	564943	6761	<LOD	<LOD	<LOD	29	792	161	68	129	<LOD	260662	279	18	<LOD	104	<LOD	21	189
DA26252	548903	10618	<LOD	5	<LOD	32	659	<LOD	99	532	<LOD	245914	137	19	<LOD	111	23	28	168
DA26253	546104	10676	5	6	254	28	862	173	99	1732	<LOD	260033	92	13	<LOD	<LOD	<LOD	22	175
DA26256	543078	10419	<LOD	5.5	269.5	30	748.5	221	115.5	1043.5	<LOD	252554	185	14.5	<LOD	149.5	16	28	178
DA26258	541516	12009	<LOD	6	<LOD	38	726	<LOD	139	<LOD	<LOD	266520	166	24	<LOD	162	18	30	188
DA26259	542316	12926	8	6.5	244	37.5	914	168	110	2488.5	<LOD	263398.5	173.5	16.5	<LOD	150.5	<LOD	25.5	185.5
DA26261	533959	12084	<LOD	6	310	36	1002	<LOD	116	1895	<LOD	268510	151	17	<LOD	175	<LOD	27	188
DA26263	542442	12571	<LOD	6	<LOD	31	955	162	110	1089	<LOD	253821	280	14	<LOD	116	29	32	166
DA26265	550967	9853	5	5	<LOD	32	812	<LOD	99	2517	39	257080	254	15	<LOD	125	14	27	160
DA26268	545559	16110	7	6	367	49	993	<LOD	116	944	<LOD	252657	283	15	<LOD	104	<LOD	31	156
DA26269	546433	20965	8	9	274	56	926	<LOD	105	<LOD	<LOD	243092	341	15	<LOD	<LOD	<LOD	29	176
DA26270	555902	10170	5	6	<LOD	42	842	<LOD	104	147	<LOD	248325	178	17	<LOD	<LOD	63	29	154
DA26271	548486.5	10377.5	6	5	227	27	908.5	186.5	103	619.5	32	264405	199	16	<LOD	129.5	<LOD	24	189
DA26272	559402	11338.5	8	4.5	254	28	826.5	165	96	159	<LOD	244929.5	357.5	16.5	<LOD	123	75	28.5	167
DA26273	560613	14672	<LOD	4	292	42	732	<LOD	89	147	<LOD	249307	261	19	<LOD	126	18	27	142
DA26274	548015	10902	<LOD	5	308	38	798	198	120	941	<LOD	273456	176	15	<LOD	137	<LOD	25	189
DA26275	547169	10992	<LOD	4	<LOD	45	766	<LOD	133	131	<LOD	264868	167	22	<LOD	145	17	30	188

LOD = level of detection

	Analyte Name	pH**	Acidity pH 7.0	Bicarbonate Alkalinity as HCO3	Carbonate Alkalinity as CO3	Hydroxide Alkalinity as OH	Phenolphthalein Alkalinity as CaCO3	Total Alkalinity as CaCO3	Conductivity @ 25 °C	Ammonia N	Chloride	Nitrate Nitrogen	Nitrite Nitrogen	Sulphate, SO4	Fluoride	Total N	Total phosphorus	Aluminium, Al	Antimony, Sb	Arsenic, As	Barium, Ba	Boron, B	Cadmium, Cd
	Units	pH unit	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l CaCO3	µS/cm	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3
SGS - SFE	Reporting Limit	2	5	5	5	5	5	5	2	0.01	0.02	0.01	0.01	0.1	0.02	0.05	0.005	0.005	0.001	0.001	0.001	0.005	0.0001
Job Number / Sample	Sample ID																						
WP26-16796.001	DA26265	9	-	43	<5	<5	<5	35	150	0.13	0.37	0.44	<0.01	36	0.1	0.16	3.67	0.354	0.127	0.001	0.005	0.006	<0.0002
WP26-16796.002	DA26272	9.4	-	37	<5	<5	<5	30	69	0.08	0.31	0.4	<0.01	5.4	0.08	0.08	2.77	0.488	0.023	0.076	<0.002	0.007	<0.0002
WP26-16796.003	DA26274	8.9	-	65	<5	<5	<5	53	97	0.12	0.4	0.061	<0.01	14	0.21	0.09	2.54	0.31	0.007	0.052	0.005	0.007	<0.0002
WP26-16796.004	DA26225	8.8	-	45	<5	<5	<5	37	100	0.1	0.43	0.033	<0.01	11	0.08	0.14	1.93	0.286	0.006	<0.001	0.003	0.005	<0.0002
WP26-16796.005	DA26230	9.3	-	51	<5	<5	<5	42	57	0.11	0.31	0.031	<0.01	1.3	0.05	0.12	1.53	0.559	0.006	0.135	0.003	0.008	<0.0002
WP26-16796.006	DA26206	8.6	-	11	<5	<5	<5	9	14	<0.01	0.38	0.029	<0.01	0.45	0.13	<0.05	3.66	0.386	<0.001	0.002	0.007	<0.005	<0.0002
WP26-16796.007	DA26218	9	-	110	<5	<5	<5	87	69	0.05	0.75	0.011	<0.01	2.4	0.07	0.06	2.76	0.225	0.01	0.531	<0.002	0.006	<0.0002
WP26-16796.008	DA26247	9.1	-	390	<5	<5	<5	320	92	0.08	0.23	0.011	<0.01	13	0.1	0.09	4.46	0.2	<0.001	0.004	0.003	0.006	<0.0002
WP26-16796.009	DA26258	9.3	-	220	<5	<5	<5	180	74	0.13	2.1	0.068	<0.01	4.7	0.09	0.48	4.43	0.366	0.004	0.075	0.003	0.006	<0.0002
ALS SPLP (mg/L)																							
Job Number / Sample		0.01	1	1	1	1	-	1	1	-	-	-	-	1	-	-	-	0.01	-	0.001	-	0.05	0.0001
EB2510135	IM8-5300-004	7.92	4	30	<1	<1	-	30	99	-	-	-	-	28	-	-	-	0.05	-	0.006	-	0.56	<0.0001
EB2510135	DDH8113	7.81	2	36	<1	<1	-	36	93	-	-	-	-	20	-	-	-	0.02	-	0.003	-	0.34	<0.0001
EB2510135	DDH8125	7.97	2	44	<1	<1	-	44	110	-	-	-	-	24	-	-	-	0.14	-	0.002	-	<0.05	<0.0001
EB2510135	DDH8047	7.47	2	32	<1	<1	-	32	96	-	-	-	-	23	-	-	-	0.06	-	0.132	-	0.34	<0.0001

