YINNETHARRA LITHIUM PROJECT

STATIC WASTE ROCK AND LOW-GRADE ORE CHARACTERISATION - MALINDA DEPOSIT

March 2025

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DELTA LITHIUM

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MBS ENVIRONMENTAL

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Executive Summary

Electrostate Malinda Pty Ltd (Electrostate), a subsidiary of Delta Lithium Limited (Delta), is developing the Yinnetharra Lithium Project located approximately about 260 km east of Carnarvon and 120 km northeast of Gascoyne Junction and includes the Malinda deposit and Jameson prospect. Initial target development towards mining approval is for the Malinda deposit which includes approximately 4 km of strike of lithium bearing pegmatites from surface to depths greater than 350 metres. The initial estimated rock to be mined is more than 88 million tonnes across five pits (namely M1, M47, M36East, M36West and M69) across four identified major lithologies in the Malinda deposit including amphibolite, chlorite schist, quartz infill/porphyry and pegmatite.

Delta Lithium commissioned MBS Environmental (MBS) to undertake a geochemical characterisation of the low-grade ore and waste rock material to assess asbestos content, naturally occuring radionuclides and the potential risks of acid metalliferous drainage from the waste rock landforms and the potential adverse effects on the receiving environment during the life of mine and post-closure.

Results

Weathered oxide samples (2% of waste) indicated high enrichment in caesium for all samples with more sporadic exceedances in silver, beryllium, bismuth, lithium, tantalum and tungsten. The samples were found to have alkaline pH values ranging from pH 8.2 to 9.4. Salinity was fresh to brackish and exceeded the Livestock drinking water guideline value of 500 mg/L TDS for most samples. Concentrations of water-soluble metals and metalloids indicated very low concentrations of soluble species with the exception of fluoride and sulfate (in saline samples) which exceeded the Livestock Drinking Water trigger values. All the clay, saprock and overburden materials are prone to clay dispersion/water erosion, therefore, the clays should not be used on slopes as cover and/or rehabilitation material.

All transitional lithologies (22% of waste) were considered Non Acid Forming (NAF) with very low likelihood for these samples to form acid from the observed low sulfur content. They were found to be non-saline with the exception of the chlorite schist, which exceeded the ANZECC Livestock Drinking Water guideline of 500 mg/L TDS. Due to the non-acidic nature of the transitional waste, no acidic seepage is anticipated to be generated from these materials. However, samples of transitional amphibolites in particular (and some biotite schists) were noted to have higher concentrations of soluble fluoride.

Fresh chlorite schist comprised the largest proportion (49%) of waste rock to be mined, with an additional 11% within the shear zone. Small portions may be potentially acid forming (PAF). Overall, an indicated cutoff for possible PAF classification appears to be in the range of 0.3 to 0.4% sulfur. Samples of waste which were at or above this level and PAF or uncertain were typically deeper in the deposit (most below 100 metres below ground) and may be structurally related (fault lines). As the amount of possible PAF is indicated to be up to 5 % of fresh waste rock based on assay database information, PAF management will be required for this portion of material.

Fresh amphibolite waste was the next major waste type (15.7%). Despite low to moderate Acid Neutralising Capacity (ANC) values, all samples were classified as NAF due to the low Acid Production Potential (AP) values of all samples. All samples of fresh amphibolite exceeded the ANZECC Livestock Drinking Water guidelines (2.0 mg/L) for fluoride with concentrations ranging from 2.3 to 4.2 mg/L. Primarily a risk if leached by rain and reporting to ponded water for localised animals using this. Overall, Net Acid Generation(NAG) liquor concentrations indicated a very low potential for additional leaching to occur as a result of oxidation of the waste materials.

Composite samples were comprised of either low-grade ore (three samples) or mineralised waste (four samples). Despite low to moderate ANC values, all samples were classified as NAF due to the low AP values of all samples. Samples were alkaline in nature (pH 7.9 to 8.8) with low levels of salinity/soluble salts and moderate soluble alkalinity. All samples, however, exceeded the Livestock Drinking Water guidelines (2.0 mg/L) for fluoride with concentrations of 2.3 to 12 mg/L. Fluoride and lithium are indicated as the key species potentially soluble at neutral pH. Lithium concentrations were significantly higher, as expected, given the nature of the mineralisation of these samples.

Implications for Management

Oxide waste is a minor portion of waste to be mined (2 %). It was found to be highly sodic, and alkaline with shallow samples (0 to 4 metres) having moderate salinity. Oxide waste, although sufficiently low in salinity for plant growth potential, is not suitable for rehabilitation of sloping surfaces as the sodic nature will result in particles readily dispersing when wet (i.e. by incident rainfall), causing erosion. Suitability of topsoils for harvesting and re-use should be assessed in a site soils investigation. Oxide waste is suitable for use as compacted low permeability covering layer for underlying PAF waste in a waste rock landform.

Although transitional waste was found to be NAF, transitional amphibolite and at least portions of chlorite biotite schists appear prone to leaching of fluoride. Transitional pegmatite has potential to leach higher concentrations of lithium which is likely of lower risk than elevated concentrations offluoride in the leachates. Due to this and the potential for accelerated weathering of transitional chlorite which is exposed, it is suggested to bury transitional waste internally within the waste dump.

Fresh NAF chlorite schists appear the most suitable for rock armouring. Small portions which are PAF should be buried internally within the waste rock dump covered by oxide clays/other material to reduce net percolation. All fresh amphibolite waste was found to be NAF but also prone to fluoride leaching within initial exposure (likely decreases over time) among the waste rock units. It could however be used in instances where any potential seepage of fluoride is suitably controlled (e.g. directed into the pit as a groundwater sink or at least not able to pond in surface waters at the toe) or otherwise be buried as internal waste. Amphibolite is expected to be competent rock and is non-asbestos containing.

All fresh low-grade ore and mineralised waste was found to be NAF. Despite the competent nature of the low-grade ore and mineralised waste as well as low likelihood to form acid upon oxidation, there is high likelihood of leaching increased concentrations of lithium and also fluoride. For this reason, it is recommended to bury the mineralised waste internally and cover the rock with a store and release layer to prevent the leaching of minerals. The low-grade ore material should be

stockpiled on top of oxide and impervious clay layers (Run of Mine Pad - ROM Pad) to limit any potential neutral drainage to the environment.

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1. Introduction

1.1 Project Background

Electrostate Malinda Pty Ltd (Electrostate), a subsidiary of Delta Lithium Limited (Delta), is developing the Yinnetharra Lithium Project ("The Project") which is located approximately about 260 km east of Carnarvon and 120 km northeast of Gascoyne Junction (Figure 1). The Project sits within a tenement M09/185 which is currently under application.

Delta Lithium is focussing on initial development towards mining approval for the Malinda deposit which is approximately 4 km of the total potential strike length and has presence of lithium bearing pegmatites from surface to depths greater than 350 metres. The initial estimated rock to be mined is more than 88 million tonnes across five pits (namely M1, M47, M36East, M36West, M69) across four identified major lithologies in the Malinda deposit including amphibolite, chlorite schist, quartz infill/porphyry and pegmatite.

Delta commissioned MBS Environmental (MBS) to undertake a geochemical characterisation of the low-grade and waste rock material to assess asbestos content, naturally occurring radionuclides and the potential risks of acid mine drainage from the waste rock landforms and the potential adverse effects on the receiving environment during the life of mine and post-closure.

1.2 Objective and Scope of Work

The major objectives of the geochemical works included:

- Characterise the geochemical properties of waste rock and mineralised waste/low-grade ore likely to be generated from the Project and provide recommendations for management of problematic waste types.
- Characterisation of the physical properties and broad rehabilitation/regrowth potential of oxide waste and overburden materials.
- Review the final exploration drill logs and assay database (including sulfur) to inform the properties of waste lithologies and confirm the representative nature of samples taken for geochemical testwork. Delta collected selected waste and low-grade ore samples for analysis.
- Liaison with relevant National Association of Testing Agencies (NATA) laboratories regarding the analysis of the waste rock samples. This included the preparation of all Chain of Custody (CoC) documentation and organising the delivery of samples (by courier) from MBS offices to the relevant laboratories.

The preparation of a waste rock characterisation report which included:

- Classification of all transitional and fresh waste rock materials for their potential to contribute to acid and metalliferous drainage based on acid base accounting (ABA) methodology (static testing).

- Assessment of the potential of mine wastes to produce saline or neutral mine drainage using laboratory leach procedures.
- Assessment of the suitability of benign waste rock and overburden/oxide materials for construction and rehabilitation requirements. Erosion potential of the oxidic waste and suitable hard rock for armouring/construction.
- Assessment of Naturally Occurring Radioactive Materials (NORM) potential for waste rock and ore.
- Preliminary assessment of asbestiform minerals presence/absence and type if present in fresh rock composites using Transmission Electron Microscopy (TEM) following elutriation of respirable fraction material from pulps.
- Collate data and laboratory QA/QC results in xls and PDF format.

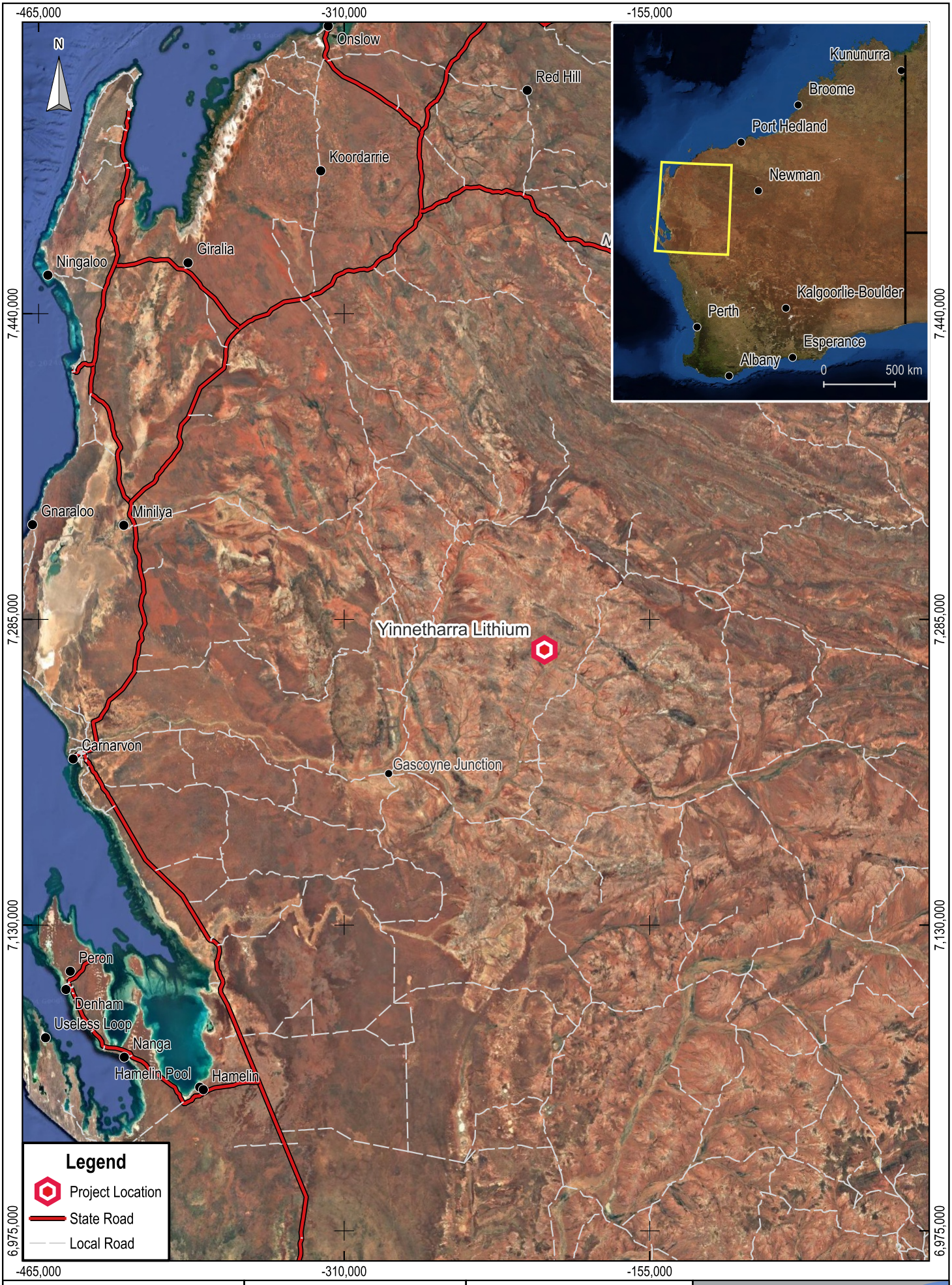

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Image: Google Satellite
Grid: GDA94 / MGA zone 51

Delta Lithium Limited

Figure 1

Location Plan

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0 0.5 1 km

Delta Lithium Limited
Yinnetharra Lithium Project

Figure 2

Site Layout

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2. Environmental Setting

2.1 Climate

The Project area has a semi-arid to arid climate with hot summers and mild winters, the average evaporation exceeds the average precipitation during every month of the year. Rainfall at the Project occurs in two seasons, January to March and May to July. Summer rainfall is less reliable than the May to July rainfall, but it can be significant when it is produced by tropical lows and cyclones. The Jimba Jimba weather station (BoM 006027) is the closet to the Project area and is located about 130 km southwest of Yinnetharra (Chart 1). Rainfall at Jimba Jimba has been recorded since 1888, the mean annual rainfall is 203.7 mm. The mean annual pan evaporation rate of 2,844 mm is derived from the SILO database for the Jimba Jimba/Gascoyne Junction area. The average annual pan evaporation is an order of magnitude higher than the annual precipitation and the annual rainfall deficit is about 2,640 mm. Rainfall events are episodic with highly variable amounts resulting from low-pressure cells and cyclonic disturbances. The monthly mean temperature maxima range from 23.4°C during July to 40.7°C in December and monthly mean temperature minima range from 9.6°C in July to 21.2°C in December.

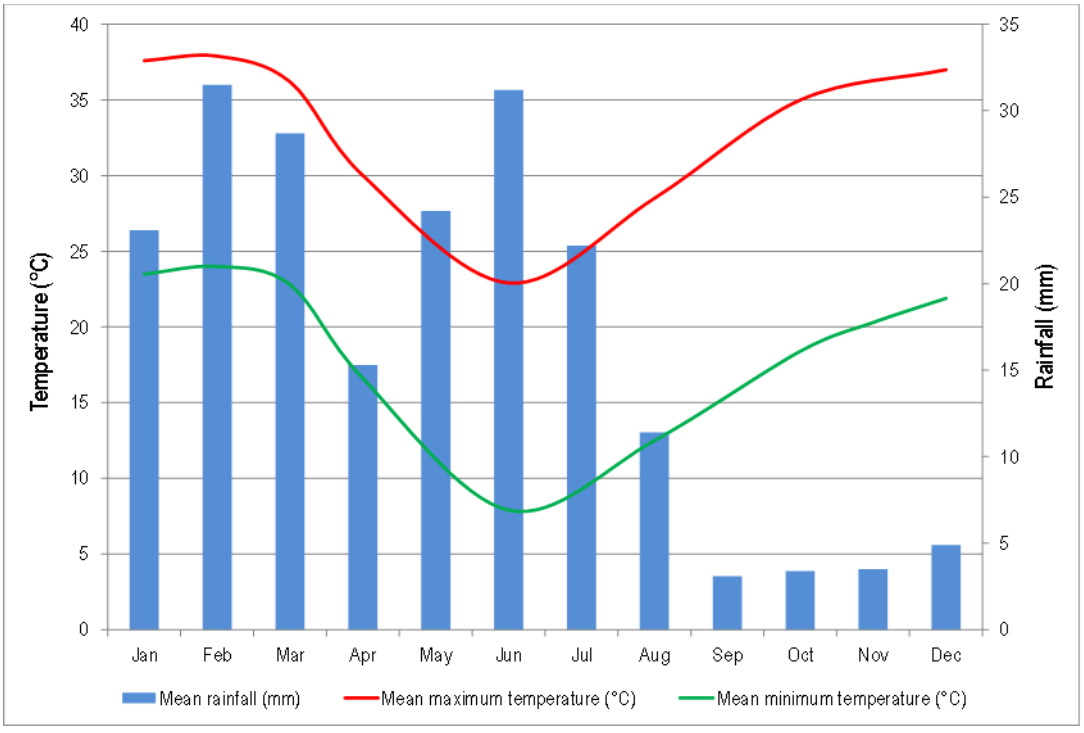


Chart 1: Monthly Climate Data for Jimba Jimba Station 006027 (BoM, 2023)

2.2 Landform and Soils

The northern part of the Project area is predominantly influenced by hardpan wash plains (with hills, ranges and stony plains) on sedimentary rocks, stony soils, red loams and red/brown non-cracking clays with some deep sands. The vegetation is dominated by Mulga shrublands with snakewood. In the southwest, the area is covered by undulating stony uplands, stony plains, hills and ranges on Gascoyne Complex granitic and sedimentary rocks, (DWER 2009). The regional topography averages

about 400 mAHD and slopes gently to the southwest to an elevation of about 280 mAHD (Rockwater 2023).