	Analyte Name	Calcium, Ca	Chromium, Cr	Cobalt, Co	Copper, Cu	Iron, Fe	Lead, Pb	Magnesium, Mg	Manganese, Mn	Mercury, Hg	Molybdenum, Mo	Nickel, Ni	Potassium, K	Selenium, Se	Silver, Ag	Sodium, Na	Strontium, Sr	Thallium, Tl	Tin, Sn	Uranium, U	Vanadium, V	Tungsten, W	Zinc, Zn
	Units	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3	g/m3
SGS - SFE	Reporting Limit	0.1	0.001	0.001	0.001	0.005	0.001	0.022	0.001		0.001	0.001	0.1	0.004	0.001	0.5	0.001	0.001	0.001	0.001	0.001	0.001	0.005
Job Number / Sample	Sample ID																						
WP26-16796.001	DA26265	24.3	<0.001	<0.0005	<0.0005	<0.005	<0.0005	1.28	0.001	-	0.002	<0.0005	6.4	<0.005	<0.0005	0.9	0.17	<0.0005	<0.0005	<0.001	0.001	<0.001	<0.002
WP26-16796.002	DA26272	9	<0.001	<0.0005	<0.0005	<0.005	<0.0005	1.09	0.001	-	0.001	<0.0005	4.5	<0.005	<0.0005	1.9	0.147	<0.0005	<0.0005	<0.001	0.003	0.003	<0.002
WP26-16796.003	DA26274	10.2	<0.001	<0.0005	<0.0005	<0.005	<0.0005	1.59	<0.001	-	0.002	<0.0005	7.6	<0.005	<0.0005	2.1	0.202	<0.0005	<0.0005	<0.001	0.002	<0.001	<0.002
WP26-16796.004	DA26225	13.6	<0.001	<0.0005	<0.0005	<0.005	<0.0005	0.9	0.001	-	0.001	<0.0005	5	<0.005	<0.0005	0.9	0.05	<0.0005	<0.0005	<0.0002	0.001	<0.001	<0.002
WP26-16796.005	DA26230	7.1	<0.001	<0.0005	<0.0005	0.015	<0.0005	0.49	0.001	-	<0.001	<0.0005	5.5	<0.005	<0.0005	0.6	0.054	<0.0005	<0.0005	0.002	0.004	0.004	<0.002
WP26-16796.006	DA26206	0.5	<0.001	<0.001	0.002	0.556	<0.001	0.61	0.073	-	0.002	<0.001	1.2	<0.005	<0.0005	1.1	0.001	<0.0005	<0.0005	<0.0002	0.001	<0.001	<0.005
WP26-16796.007	DA26218	9.9	<0.001	<0.0005	<0.0005	0.014	<0.0005	1.25	0.002	-	0.001	<0.0005	4.3	<0.005	<0.0005	0.7	0.08	<0.0005	<0.0005	0.001	0.002	0.003	<0.002
WP26-16796.008	DA26247	12.4	<0.001	<0.0005	<0.0005	<0.005	<0.0005	1.08	<0.001	-	0.001	<0.0005	4.6	<0.005	<0.0005	0.9	0.062	<0.0005	<0.0005	<0.0002	0.003	0.001	<0.005
WP26-16796.009	DA26258	9.4	<0.001	<0.0005	<0.0005	0.007	<0.0005	0.84	<0.001	-	0.001	<0.0005	6.6	<0.005	<0.0005	1.4	0.046	<0.0005	<0.0005	<0.001	0.003	0.003	<0.005
ALS SPLP (mg/L)																							
Job Number / Sample	Reporting Limit	1	0.001	-	0.001	0.05	0.001	1	-	0.0001	-		1	-	-	1	-	-	-	-	-	-	0.005
EB2510135	IM8-5300-004	4	<0.001	-	<0.001	<0.05	<0.001	<1	-	<0.0001	-	<0.001	2	-	-	12	-	-	-	-	-	-	<0.005
EB2510135	DDH8113	7	<0.001	-	<0.001	<0.05	<0.001	2	-	<0.0001	-	<0.001	1	-	-	8	-	-	-	-	-	-	<0.005
EB2510135	DDH8125	10	<0.001	-	<0.001	<0.05	<0.001	3	-	<0.0001	-	<0.001	3	-	-	3	-	-	-	-	-	-	<0.005
EB2510135	DDH8047	6	<0.001	-	<0.001	<0.05	<0.001	1	-	<0.0001	-	<0.001	2	-	-	10	-	-	-	-	-	-	<0.005

A hyphen '-' indicates no data available.