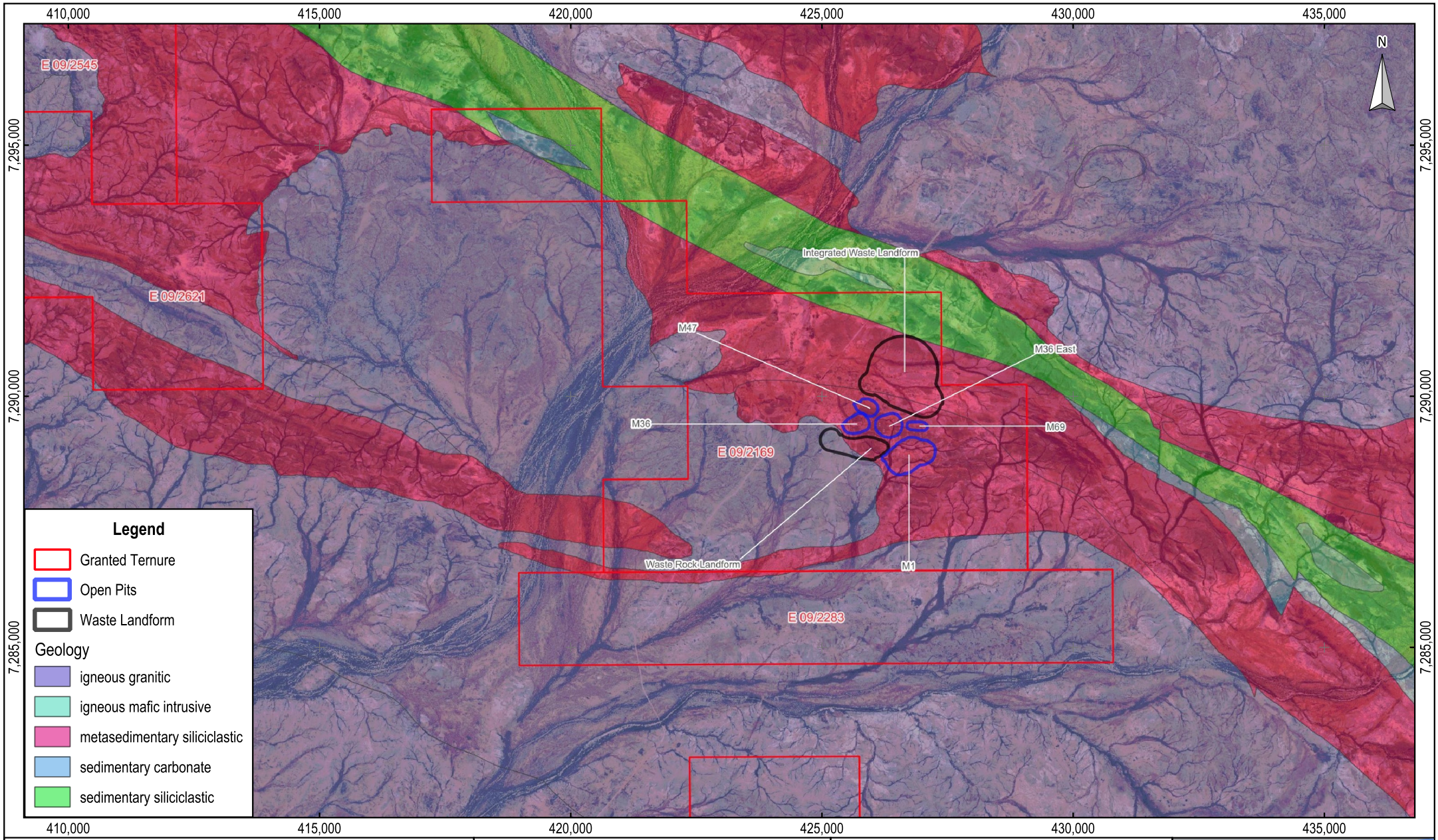
2.3 Geology

2.3.1 Regional Geology

The geology of the Yinnetharra Project area includes a range of Neoarchean to Paleoproterozoic gneisses, granites, and metasedimentary basins (Rockwater 2024). These rocks record the amalgamation of the Archean Pilbara and Yilgarn Cratons of the West Australian Craton which formed over a billion years of subsequent intracontinental crustal reworking. The Gascoyne Province is unconformably overlain by sedimentary rocks of the Edmund Basin and Collier Group to the northeast and by sedimentary rocks of the Carnarvon Basin to the west.

2.3.2 Project Geology

The Yinnetharra Project is located in the Gascoyne province, which includes a range of Neoarchean to Paleoproterozoic gneisses, granites, and metasedimentary basins. These rocks record the amalgamation of the Archean Pilbara and Yilgarn Cratons of the West Australian Craton which formed over a billion years of subsequent intracontinental crustal reworking. Due to this complex structural history, the province can now be subdivided into several fault, shear and metamorphic zones (Johnson 2011). The Project overlies siliciclastic metasedimentary pelitic and psammitic schist, calc-silicate rocks of the Morrissey Metamorphics and felsic intrusive granitic rocks of the Perseverance supersuite . The pelitic schist, gneiss and metamorphosed sed feldspathic sandstones and conglomerates of the Poonaroo Metamorphics outcrop north of the Project area.



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Grid: GDA94 / MGA zone 50 (EPSG:28350)

0 2,500 5,000 m

Delta Lithium Limited
Yinnetharra Lithium Project

Figure 3

Project Geology

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2.4 HYDROLOGY, HYDROGEOLOGY AND GROUNDWATER QUALITY

Local alluvial plains and watercourses drain the Archean basement and lower evaporation than the interior eastern Gascoyne River. Its contribution to the stream flow of the coastal plain is considered significant (DWER, 2009) to the Gascoyne River. The drainage channels are generally broad and defined by large floodways within very wide valleys. The Lyons River is the major tributary, which drains the Kennedy Range area and has higher rainfall.

Rainfall in the region results in high runoff to creeks and rivers, leading to episodic recharge into permeable sediments along the Lyons and Gascoyne Rivers where runoff concentrates. Recharge into the paleochannel aquifer is likely a combination of vertical leakage from surface alluvium and river infiltration, along with lateral flow from the fractured rock aquifers in the vicinity (Rockwater 2024).

Groundwater occurrence in the study area is grouped into three hydrostratigraphic units, based on their ability to store and transmit groundwater including fractured rock, paleochannel and sedimentary aquifers (Rockwater 2024) summarised as follows:

- In the fractured aquifers, groundwater occurs within fractures associated with consolidated bedrock units. At the site waterstrike depths at primarily range between 20 to 80 meters. The groundwater is saline (7,720 to 25,000 mg/L TDS), has high hardness and contains elevated levels of sulfate, nitrate, uranium, and arsenic. Delta is in the process of installing a reverse osmosis plant to treat groundwater for future potable use.
- The Lyons paleochannel located north of the site has been extensively investigated and developed for process water supply for the Yangibana Project. The paleochannel aquifer is divided into three hydrostratigraphic units (GRM 2018a) including shallow alluvium and calcrete deposits; a thick confining clay layer which acts as an aquitard (up to 100 m thick); and a basal sand or calcrete aquifer (up to 40 m thick). The water is saline (9,300 mg/L) in the main trunk, while the northern Lyon paleochannel tributary aquifer has marginally brackish(~1,000 mg/L) water (GRM 2018b).
- Sedimentary aquifers have the potential for substantial potable water production in permeable sandstone and conglomerates. Salinity ranges between 1,300 and 5,000 mg/L (Rockwater 2012). Salinity increases with depth (Rockwater 1982). Groundwater near Gascoyne Junction at a depth around 150 mbgl has notably higher salinity levels, ranging from 9,500 to 11,000 mg/L (Rockwater 1982).