APPENDIX F LABORATORY CERTIFICATES

ANALYSIS REPORT

WP26-16714

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 04-Mar-2026
Completed: 20/04/2026
Job Number: WP26-16714
Report Number: 0000033639
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	ESO_CSA06V S % LOR 0.01	ESO_CSA06V C* % LOR 0.01	ESO_NEPM103_1_2 pH 1:2 aged* pH unit LOR 2.00	ESO_NEPM103_1_2 Cond (1:2) aged* µS/cm LOR 2.00
CX91320	WP26-16714.001	0.392	0.07	-	-
CX91340	WP26-16714.002	0.300	1.05	-	-
CX91360	WP26-16714.003	0.300	1.06	-	-
DA26265	WP26-16714.004	0.369	0.91	8.8	720
DA26272	WP26-16714.005	0.100	1.09	9.1	280
DA26274	WP26-16714.006	0.175	0.49	9.0	400
DA26225	WP26-16714.007	0.350	0.61	9.0	330
DA26230	WP26-16714.008	0.099	0.60	9.1	330
DA26206	WP26-16714.009	0.010	0.09	8.9	150

ANALYSIS REPORT

WP26-16714

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PO Box 8040, Riccarton

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Completed: 20/04/2026
Job Number: WP26-16714
Report Number: 0000033639
Order Reference: J-NZ0498 ABA

		ESO_CSA06V S % LOR 0.01	ESO_CSA06V C* % LOR 0.01	ESO_NEPM103_1_2 pH 1:2 aged* pH unit LOR 2.00	ESO_NEPM103_1_2 Cond (1:2) aged* µS/cm LOR 2.00
DA26218	WP26-16714.010	0.425	2.48	8.9	230
DA26247	WP26-16714.011	0.218	0.94	8.8	240
DA26258	WP26-16714.012	0.048	0.48	9.0	380
DA26259	WP26-16714.013	0.323	0.25	7.3	1200
DA26261	WP26-16714.014	0.328	0.33	8.2	640
DA26263	WP26-16714.015	0.275	0.64	9.1	290

ANALYSIS REPORT

WP26-16714

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Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	ESO_CSA06V S % LOR 0.01	ESO_CSA06V C* % LOR 0.01	ESO_NEPM103_1_2 pH 1:2 aged* pH unit LOR 2.00	ESO_NEPM103_1_2 Cond (1:2) aged* µS/cm LOR 2.00
DA26268	WP26-16714.016	0.217	0.37	9.2	400
DA26269	WP26-16714.017	0.052	0.29	9.2	310
DA26270	WP26-16714.018	0.061	1.90	9.0	350
DA26271	WP26-16714.019	0.136	0.46	9.0	420
DA26273	WP26-16714.020	0.084	0.83	9.1	220
DA26275	WP26-16714.021	0.068	0.47	9.1	370
DA26239	WP26-16714.022	0.019	0.14	8.4	140
DA26231	WP26-16714.023	0.352	0.50	8.8	280
DA26233	WP26-16714.024	0.472	0.66	8.9	330

ANALYSIS REPORT

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		ESO_CSA06V S % LOR 0.01	ESO_CSA06V C* % LOR 0.01	ESO_NEPM103_1_2 pH 1:2 aged* pH unit LOR 2.00	ESO_NEPM103_1_2 Cond (1:2) aged* µS/cm LOR 2.00
DA26234	WP26-16714.025	0.431	0.76	8.8	360
DA26235	WP26-16714.026	0.171	1.53	8.9	250
DA26236	WP26-16714.027	0.266	1.04	8.9	290
DA26219	WP26-16714.028	0.174	0.60	9.0	350
DA26221	WP26-16714.029	0.231	0.65	9.0	330
DA26224	WP26-16714.030	0.282	0.65	8.9	420

ANALYSIS REPORT

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Sampled By:

Sample ID	Laboratory ID	ESO_CSA06V S % LOR 0.01	ESO_CSA06V C* % LOR 0.01	ESO_NEPM103_1_2 pH 1:2 aged* pH unit LOR 2.00	ESO_NEPM103_1_2 Cond (1:2) aged* µS/cm LOR 2.00
DA26226	WP26-16714.031	0.263	0.85	9.0	270
DA26227	WP26-16714.032	0.197	0.41	9.0	380
DA26228	WP26-16714.033	0.205	0.50	8.7	250
DA26229	WP26-16714.034	0.145	1.33	8.9	240
DA26208	WP26-16714.035	0.115	0.22	8.9	280
DA26211	WP26-16714.036	0.097	0.17	8.9	300
DA26212	WP26-16714.037	0.134	0.77	8.9	320
DA26213	WP26-16714.038	0.067	0.52	9.1	290
DA26214	WP26-16714.039	0.112	0.52	8.9	190

ANALYSIS REPORT

WP26-16714

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Order Reference: J-NZ0498 ABA

		ESO_CSA06V S % LOR 0.01	ESO_CSA06V C* % LOR 0.01	ESO_NEPM103_1_2 pH 1:2 aged* pH unit LOR 2.00	ESO_NEPM103_1_2 Cond (1:2) aged* µS/cm LOR 2.00
DA26215	WP26-16714.040	0.075	1.01	8.9	210
DA26216	WP26-16714.041	0.091	0.54	8.8	260
DA26217	WP26-16714.042	0.066	0.78	9.1	310
DA26240	WP26-16714.043	0.323	0.23	7.5	520
DA26242	WP26-16714.044	0.163	0.28	8.6	300
DA26244	WP26-16714.045	0.143	0.38	8.2	280