Regional groundwater discharge is westward towards the coast, following the general topography of both Lyons and Gascoyne River. Groundwater discharge may also occur through evapotranspiration of riparian vegetation or discharge from permanent pools along the river.

3. GEOCHEMICAL CHARACTERISATION METHODS

3.1 ACID FORMING WASTE CLASSIFICATION METHODOLOGY

There is no single method to reliably determine whether mine or process wastes containing small quantities of sulfur will produce net acidity upon field exposure to air and water. Sulfide minerals are variable in their behaviour under oxidising conditions and not all forms will produce sulfuric acid (H2SO4). The acid neutralising capacity of these materials is also variable, and the relative rates of acid-forming and acid-neutralising reactions is important when considering if the materials have potential to generate acidic and metalliferous drainage.

Instead, a combination of approaches is often applied to more accurately classify mine or process waste. These approaches are listed below in order of increasing data requirements (and therefore increased reliability):

- The method of "Sulfur Analysis", which only requires data for total sulfur content. Its adoption is based on long term experience of hard rock wastes from Western Australian mine sites under arid and semi-arid climatic conditions. Experience has shown that waste rock containing very low sulfur contents (less than 0.3%) rarely produces significant amounts of acidic seepage (Price 1997).
- The concept of "Ratio Analysis", which compares the relative proportions of acid neutralising minerals, measured by the Acid Neutralising Capacity (ANC), to acid generating minerals, measured by the Maximum Potential Acidity (MPA). Experience has shown that the risk of generating acidic seepage is generally low when this ratio (the Neutralisation Potential Ratio – NPR) is above a value of two (Price 2009).
- Acid-Base Accounting (ABA), in which the Net Acid Producing Potential (NAPP) value, which is calculated by subtracting ANC from MPA, is used to classify the acid generating potential of mine waste. Positive NAPP values indicate that the waste has the potential to generate more acid than it can neutralise.
- Procedures recommended by AMIRA International (AMIRA 2002), which take into consideration measured values provided by the Net Acid Generation (NAG) test and calculated NAPP values.
- Kinetic leaching column test data, which provides information for the relative rates of acid generation under controlled laboratory conditions, intended to simulate those within a waste rock stockpile or tailings storage facility.

Classification of wastes in this report is based on consideration of NAPP and NAG pH results as well as total sulfur analysis/ratio analysis concepts above where this is appropriate. The following is a definition of terms as used in ABA reporting by MBS:

- Analysis for total sulfur (Tot_S) and sulfate-sulfur (SO4_S), both reported as sulfur (%).
- Analysis for ANC (reported as kg H2SO4/t).

- Calculation of carbonate ANC (CC ANC), reported as kg H2SO4/t, from measured concentrations of total carbon (TC) or total inorganic carbon (TIC) (TIC avoids interferences for some samples such as shales from organic carbon).
- Calculation of Maximum Potential Acidity (MPA) = Tot_S * 30.6, reported as kg H2SO4/t.
- Calculation of Acid Production Potential (AP) = [(Tot_S – SO4_S) * 30.6] kg H2SO4/t.
- Calculation of NAPP = [AP – ANC] kg H2SO4/t. Using AP versus MPA corrects for non-oxidisable sulfur present in the sample (i.e. sulfate).
- Calculation of Effective NAPP = [AP – CC ANC] kg H2SO4/t. Effective NAPP values correspond more directly to ANC associated with readily reactive carbonates, providing non-neutralising carbonates such as siderite are absent.
- Analysis for NAG potential (reported as kg H2SO4/t) to both pH 4.5 and pH 7.
- Analysis for NAG pH (the pH of the NAG test liquors).
- Calculation of NPR = ANC/AP (reported as kg H2SO4/t).

This AMIRA approach is more conservative than either the Analysis Concept or the Ratio Concept alone, although it assumes the absence of insoluble sulfur such as barite (barium sulfate), which is a non-acid producing mineral that can interfere with the results. The AMIRA approach of using NAG testing is particularly useful for PAF-LC (Potentially Acid Forming – Low Capacity) materials or where there is very low ANC in the host rock. A combined acid generation classification scheme based on NAPP and NAG determinations which is based on AMIRA 2002 and the 2016 DMP Draft Guidance Materials Characterisation Baseline Data Requirements for Mining Proposals (DMP 2016) and the equivalent federal guidelines (DIIS 2016), is presented in Table 1. This classification system, based on static ABA procedures and used in conjunction with geological, geochemical and mineralogical analysis can still leave materials classified as 'Uncertain' which may warrant further investigation by, for example, kinetic characterisation.

Table 1: Acid Formation Risk Classification Criteria

Primary Geochemical Waste Type Class	NAPP Value kg H2SO4/t	NAG pH
Potentially Acid Forming (PAF)	≥10	< 4.5
Potentially Acid Forming – Low Capacity (PAF-LC)	0 to 10	< 4.5
Uncertain (UC)	Positive	> 4.5
Uncertain (UC)	Negative	< 4.5
Non-Acid Forming (NAF)	Negative	> 4.5 or sulfur <0.2%*
Acid Consuming (AC)	< −100	>4.5
Barren	≤2 and sulfur < 0.05%	–

** Application of 0.2% total sulfur as a screening tool for the need for determination of NAG pH for classification may be applied on a site-specific basis in conjunction with assessment of ANC and NPR. This uses a ratio analysis approach for low risk samples based on Western Australian conditions where extensive experience has indicated no potential for samples with*

less than 0.2% sulfur to generate net acidity in arid conditions for waste rock from hard rock mines. A negative NAPP and NPR of more than 4 (DIIS 2016) indicates no considered potential for acid generation in such instances.

A sound knowledge of geological and geochemical processes must also be employed in the application of the above methods.

3.2 Laboratory Methods

Results of current analysis are collated in Appendix A and laboratory reports provided in Appendix B. All analysis results with % indicated as the reporting unit in this report refer to % weight/weight dry basis unless otherwise specified as consistent with standard laboratory reporting. Results in mg/kg (ppm) may be converted % by division by 10,000.

3.2.1 Acid Base Accounting

Preliminary analysis of ABA parameters included total sulfur, sulfate sulfur, total carbon, ANC, and NAG.

Total sulfur and carbon and acid insoluble carbon (organic carbon and/or graphite) were measured by combustion-based elemental analysis using a 'LECO' type instrument.

The ABA scheme relies on measurement of oxidisable sulfur. The value of this fraction of sulfur in mine waste samples is calculated as the difference between total sulfur and sulfate-sulfur, which is present in a fully oxidised form and therefore not capable of generating additional acidity. Sulfate-sulfur content was determined by a heated hydrochloric acid extraction followed by Inductively Coupled Plasma – Optical Emission Spectrometry (ICP-OES) analysis.

Sample ANC was measured by a modified Sobek procedure (AMIRA International 2002), which involves addition of dilute hydrochloric acid to the sample, followed by gentle simmering (two hours) to complete the reaction. The concentration of acid used for this procedure is first determined by testing the vigour of the reaction of the sample with hydrochloric acid, as assessed by the rate evolution of carbon dioxide gas and any colour change (a 'fizz rating'). The ANC was then determined by titrating the excess acid remaining after addition and reaction, using standardised sodium hydroxide solution.

The NAG test involves the addition of hydrogen peroxide, a strong oxidising agent, to a sample of mine waste to oxidise reactive sulfides. After cooling the sample pH is measured (NAG pH) and any acidity generated is measured by back titrating with sodium hydroxide solution to a pH of 4.5 (NAG to pH 4.5) and then pH 7 (NAG to pH 7). NAG is expressed in units of kg H2SO4/t. A significant NAG result (i.e. final NAG pH less than 4.5) generally indicates that the sample is PAF and the test provides a direct measure of the NAG potential. A NAG pH of 4.5 or more generally indicates that the sample is NAF but may still be capable of generating metalliferous drainage following oxidation of the sulfide minerals. Results for titrations of aliquots of the NAG solution to endpoint pH values of 4.5 and 7.0 allow estimation by the difference between these results of the relative amounts of non-acid producing base metal (e.g. copper) and iron sulfides in the sample.

3.2.2 Elemental Composition

3.2.2.1 Total Elemental Composition

Major and trace metals and metalloids were measured following digestion of a finely ground sample (sub 800 µm) with a four acid mixture of nitric, hydrochloric, perchloric and hydrofluoric acids, which is a total determination for the elements measured. Digest solutions were analysed using inductively coupled plasma mass spectrometry (ICP-MS) or optical emission spectrometry (ICP-OES). Samples were analysed for a suite of 48 metals and metalloids.