ANALYSIS REPORT

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Job Number: WP26-16714
Report Number: 0000033639
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	ESO_CSA06V S % LOR 0.01	ESO_CSA06V C* % LOR 0.01	ESO_NEPM103_1_2 pH 1:2 aged* pH unit LOR 2.00	ESO_NEPM103_1_2 Cond (1:2) aged* µS/cm LOR 2.00
DA26246	WP26-16714.046	0.188	2.22	8.6	330
DA26248	WP26-16714.047	0.262	0.52	8.8	420
DA26249	WP26-16714.048	0.214	0.68	8.9	340
DA26250	WP26-16714.049	0.250	1.13	8.6	460
DA26251	WP26-16714.050	0.073	0.84	9.0	260
DA26252	WP26-16714.051	0.164	1.28	8.5	350
DA26253	WP26-16714.052	0.306	0.55	8.5	440
DA26256	WP26-16714.053	0.217	0.93	8.7	330

ANALYSIS REPORT

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Job Number: WP26-16714
Report Number: 0000033639
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	ESO_CLA48V ANC H2SO4* KGH2SO4/T LOR -1,000.00	ESO_CLA48V ANC CaCO3* % LOR -100.00	ESO_CLA48V TAP* KGH2SO4/T LOR 0.15	ESO_CLA48V NAPP* KGH2SO4/T LOR -1,000.00
CX91320	WP26-16714.001	-	-	-	-
CX91340	WP26-16714.002	-	-	-	-
CX91360	WP26-16714.003	-	-	-	-
DA26265	WP26-16714.004	69	7.0	11	-58
DA26272	WP26-16714.005	72	7.3	3.1	-69
DA26274	WP26-16714.006	36	3.7	5.4	-31
DA26225	WP26-16714.007	42	4.3	11	-32
DA26230	WP26-16714.008	39	4.0	3.0	-36
DA26206	WP26-16714.009	21	2.1	0.30	-21

ANALYSIS REPORT

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		ESO_CLA48V ANC H2SO4* KGH2SO4/T LOR -1,000.00	ESO_CLA48V ANC CaCO3* % LOR -100.00	ESO_CLA48V TAP* KGH2SO4/T LOR 0.15	ESO_CLA48V NAPP* KGH2SO4/T LOR -1,000.00
DA26218	WP26-16714.010	137	14.0	13	-124
DA26247	WP26-16714.011	66	6.7	6.7	-59
DA26258	WP26-16714.012	35	3.5	1.5	-33
DA26259	WP26-16714.013	18	1.8	9.9	-8
DA26261	WP26-16714.014	19	1.9	10	-9
DA26263	WP26-16714.015	48	4.9	8.4	-40

ANALYSIS REPORT

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Sampled By:

Sample ID	Laboratory ID	ESO_CLA48V ANC H2SO4* KGH2SO4/T LOR -1,000.00	ESO_CLA48V ANC CaCO3* % LOR -100.00	ESO_CLA48V TAP* KGH2SO4/T LOR 0.15	ESO_CLA48V NAPP* KGH2SO4/T LOR -1,000.00
DA26268	WP26-16714.016	37	3.7	6.6	-30
DA26269	WP26-16714.017	32	3.3	1.6	-31
DA26270	WP26-16714.018	80	8.2	1.9	-78
DA26271	WP26-16714.019	33	3.4	4.2	-29
DA26273	WP26-16714.020	64	6.5	2.6	-61
DA26275	WP26-16714.021	39	3.9	2.1	-37
DA26239	WP26-16714.022	13	1.3	0.57	-12
DA26231	WP26-16714.023	34	3.5	11	-23
DA26233	WP26-16714.024	38	3.9	14	-24

ANALYSIS REPORT

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		ESO_CLA48V ANC H2SO4* KGH2SO4/T LOR -1,000.00	ESO_CLA48V ANC CaCO3* % LOR -100.00	ESO_CLA48V TAP* KGH2SO4/T LOR 0.15	ESO_CLA48V NAPP* KGH2SO4/T LOR -1,000.00
DA26234	WP26-16714.025	47	4.8	13	-34
DA26235	WP26-16714.026	101	10.3	5.2	-96
DA26236	WP26-16714.027	72	7.4	8.1	-64
DA26219	WP26-16714.028	50	5.1	5.3	-44
DA26221	WP26-16714.029	51	5.2	7.1	-44
DA26224	WP26-16714.030	50	5.1	8.6	-42

ANALYSIS REPORT

WP26-16714

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Sampled By:

Sample ID	Laboratory ID	ESO_CLA48V ANC H2SO4* KGH2SO4/T LOR -1,000.00	ESO_CLA48V ANC CaCO3* % LOR -100.00	ESO_CLA48V TAP* KGH2SO4/T LOR 0.15	ESO_CLA48V NAPP* KGH2SO4/T LOR -1,000.00
DA26226	WP26-16714.031	63	6.4	8.0	-54
DA26227	WP26-16714.032	34	3.5	6.0	-28
DA26228	WP26-16714.033	41	4.2	6.3	-35
DA26229	WP26-16714.034	43	4.4	4.4	-39
DA26208	WP26-16714.035	24	2.4	3.5	-20
DA26211	WP26-16714.036	30	3.0	3.0	-27
DA26212	WP26-16714.037	44	4.5	4.1	-40
DA26213	WP26-16714.038	40	4.1	2.0	-38
DA26214	WP26-16714.039	50	5.1	3.4	-47

ANALYSIS REPORT

WP26-16714

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		ESO_CLA48V ANC H2SO4* KGH2SO4/T LOR -1,000.00	ESO_CLA48V ANC CaCO3* % LOR -100.00	ESO_CLA48V TAP* KGH2SO4/T LOR 0.15	ESO_CLA48V NAPP* KGH2SO4/T LOR -1,000.00
DA26215	WP26-16714.040	79	8.0	2.3	-76
DA26216	WP26-16714.041	37	3.8	2.8	-34
DA26217	WP26-16714.042	56	5.8	2.0	-54
DA26240	WP26-16714.043	15	1.6	9.9	-5
DA26242	WP26-16714.044	18	1.9	5.0	-13
DA26244	WP26-16714.045	18	1.9	4.4	-14