From this data, the geochemical abundance index (GAI) for each element was calculated by comparison to the average earth crustal abundance (AusIMM 2001, Smith and Huyck 1999). Where concentrations of any given element fall below the laboratory limit of reporting (LOR), an indicative value equal to the respective LOR is used to calculate GAI or the GAI is assigned as zero. The main purpose of the GAI is to provide an indication of any elemental enrichment that could be of environmental significance. The GAI (based on a log-2 scale) is expressed in integer increments from 0 to 6 (INAP 2009). A GAI of 0 indicates that the content of the element is less than or up to three times the average crustal abundance; a GAI of 1 corresponds to a three-to-six-fold enrichment; a GAI of 2 corresponds to a 6 to 12 fold enrichment and so forth, up to a GAI of 6, which corresponds to a 96-fold, or greater, enrichment above average crustal abundances. A GAI of 3 or more is generally considered 'significant' and may warrant further investigation.

3.2.2.2 Environmentally Significant Composition

Environmentally significant concentrations of 53 metals and metalloids were determined following two-acid (Aqua-Regia) digestion of nitric and hydrochloric acid in a 1:3 ratio. This is the default method defined by regulatory bodies for assessment of 'totals' composition. The aqua regia digestion method is considered effective for measuring trace element concentrations in soils and provides an estimate of the maximum element availability to plants.

The results were compared to default contaminated site ecological investigation levels (EIL) (DEC 2010) and added contaminant limits (ACL) (NEPM 2013).

3.2.3 Water Leachable Characterisation

Samples of pulverised waste rock were subject to a water leach similar to the Australian Standards Leaching Procedure (ASLP) 4439.3 Class 1 specification (Standards Australia 1997a). The filtered (0.45 µm) leachate solutions were analysed using ICP-OES, ICP-MS or other methods as necessary, for a range of elements including major ions (calcium, magnesium, potassium, sodium, sulfate and chloride) and a suite of 53 environmentally significant metals and metalloids. Leachates were simultaneously tested for electrical conductivity (EC), pH, fluoride and alkalinity (bicarbonate, carbonate and hydroxide forms) using electrochemical and volumetric (titration) methods.

3.2.4 Dilute Acid Leachate Characterisation

Samples were subject to a dilute acetic acid leach (initial pH 2.9) according to the Australian Standards Leaching Procedure (ASLP) 4439.3 specification (1:20 extraction ratio). Dissolved metal and metalloid concentrations in the filtered (0.45 µm) extract were determined using ICP-OES or ICP-MS as necessary. This test provides indication of the metals and metalloids that are likely to be leached

as well as their concentrations, should acidic conditions prevail due to sulfide oxidation or by co-storage with other sources of PAF mine waste. The pH of the extract is chosen to reflect a typical value for silicate ANC buffered porewaters (i.e. absence or exhaustion of reactive neutralising carbonates).

3.2.5 NAG Liquor Analysis

Where ABA analysis indicated that samples were PAF, the peroxide digestion solutions (i.e. 'liquor') generated during NAG testing (described in Section 3.2.1) were analysed (after filtration and dilution) for a suite of environmentally significant metals and metalloids using ICP-MS/OES as required. This analysis provides an indication of elemental solubility under highly oxidising conditions, and therefore useful information on potential release of metals and metalloids during sulfide oxidation.

3.2.6 Mineralogical Assessment

Selected samples were submitted to Intertek Genalysis for quantitative powder X-Ray diffraction analysis (QXRD) of the crystalline and amorphous mineral constituents. Samples were dried and ground to a very fine powder (<60 µm) using a microniser mill and sub-sampled for analysis with addition of a zinc oxide internal standard, which supports the quantification approach. XRD patterns were then collected using a PANalytical Cubix wavelength dispersive XRD with quantitative analysis performed using an automated Rietveld method of correction. Full experimental details are provided in the mineralogical laboratory report presented in Appendix B

3.2.7 Dispersion Potential

Selected samples of fine-textured waste rock were analysed for exchangeable cations (calcium, magnesium, sodium and potassium) following extraction of samples with ammonium chloride solution at pH 7. Effective Cation Exchange Capacity (ECEC) was calculated by the sum of the concentrations of individual cations expressed with units of centimoles of positive charge per kilogram (cmol (+)/kg). Exchangeable Sodium Percentage (ESP), a measure of waste rock sodicity, was calculated by the percentage of exchangeable sodium relative to ECEC.

Waste rock containing substantial amounts of clay minerals and with moderate to high ESP values (>15%), are prone to clay dispersion/water erosion, resulting in waste dump instability by processes including tunnelling, rilling and deep gully formation.

3.2.8 Fibrous Minerals

Waste rock and low-grade ore samples were treated to isolate the respirable fraction by means of sedimentation/elutriation – this also serves to remove gangue material which can physically interfere with identification of fibres. A small, weighed subsample of material was agitated in water and allowed to settle for a specific time. The subsampled portion of suspended respirable material was then filtered to deposit uniformly onto a clean low background filter (0.2µm pore size nuclepore filter).

The samples were analysed by TEM-EDS (COHLABS through Glossop Consulting) in accordance with AS 5370-2024. Analysis involved analysing grid openings (GO) (approximately 0.01 mm^2 per grid opening). The area of grid openings examined (in most instances) is equivalent to approximately 1/500th of the effective area of the uniformly distributed material on the filter.

Fibre identification was based on criteria as per ISO22262-1. A fibre was considered countable where the measured diameter was less than 3 µm and the length greater than 5 µm, with an aspect ratio (length:diameter) greater than 3:1. This definition aligns with the guidance note for respirable fibres published by the National Occupational Health and Safety Commission (NOHSC) on the 'Membrane Filtration Method' (NOHSC 2005). The NOHSC criterion was nationally adopted within the work health and safety (WHS) regulations in 2022.

The fibres were then visually examined and compared to known electron diffraction patterns of asbestos fibres followed by chemical composition using energy dispersive X-Ray Spectroscopy (EDS).

The percent of respirable asbestos in the material is then calculated based on dimensions and density of all fibres relative to the subsample taken.

Asbestos criteria for solids/bulk materials vary depending on the application and jurisdiction, they include:

- 0.1% for classification of a product as Category 1A carcinogenic substance under the Globally Harmonised System (GHS) for classification and labelling of chemicals (GHS 2009). This is also the maximum allowable site specific clean up criteria for asbestos in soil set by WA Department of Health (DoH) (DoH 2021).
- A criterion of 0.01% w/w adopted by Department of Water and Environmental Regulation (DWER) for approvals of exporting of bulk (100 tonnes or more per day) granular materials through WA ports under Category 58 of the Environmental Protection Regulations 1987 (DWER 2018). This is in turn intended to control airborne asbestos fibres below public health exposure guideline for limited duration activities of 0.01 fibres/mL (NOHSC definition, enHealth 2005, DoH 2021).
- Health screening levels of 0.01%, 0.02% or 0.05% w/w asbestos for bonded ACM (asbestos containing material) in residential, recreational, or industrial soils respectively (NEPC 2013).
- Department of Health soil asbestos investigation criteria (DoH 2021) for tier 1 risk screening criteria of soils/near surface material which would apply post closure:
  - 0.001% w/w for friable asbestos (FA) and asbestos fines (AF) contamination for all soil types.
  - 0.01% w/w for bonded asbestos containing materials (ACM) in residential soil (open access).
  - 0.02% w/w for bonded asbestos containing materials (ACM) in recreational/public open space areas.
  - 0.05% w/w for bonded asbestos containing materials (ACM) in industrial soils.

4. Drill Hole Assay Database Review

Sample selection for open cut waste rock and low-grade was performed from a drilling assay database comprising multi-elemental assays for over 51,000 samples which is considered a large database to draw appropriate conclusions from. A total of 25 lithologies have been identified and logged across both of the M1 and M47 open pits. The major fresh waste types (55-64 %w/w) include chlorite schist (40 % w/w) and amphibolite (17 % w/w), while the pegmatite represents approximately 10 % w/w of the fresh material to be excavated. Total sulfur statistics for these key lithologies (fresh and partially weathered material only which have potential presence of reactive sulfides) are summarised in Table 2 and Chart 2 to Chart 3. Results indicate the following:

- Total sulfur for both waste fresh types and pegmatite was below 2 % across all samples with (given the large database) a few outliers of higher sulfur. Most samples presented low total sulfur below 0.01 % for each type.
- Fresh amphibolite and chlorite schist waste contained a significant number of samples with a total sulfur content around 0.2 %.
- The highest total sulfur contents were reported between 4.77 and 9.63 % across all ore and waste samples. However, more representative of potential for risk of acid formation, the average and median values were all lithologies were low and were well below the 0.3 % cutoff value (Section 3.1) with the highest average of 0.12 % reported for the amphibolite waste.
- Overall the very low levels of total sulfur across all lithologies indicate from a high level as very low potential for significant acid generation n waste rock or (as expected) pegmatite ore.

Table 2: Sulfur (%) Summary Statistics - Key Fresh Lithologies

Lithology	Weathering zone	#. of Samples	Max	Average	Median	95th Percentile
			(%)			
Amphibolite	FR / PW	8,188	4.77	0.12	0.07	0.40
Chlorite Schist		20,293	9.63	0.08	0.04	0.27
Pegmatite (Ore)		10,174	5.19	0.041	0.01	0.15
Other		2,857	6.55	0.09	0.02	0.34

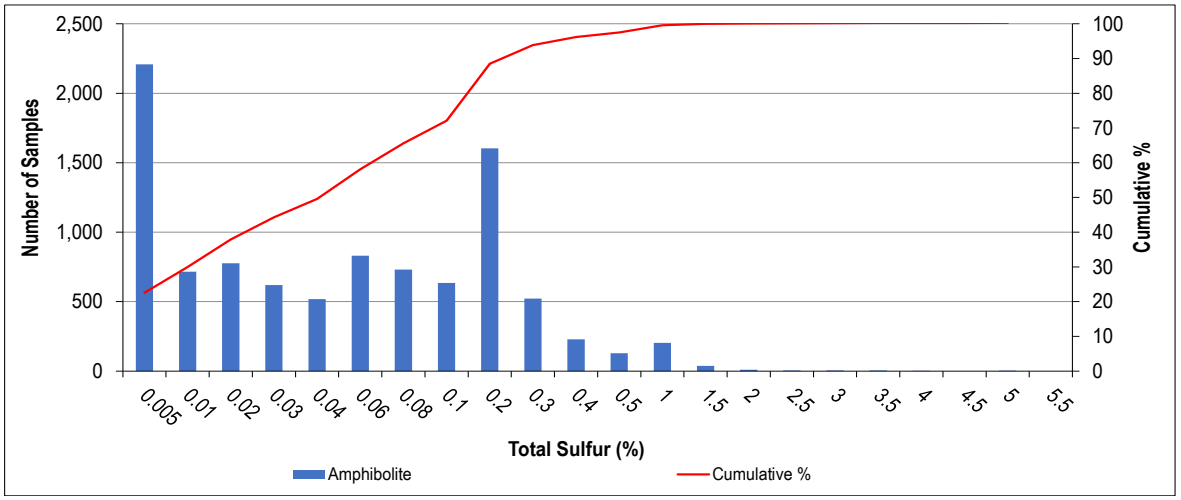

Chart 2: Sulfur Distribution for Fresh and Partially Weathered Amphibolite

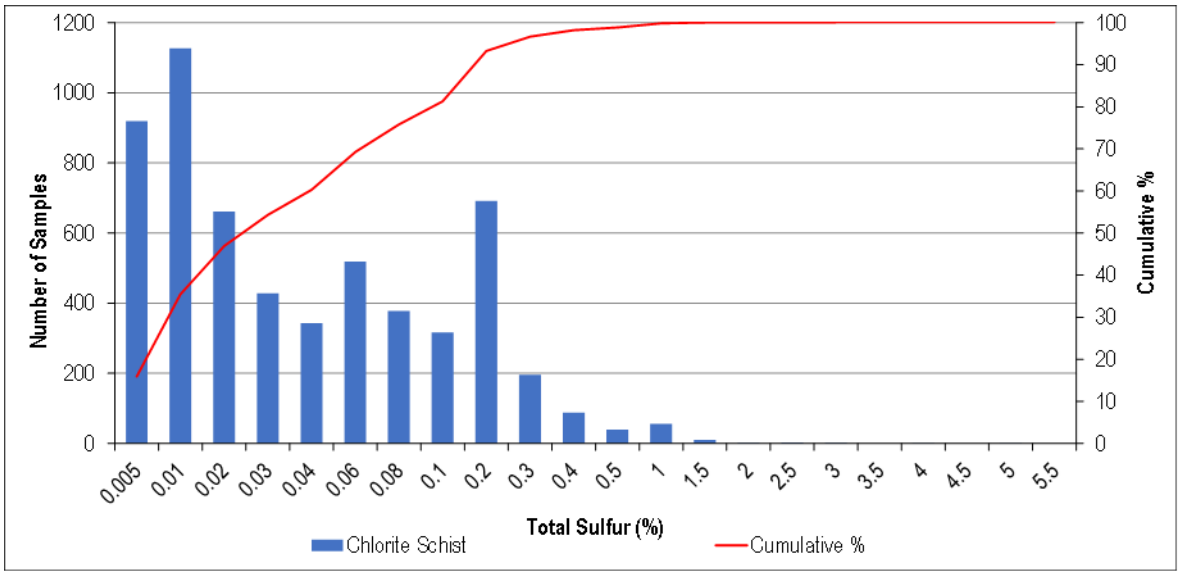

Chart 3: Sulfur Distribution for Fresh and Partially Weathered Chlorite Schist

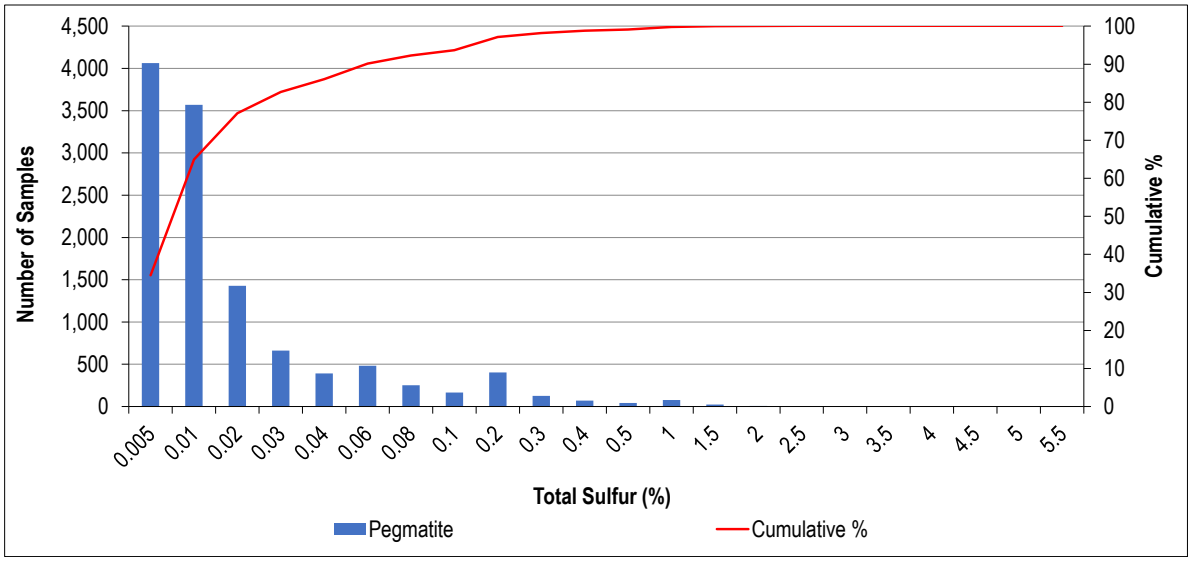

Chart 4: Sulfur Distribution for Fresh and Partially Weathered Pegmatite

Table 3: Summary of Total Tonnages - Key Lithologies

Type	Volumes m^3				
	Pit M1	Pit M36 East	Pit M36 West	Pit M47	Pit M69
Oxide					
Schist/Clay/ Saprock/Overburden	1,625,064	296,206	570,131	299,306	8,148
Transitional					
Chlorite Schist	13,295,000	5,551,100	2,745,400	1,896,500	1,088,900
Amphibolite	1,704,600	196,730	325,100	541,950	10,586
Pegmatite	678,440	71,501	225,390	215,670	141,020
Fresh					
Chlorite Schist	44,193,000	12,402,000	3,752,100	2,586,100	571,710
Amphibolite	13,700,000	3,683,400	971,900	2,045,700	23
Pegmatite	11,381,000	971,340	1,108,800	1,207,300	227,110
Breccia/Quartz Veins	Negligible				
Mineralised Waste* (0.2 - 0.4% Li2O)					
MW	195,000	200,000	80,000	35,000	2,500
LG-Ore* (0.4 - 0.7% Li2O)					
LG	880,000	600,000	289,000	465,000	20,000
Total**	86,577,104	23,172,277	9,698,821	8,792,526	2,047,498

5. Description of Samples

All samples assessed as part of the characterisation were selected from a combination of RC chip and diamond drill cores taken from depths as indicated in Table A1-1 of Appendix A. These samples were selected from available exploration drill core material from 70 drill holes within the five proposed Pit footprints.. Surface collar locations of all drill holes in assay database review and those which were taken for current geochemical analysis are presented in Figure 4. Long and short cross-sections through the deepest portions of the four Pits are presented in Appendix C.