ANALYSIS REPORT

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Sampled By:

Sample ID	Laboratory ID	ESO_CLA48V ANC H2SO4* KGH2SO4/T LOR -1,000.00	ESO_CLA48V ANC CaCO3* % LOR -100.00	ESO_CLA48V TAP* KGH2SO4/T LOR 0.15	ESO_CLA48V NAPP* KGH2SO4/T LOR -1,000.00
DA26246	WP26-16714.046	97	9.9	5.8	-92
DA26248	WP26-16714.047	36	3.6	8.0	-28
DA26249	WP26-16714.048	43	4.4	6.6	-36
DA26250	WP26-16714.049	81	8.2	7.6	-73
DA26251	WP26-16714.050	68	6.9	2.2	-65
DA26252	WP26-16714.051	86	8.8	5.0	-81
DA26253	WP26-16714.052	40	4.1	9.4	-30
DA26256	WP26-16714.053	53	5.4	6.6	-46

ANALYSIS REPORT

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Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	ESO_CLA49V NAG pH* pH unit LOR 2.00	ESO_CLA49V NAG to pH 4.5* KGH2SO4/T	ESO_CLA49V NAG* KGH2SO4/T
CX91320	WP26-16714.001	-	-	-
CX91340	WP26-16714.002	-	-	-
CX91360	WP26-16714.003	-	-	-
DA26265	WP26-16714.004	7.5	0	0
DA26272	WP26-16714.005	7.3	0	0
DA26274	WP26-16714.006	6.3	0	7
DA26225	WP26-16714.007	6.4	0	4
DA26230	WP26-16714.008	6.6	0	2
DA26206	WP26-16714.009	5.3	0	20

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		ESO_CLA49V NAG pH* pH unit LOR 2.00	ESO_CLA49V NAG to pH 4.5* KGH2SO4/T	ESO_CLA49V NAG* KGH2SO4/T
DA26218	WP26-16714.010	7.3	0	0
DA26247	WP26-16714.011	6.6	0	3
DA26258	WP26-16714.012	6.5	0	4
DA26259	WP26-16714.013	4.8	0	20
DA26261	WP26-16714.014	5.0	0	13
DA26263	WP26-16714.015	6.5	0	3

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Sampled By:

Sample ID	Laboratory ID	ESO_CLA49V NAG pH* pH unit LOR 2.00	ESO_CLA49V NAG to pH 4.5* KGH2SO4/T	ESO_CLA49V NAG* KGH2SO4/T
DA26268	WP26-16714.016	6.2	0	7
DA26269	WP26-16714.017	6.5	0	6
DA26270	WP26-16714.018	7.3	0	0
DA26271	WP26-16714.019	6.1	0	13
DA26273	WP26-16714.020	6.7	0	1
DA26275	WP26-16714.021	6.5	0	5
DA26239	WP26-16714.022	6.3	0	3
DA26231	WP26-16714.023	6.4	0	3
DA26233	WP26-16714.024	7.6	0	0

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		ESO_CLA49V NAG pH* pH unit LOR 2.00	ESO_CLA49V NAG to pH 4.5* KGH2SO4/T	ESO_CLA49V NAG* KGH2SO4/T
DA26234	WP26-16714.025	6.3	0	4
DA26235	WP26-16714.026	6.6	0	4
DA26236	WP26-16714.027	6.3	0	11
DA26219	WP26-16714.028	6.2	0	11
DA26221	WP26-16714.029	6.1	0	14
DA26224	WP26-16714.030	6.1	0	13

ANALYSIS REPORT

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Sampled By:

Sample ID	Laboratory ID	ESO_CLA49V NAG pH* pH unit LOR 2.00	ESO_CLA49V NAG to pH 4.5* KGH2SO4/T	ESO_CLA49V NAG* KGH2SO4/T
DA26226	WP26-16714.031	6.3	0	9
DA26227	WP26-16714.032	5.8	0	22
DA26228	WP26-16714.033	6.0	0	16
DA26229	WP26-16714.034	6.5	0	6
DA26208	WP26-16714.035	5.2	0	25
DA26211	WP26-16714.036	5.4	0	27
DA26212	WP26-16714.037	6.2	0	11
DA26213	WP26-16714.038	6.0	0	14
DA26214	WP26-16714.039	6.1	0	18

ANALYSIS REPORT

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		ESO_CLA49V NAG pH* pH unit LOR 2.00	ESO_CLA49V NAG to pH 4.5* KGH2SO4/T	ESO_CLA49V NAG* KGH2SO4/T
DA26215	WP26-16714.040	6.7	0	3
DA26216	WP26-16714.041	6.3	0	12
DA26217	WP26-16714.042	6.6	0	5
DA26240	WP26-16714.043	6.4	0	14
DA26242	WP26-16714.044	5.5	0	19
DA26244	WP26-16714.045	4.8	0	32

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Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	ESO_CLA49V NAG pH* pH unit LOR 2.00	ESO_CLA49V NAG to pH 4.5* KGH2SO4/T	ESO_CLA49V NAG* KGH2SO4/T
DA26246	WP26-16714.046	6.7	0	2
DA26248	WP26-16714.047	5.9	0	17
DA26249	WP26-16714.048	6.1	0	16
DA26250	WP26-16714.049	6.5	0	8
DA26251	WP26-16714.050	6.4	0	13
DA26252	WP26-16714.051	6.4	0	11
DA26253	WP26-16714.052	6.0	0	15
DA26256	WP26-16714.053	6.3	0	12

Date Start/End Analysis (3/4/2026 - 20/4/2026)

* - Denotes non accredited tests

ANALYSIS REPORT

WP26-16714

Client:	MINE WASTE MANAGEMENT LIMITED PO Box 8040, Riccarton Christchurch 8440 NEW ZEALAND Attention:	**Received:** **Completed:** **Job Number:** **Report Number:** **Order Reference:**	04-Mar-2026 20/04/2026 WP26-16714 0000033639 J-NZ0498 ABA

APPLIED METHODS:

ESO_CSA06V: Total sulphur/carbon, LECO Method: SGS Global method

ESO_CLA49V: Net Acid Generation Test: SGS Global method

ESO_NEPM103_1_2: Paste pH in soil: NEPM103 1:2 extraction

ESO_CLA48V: Determination of ANC, TAP and NAPP of Soils/Rocks: SGS inhouse method

Signed and dated on 20-Apr-2026

Nick LEES
Operations Manager

ANALYSIS REPORT

WP26-16796

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 26-Mar-2026
Completed: 15/04/2026
Job Number: WP26-16796
Report Number: 0000033601
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	EWAPH_APHA4500H PH pH unit LOR 2.00	EWA_APHA2310 Acidity pH4 mg/l LOR 5.00	EWA_APHA2310 Acidity pH5 mg/l LOR 5.00	EWA_APHA2310 Acidity pH7 mg/l LOR 5.00
DA26265	WP26-16796.001	9.0	-	-	-
DA26272	WP26-16796.002	9.4	-	-	-
DA26274	WP26-16796.003	8.9	-	-	-
DA26225	WP26-16796.004	8.8	-	-	-
DA26230	WP26-16796.005	9.3	-	-	-
DA26206	WP26-16796.006	8.6	-	-	-
DA26218	WP26-16796.007	9.0	-	-	-
DA26247	WP26-16796.008	9.1	-	-	-
DA26258	WP26-16796.009	9.3	-	-	-

ANALYSIS REPORT

WP26-16796

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 26-Mar-2026
Completed: 15/04/2026
Job Number: WP26-16796
Report Number: 0000033601
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	EWA_APHA2320 AlkbicarHCO3 mg/l LOR 5.00	EWA_APHA2320 AlkcarCO3 mg/l LOR 5.00	EWA_APHA2320 AlkhydOH mg/l LOR 5.00	EWA_APHA2320 AlkPHN* mg/l LOR 5.00
DA26265	WP26-16796.001	43	<5	<5	<5
DA26272	WP26-16796.002	37	<5	<5	<5
DA26274	WP26-16796.003	65	<5	<5	<5
DA26225	WP26-16796.004	45	<5	<5	<5
DA26230	WP26-16796.005	51	<5	<5	<5
DA26206	WP26-16796.006	11	<5	<5	<5
DA26218	WP26-16796.007	110	<5	<5	<5
DA26247	WP26-16796.008	390	<5	<5	<5
DA26258	WP26-16796.009	220	<5	<5	<5

ANALYSIS REPORT

WP26-16796

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 26-Mar-2026
Completed: 15/04/2026
Job Number: WP26-16796
Report Number: 0000033601
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	EWA_APHA2320 AlkTOT mg/l CaCO3 LOR 5.00	EWAEC_APHA2510 Conductivity µS/cm LOR 2.00	EWASC_APHA4500NH3H NH3-N g/m3 LOR 0.01	EWAIC_APHA4110B CL* g/m3 LOR 0.02
DA26265	WP26-16796.001	35	150	0.13	0.37
DA26272	WP26-16796.002	30	69	0.08	0.31
DA26274	WP26-16796.003	53	97	0.12	0.40
DA26225	WP26-16796.004	37	100	0.10	0.43
DA26230	WP26-16796.005	42	57	0.11	0.31
DA26206	WP26-16796.006	9	14	<0.01	0.38
DA26218	WP26-16796.007	87	69	0.05	0.75
DA26247	WP26-16796.008	320	92	0.08	0.23
DA26258	WP26-16796.009	180	74	0.13	2.1

ANALYSIS REPORT

WP26-16796

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 26-Mar-2026
Completed: 15/04/2026
Job Number: WP26-16796
Report Number: 0000033601
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	EWAIC_APHA4110B Nitrate-N* g/m3 LOR 0.01	EWAIC_APHA4110B Nitrite-N* g/m3 LOR 0.01	EWAIC_APHA4110B SO4* g/m3 LOR 0.10	EWAIC_APHA4110B_ELS F g/m3 LOR 0.02
DA26265	WP26-16796.001	0.44	<0.01	36	0.10
DA26272	WP26-16796.002	0.40	<0.01	5.4	0.08
DA26274	WP26-16796.003	0.061	<0.01	14	0.21
DA26225	WP26-16796.004	0.033	<0.01	11	0.08
DA26230	WP26-16796.005	0.031	<0.01	1.3	0.05
DA26206	WP26-16796.006	0.029	<0.01	0.45	0.13
DA26218	WP26-16796.007	0.011	<0.01	2.4	0.07
DA26247	WP26-16796.008	0.011	<0.01	13	0.10
DA26258	WP26-16796.009	0.068	<0.01	4.7	0.09