For each of the pits, samples we Table 4. A total of 78 samples were selected for analysis which included:

- Seventy-one waste rock samples across the five proposed pits comprised of 6 oxides (weathered regolith or transported cover), 13 transitional and 53 fresh waste rock samples.
- Four composites (MW1 to MW4) of fresh ultramafic mineralised waste (ore grade of 0.3 - 0.5% Li) including fresh pegmatite samples from the open pits.
- Three composites (LG1 to LG3) of low-grade ore material (fresh pegmatite, 0.5 0 - 0.8% Li).

The analysis performed on these samples are summarised below:

Fifty-nine samples were analysed for ABA parameters (Section 3.2) and all the samples containing ≥ 0.2% total sulfur were analysed for sulfate sulfur content.

A subset of 37 representative samples comprising different waste types was selected for elemental analysis and aqua regia. From these 37 samples, subsets of 24 and 13 samples were respectively selected for water and dilute acetic acid leachability analysis (Sections 3.2.3 and 3.2.4).

- The NAG liquor was analysed for 17 fresh and transitional waste samples.
- Four fresh waste rock samples and one mineralised waste composite (MW3) were selected for mineralogy analysis by XRD.
- The six oxide samples were sent to the ChemCentre for exchangeable cations, Emerson Class and particle size distribution analysis.
- Eleven samples including eight fresh waste materials, one low-grade ore composite (LG1) and two mineralised waste composites (MW2 and MW2) tested for fibrous minerals assessment by Glossop Consulting/COHLABS).

Table 4: Summary of Waste Rock Samples

Waste Type	No. Samples					Mined Waste % (Exc. Ore)
	Pit M1	Pit M36 East	Pit M36 West	Pit M47	Pit M69	
Oxide						
Schist/Clay/ Saprock/Overburden	2	1	2	1	-	2.1
Transitional						
Chlorite Schist	2	1	1	1	1	18.9
Amphibolite	1		1	-	-	2.1
Pegmatite	1	2	-	2	-	1.0
Fresh						
Chlorite Schist	12	7	5	5	2	48.7
Amphibolite	6	3	3	3	-	15.7
Shear zone	2	2	-	1	-	11.4
Breccia/Quartz Veins	-	1	1	-	-	Negligible
Mineralised Waste Composites*						
MW1-Comp1	1	-	-	1	1	0.4
MW2-Comp2	1		-	1	1	
MW3-Comp3	1	1	1	-	-	
MW4-Comp4	2	-	-	-	1	
LG-Ore Composites*						
LG1-Comp1	1	1	-	-	1	(1.7 ***)
LG2-Comp2	1	1	1	-	-	
LG3-Comp1	-	-	1	1	-	
Total**	30	19	15	15	5	100

** Samples MW1 to MW4 and LG1 to LG3 are composites of the selected mineralised waste and low-grade samples.*

*** Total Number of samples analysed.*

**** LG-Ore percentage vs total amount of material excavated*

Figure 4: Drill Holl Locations

6. Results and Discussion

6.1 Mineralogical Composition

Results for the mineralogical assessment of the fresh chlorite-biotite schists, amphibolite (logged as breccia) and composite mineralised waste MW-Comp3 are presented in Table 12. The quantitative X-ray Diffraction (XRD) analysis reports are provided in Appendix B In summary, the results indicate that:

- The mineralogical compositions of the three fresh schists samples are very similar, being predominantly comprised of inert silicate minerals including mica, chlorite and quartz. The key difference was the presence of high tourmaline content (36%) in the amphibolite sample logged as 'Breccia' which confirms this sample is actually an amphibolite sample. The two types (breccia and amphibolite) can be very similar in appearance.
- Mineralised waste sample MW-Comp3 was indicated to be felsic granitic and mainly comprised of sodium plagioclase (45%), quartz (22%) and mica (12%). Lithium in this sample was indicated as being present as spodumene (1%) and also may be present as lithium micas as part of the total mica content (e.g as lepidolite).

Acid-producing sulfide minerals in the form of pyrite (1%) were detectable in all samples selected, with no carbonates being detected.

Table 5: Mineralogical Composition Summary (% by Weight)

Group	Phase	Formula	Y002032	Y038539	Y031889	YD02056	MW-Comp3
Lithology			**Chlorite Schist**	**Chlorite Schist**	**Chlorite Schist**	**Amphibolite (Breccia)**	**Mineralised Waste**
Weathering zone			**Fresh M1**	**Fresh M36E**	**Fresh M36W**	**Fresh M36W**	**Fresh**
Silicates	Amphibole	$(Na,Ca)_2(Fe,Mg,Al)_5(Si,Al)_8O_{22}(OH)_2$		<0.5			
	Beryl	$Be_3Al_2(SiO_3)_6$					<0.5
	Chlorite	$(Fe,Al,Mg)_6(Si,Al)_4O_{10}(OH)_8$	8	12	6	2	<0.5
	Mica	$(K,Ca,Na,Li)(Al,Mg,Fe)_2(Si,Al)_4O_{10}(OH)_2$	42	34	46	19	12
	Potassium Feldspar	$KAlSi_3O_8$					4
	Quartz	SiO_2	31	30	31	28	22
	Sodium Plagioclase	$NaAlSi_3O_8$	3	5	1		45
	Spodumene	$LiAl(SiO_3)_2$					1
	Tourmaline	$(Na,Ca,K)(Fe,Mg,Mn,Al)_3(Al,Cr,Fe,V)_6(BO_3)_3(Si,Al)_6O_{18}(OH,F)_4$	3	1	1	36	1
	Total Silicates		**87**	**82**	**85**	**85**	**85**
Others	Ilmenite	$FeTiO_3$	1	2	1	1	<0.5
	Magnetite	Fe_3O_4		3	1		
	Pyrite	FeS_2	1	1	1	1	<0.5
	Amorphous Content		11	12	11	13	13
Total			**100**	**100**	**99**	**100**	**99**

6.2 Acid and Metalliferous Drainage Characterisation

Laboratory results for total sulfur, total carbon, ANC and calculated acid base accounting parameters and NAG tests of waste rock samples are collated in Table A1-2 of Appendix A.

6.2.1 Sulfur Forms and Distribution

Based on examination of the data in Table A1-2 (Appendix A) and a summary of total sulfur data provided in Table 6, the following are noted as key points:

- Total sulfur concentrations were variable, ranging from <0.01% to 1.43% (fresh chlorite schist). The latter is at the high upper end of sulfur contents for this or any waste lithology based on the assay database review (Chart 3) and would thus be applicable only for a very small portion of waste (much less than 1%).
- Transitional samples contained lower sulfur content than the fresh lithologies consistent with weathering as logged. As such, no transitional samples contained more than the 0.3% total sulfur threshold value established under the Analysis Concept (Section 3.2) as having potential for net acid formation. In addition much of this total sulfur would be present as non-reactive sulfate sulfur in these partially oxidised samples.
- The 0.3% total sulfur cutoff potential value was exceeded for three fresh samples including two chlorite schists (0.33-1.43%), one breccia/amphibolite (0.36%) and one sample from the shear zone (0.67%)
- Total sulfur content for the low-grade ore and mineralised waste samples analysed were overall below or close to the limit of reporting. Mineralised samples being pegmatite based which is always low in sulfides.