ANALYSIS REPORT

WP26-16796

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 26-Mar-2026
Completed: 15/04/2026
Job Number: WP26-16796
Report Number: 0000033601
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	EWASC_APHA4500_NO3_I Total N g/m3 LOR 0.05	EWASC_APHA4500_P_G Total P g/m3 LOR 0.01	EW_APHA3125_DIS_ELS Al* g/m3 LOR 0.01	EW_APHA3125_DIS_ELS Sb* g/m3
DA26265	WP26-16796.001	0.16	3.670	0.354	0.127
DA26272	WP26-16796.002	0.08	2.770	0.488	0.023
DA26274	WP26-16796.003	0.09	2.540	0.310	0.007
DA26225	WP26-16796.004	0.14	1.930	0.286	0.006
DA26230	WP26-16796.005	0.12	1.530	0.559	0.006
DA26206	WP26-16796.006	<0.05	3.660	0.386	<0.001
DA26218	WP26-16796.007	0.06	2.760	0.225	0.010
DA26247	WP26-16796.008	0.09	4.460	0.200	<0.001
DA26258	WP26-16796.009	0.48	4.430	0.366	0.004

ANALYSIS REPORT

WP26-16796

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 26-Mar-2026
Completed: 15/04/2026
Job Number: WP26-16796
Report Number: 0000033601
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	EW_APHA3125_DIS_ELS As* g/m3	EW_APHA3125_DIS_ELS Ba* g/m3	EW_APHA3125_DIS_ELS B* g/m3 LOR 0.01	EW_APHA3125_DIS_ELS Cd* g/m3
DA26265	WP26-16796.001	0.001	0.005	0.006	<0.0002
DA26272	WP26-16796.002	0.076	<0.002	0.007	<0.0002
DA26274	WP26-16796.003	0.052	0.005	0.007	<0.0002
DA26225	WP26-16796.004	<0.001	0.003	0.005	<0.0002
DA26230	WP26-16796.005	0.135	0.003	0.008	<0.0002
DA26206	WP26-16796.006	0.002	0.007	<0.005	<0.0002
DA26218	WP26-16796.007	0.531	<0.002	0.006	<0.0002
DA26247	WP26-16796.008	0.004	0.003	0.006	<0.0002
DA26258	WP26-16796.009	0.075	0.003	0.006	<0.0002

ANALYSIS REPORT

WP26-16796

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 26-Mar-2026
Completed: 15/04/2026
Job Number: WP26-16796
Report Number: 0000033601
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	EW_APHA3125_DIS_ELS Ca* g/m3 LOR 0.10	EW_APHA3125_DIS_ELS Cr* g/m3	EW_APHA3125_DIS_ELS Co* g/m3	EW_APHA3125_DIS_ELS Cu* g/m3
DA26265	WP26-16796.001	24.3	<0.001	<0.0005	<0.0005
DA26272	WP26-16796.002	9.0	<0.001	<0.0005	<0.0005
DA26274	WP26-16796.003	10.2	<0.001	<0.0005	<0.0005
DA26225	WP26-16796.004	13.6	<0.001	<0.0005	<0.0005
DA26230	WP26-16796.005	7.1	<0.001	<0.0005	<0.0005
DA26206	WP26-16796.006	0.5	<0.001	<0.001	0.002
DA26218	WP26-16796.007	9.9	<0.001	<0.0005	<0.0005
DA26247	WP26-16796.008	12.4	<0.001	<0.0005	<0.0005
DA26258	WP26-16796.009	9.4	<0.001	<0.0005	<0.0005

ANALYSIS REPORT

WP26-16796

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 26-Mar-2026
Completed: 15/04/2026
Job Number: WP26-16796
Report Number: 0000033601
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	EW_APHA3125_DIS_ELS Fe* g/m3 LOR 0.01	EW_APHA3125_DIS_ELS Pb* g/m3	EW_APHA3125_DIS_ELS Mg* g/m3 LOR 0.02	EW_APHA3125_DIS_ELS Mn* g/m3
DA26265	WP26-16796.001	<0.005	<0.0005	1.28	0.001
DA26272	WP26-16796.002	<0.005	<0.0005	1.09	0.001
DA26274	WP26-16796.003	<0.005	<0.0005	1.59	<0.001
DA26225	WP26-16796.004	<0.005	<0.0005	0.90	0.001
DA26230	WP26-16796.005	0.015	<0.0005	0.49	0.001
DA26206	WP26-16796.006	0.556	<0.001	0.61	0.073
DA26218	WP26-16796.007	0.014	<0.0005	1.25	0.002
DA26247	WP26-16796.008	<0.005	<0.0005	1.08	<0.001
DA26258	WP26-16796.009	0.007	<0.0005	0.84	<0.001

ANALYSIS REPORT

WP26-16796

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 26-Mar-2026
Completed: 15/04/2026
Job Number: WP26-16796
Report Number: 0000033601
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	EW_APHA3125_DIS_ELS Mo* g/m3	EW_APHA3125_DIS_ELS Ni* g/m3	EW_APHA3125_DIS_ELS K* g/m3 LOR 0.10	EW_APHA3125_DIS_ELS Se* g/m3
DA26265	WP26-16796.001	0.002	<0.0005	6.4	<0.005
DA26272	WP26-16796.002	0.001	<0.0005	4.5	<0.005
DA26274	WP26-16796.003	0.002	<0.0005	7.6	<0.005
DA26225	WP26-16796.004	0.001	<0.0005	5.0	<0.005
DA26230	WP26-16796.005	<0.001	<0.0005	5.5	<0.005
DA26206	WP26-16796.006	0.002	<0.001	1.2	<0.005
DA26218	WP26-16796.007	0.001	<0.0005	4.3	<0.005
DA26247	WP26-16796.008	0.001	<0.0005	4.6	<0.005
DA26258	WP26-16796.009	0.001	<0.0005	6.6	<0.005

ANALYSIS REPORT

WP26-16796

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 26-Mar-2026
Completed: 15/04/2026
Job Number: WP26-16796
Report Number: 0000033601
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	EW_APHA3125_DIS_ELS Ag* g/m3	EW_APHA3125_DIS_ELS Na* g/m3 LOR 0.50	EW_APHA3125_DIS_ELS Sr* g/m3	EW_APHA3125_DIS_ELS Tl* g/m3
DA26265	WP26-16796.001	<0.0005	0.9	0.170	<0.0005
DA26272	WP26-16796.002	<0.0005	1.9	0.147	<0.0005
DA26274	WP26-16796.003	<0.0005	2.1	0.202	<0.0005
DA26225	WP26-16796.004	<0.0005	0.9	0.050	<0.0005
DA26230	WP26-16796.005	<0.0005	0.6	0.054	<0.0005
DA26206	WP26-16796.006	<0.0005	1.1	0.001	<0.0005
DA26218	WP26-16796.007	<0.0005	0.7	0.080	<0.0005
DA26247	WP26-16796.008	<0.0005	0.9	0.062	<0.0005
DA26258	WP26-16796.009	<0.0005	1.4	0.046	<0.0005

ANALYSIS REPORT

WP26-16796

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 26-Mar-2026
Completed: 15/04/2026
Job Number: WP26-16796
Report Number: 0000033601
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	EW_APHA3125_DIS_ELS Sn* g/m3	EW_APHA3125_DIS_ELS U* g/m3	EW_APHA3125_DIS_ELS V* g/m3	EW_APHA3125_DIS_ELS W* g/m3
DA26265	WP26-16796.001	<0.0005	<0.001	0.001	<0.001
DA26272	WP26-16796.002	<0.0005	<0.001	0.003	0.003
DA26274	WP26-16796.003	<0.0005	<0.001	0.002	<0.001
DA26225	WP26-16796.004	<0.0005	<0.0002	0.001	<0.001
DA26230	WP26-16796.005	<0.0005	0.002	0.004	0.004
DA26206	WP26-16796.006	<0.0005	<0.0002	0.001	<0.001
DA26218	WP26-16796.007	<0.0005	0.001	0.002	0.003
DA26247	WP26-16796.008	<0.0005	<0.0002	0.003	0.001
DA26258	WP26-16796.009	<0.0005	<0.001	0.003	0.003

ANALYSIS REPORT

WP26-16796

Client: MINE WASTE MANAGEMENT LIMITED
PO Box 8040, Riccarton

Christchurch 8440 NEW ZEALAND
Attention:

Received: 26-Mar-2026
Completed: 15/04/2026
Job Number: WP26-16796
Report Number: 0000033601
Order Reference: J-NZ0498 ABA

Sampled By:

Sample ID	Laboratory ID	EW_APHA3125_DIS_ELS Zn* g/m3 LOR 0.01
DA26265	WP26-16796.001	<0.002
DA26272	WP26-16796.002	<0.002
DA26274	WP26-16796.003	<0.002
DA26225	WP26-16796.004	<0.002
DA26230	WP26-16796.005	<0.002
DA26206	WP26-16796.006	<0.005
DA26218	WP26-16796.007	<0.002
DA26247	WP26-16796.008	<0.005
DA26258	WP26-16796.009	<0.005

ANALYSIS REPORT

WP26-16796

Client:	MINE WASTE MANAGEMENT LIMITED PO Box 8040, Riccarton Christchurch 8440 NEW ZEALAND Attention:	**Received:** **Completed:** **Job Number:** **Report Number:** **Order Reference:**	26-Mar-2026 15/04/2026 WP26-16796 0000033601 J-NZ0498 ABA

Date Start/End Analysis (26/3/2026 - 15/4/2026)

* - Denotes non accredited tests

REMARKS:

Analysis of ,Ammonia Nitrogen/Total N, Total P/Flouride and Dissolved Metals is subcontracted to Eurofins Els, 85 Port Road, Seaview, Lower Hutt, Wellington NZ-5010 NEW ZEALAND.AR-26-NW-033323-01

APPLIED METHODS:

EWAPH_APHA4500H: pH in water by APHA4500H: APHA 4500 H SGS Westport

EWA_APHA2310: Acidity includes Free CO2: APHA 2310

EWA_APHA2320: Alkalinity: APHA 2320B

EWAEC_APHA2510: Conductivity and TDS by Calculation - Water: APHA 2510 SGS Westport

EWASC_APHA4500NH3H: Ammonia nitrogen by CFA/FIA: APHA 4500 NH3 H online edition subcontracted ELS

EWAIC_APHA4110B: Anions by Ion Chromatography in Water: APHA 4110 B

EWAIC_APHA4110B_ELS: Anions by Ion Chromatography in Water: APHA 4110 B subcontracted ELS

EWASC_APHA4500_NO3_I: Total nitrogen APHA4500-NO3 I following persulphate digest APHA4500N C: APHA 4500-NO3 I Subcontracted ELS

EWASC_APHA4500_P_G: Dissolved reactive and total phosphorus: APHA 4500-P G subcontracted ELS

EW_APHA3125_DIS_ELS: Trace metals (dissolved) in water by APHA3125 (modified): APHA 3125 subcontracted ELS

EWAPRP_APHA3030B: Filtration water 45 µm: APHA 3030B

EWAPRP_APHA3030B_IC: Filtration water 45 µm: APHA 3030B

Signed and dated on 15-Apr-2026

Zahida ZIA
Environmental Supervisor

APPENDIX G LIMITATIONS

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This Document has been prepared for the particular purpose outlined in MWM's proposal and no responsibility is accepted for the use of this Document, in whole or in part, in other contexts or for any other purpose.

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MINE WASTE MANAGEMENT

GREENROAD GROUP