Table 6: Total Sulfur Content (%) Summary by Waste Type

Lithology	No. of Samples	Total S			No. Samples >0.3% S	% of samples >0.3% S
		Minimum	Maximum	Median		
Transitional						
Chlorite Schists	5	<0.01	0.05	0.01	0	0
Amphibolite	2	<0.01	<0.01	<0.01	0	0
Pegmatite	3	<0.01	0.11	0.02	0	0
Fresh						
Chlorite Schists	25	<0.01	1.43	0.03	2	8
Amphibolite	12	<0.01	0.15	0.040	0	0
Breccia	1	0.36	0.36	0.36	1	100
Sheared	3	<0.01	0.67	<0.01	1	33
Quartz vein	1	<0.01	<0.01	<0.01	0	0
Ore and Mineralised Waste						
Low-grade Ore	3	<0.01	0.040	0.010	0	0

Lithology	No. of Samples	Total S			No. Samples >0.3% S	% of samples >0.3% S
		Minimum	Maximum	Median		
Mineralised Waste	4	<0.01	<0.01	<0.01	0	0

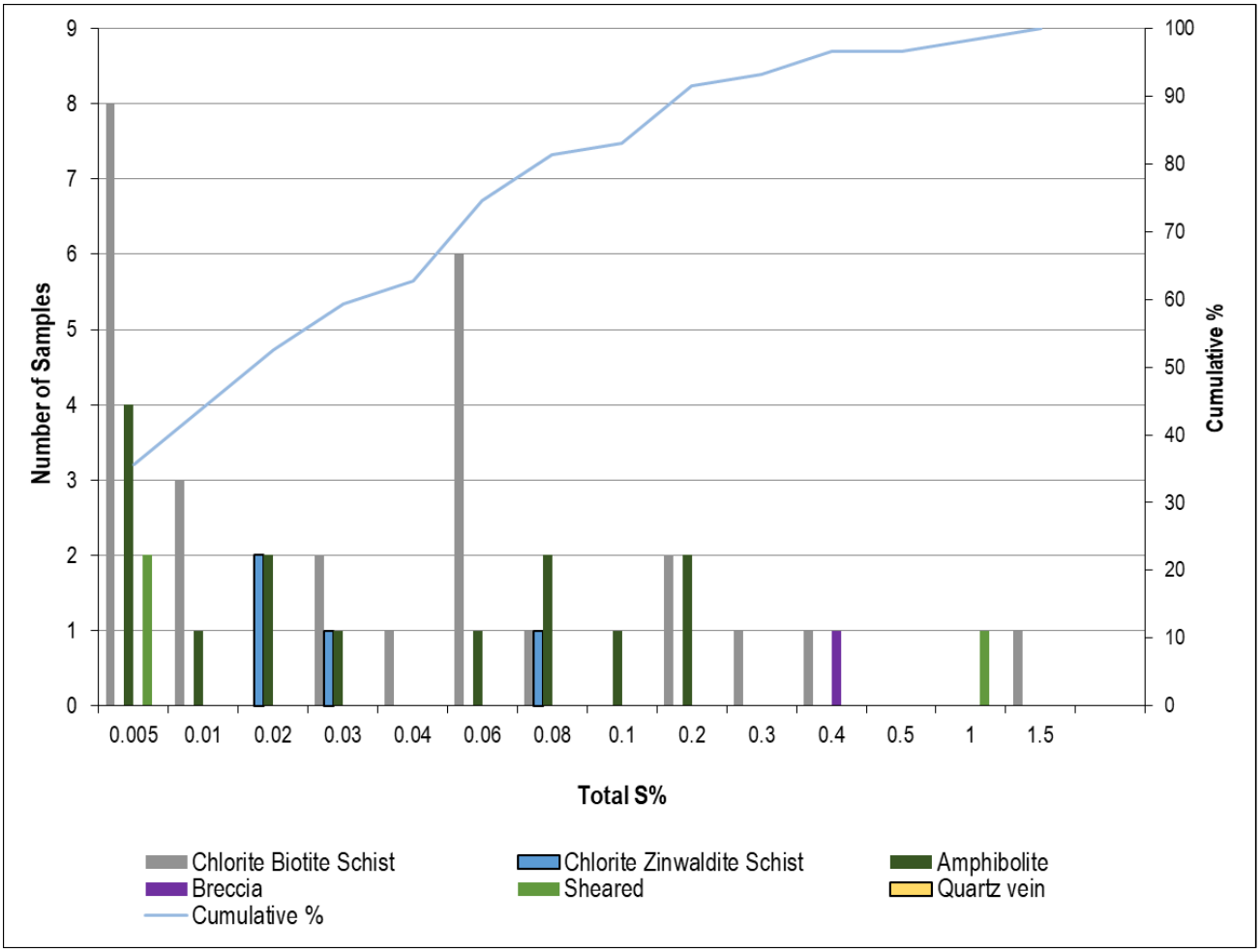

Chart 5: Frequency Plot of Total Sulfur Concentrations

6.2.2 Acid Neutralisation Capacity

A summary of ANC results by waste type across all samples is presented in Table 7, along with the calculated carbonate neutralisation potential (CC ANC), which was calculated using total carbon concentration and indicates ANC that is provided by rapid-reacting carbonate minerals (e.g. calcite). The following key points were noted:

- Whilst each waste type contained variable amounts of ANC, mean values across all types were reasonably consistent, ranging from 11 kg H_2SO_4/t in fresh sheared and quartz vein waste to 53 kg H_2SO_4/t for transitional amphibolite waste.
- Levels of CC ANC were generally low (<10 kg H_2SO_4/t) in most waste with one transitional amphibolite sample being an exception recording the highest mean CC ANC with 36 H_2SO_4/t. The lowest CC ANC values were associated with fresh mineralised waste which is consistent with felsic rock (higher non-reactive quartz and feldspar content).

- Observed lower levels of CC ANC relative to calculated ANC for the same lithologies indicate total carbon content underestimates the potential for acid neutralisation in these materials. This observation indicates the absence or low quantity of reactive carbonate materials and, rather, the ANC is coming from reactive silicates. This observation is in line with the XRD results in Section 6.1 where large amounts of silicates and no carbonates were detected.

Table 7: ANC and Calculated Carbonate ANC Summary by Waste Type

Lithology	No. of Samples	ANC (kg H_2SO_4/t)			CC ANC (kg H_2SO_4/t)		
		Minimum	Maximum	Mean	Minimum	Maximum	Mean
Transitional							
Chlorite Schists	5	11	22	14	1.6	7.4	3.7
Amphibolite	2	36	69	53	21	50	36
Pegmatite	3	15	33	30	2.5	9.8	8.2
Fresh							
Chlorite Schists	25	11	31	14	0.8	21	2.5
Amphibolite	12	15	40	28	0.8	18	5.7
Breccia	1	16	16	16	0.8	0.8	0.8
Sheared	3	3	33	11	2.5	2.5	2.5
Quartz vein	1	11	11	11	2.5	2.5	2.5
Composites							
Low-grade Ore	3	18	21	19	1.6	2.5	1.6
Mineralised Waste	4	10	19	14	0.8	2.5	0.8

6.2.3 Acid and Metalliferous Drainage Classification

When assessing data for the MPA/AP and NAPP, it must be noted that both parameters are based on the assumption that all sulfur (or insoluble sulfates in the case of AP) contained in the sample is acid producing, i.e. associated with pyrite (FeS_2) and other iron sulfide minerals. However, this represents a worst case scenario as not all minerals containing sulfur will result in acid production. Conversely, the NAPP calculation also assumes that the acid neutralising material measured as ANC is associated with rapidly reactive minerals (e.g. carbonates). In practice, some neutralising capacity is supplied by silicate and aluminosilicate minerals, which can be much slower to react. Also, iron carbonate minerals such as siderite ($FeCO_3$) have limited capacity to neutralise acid produced when they dissolve and release ferrous iron (Fe^{2+}) that may be oxidised. Despite these assumptions, NAPP remains a suitable and conservative predictor of potential acid generation when used in conjunction with mineralogical characterisation data.

Acid formation potentials of all samples were classified using methods outlined in Section 3.1 on the results of 59 waste rock analysis (Appendix A, Table A1-2). A graph showing calculated NAPP plotted against NAG pH, upon which the waste classification criteria are based, is presented as Chart 6.

A summary of the samples classified as either NAF (including AC), PAF-LC, PAF-HC or Uncertain is presented in Table 8.

The following key points were noted regarding the acid formation potential classification:

- Of the 59 samples tested, 55 were classified as non acid forming. Three of the remaining four samples were samples of the fresh chlorite schist lithology (from M1 pit), the other was the amphibolite breccia (from M36 West pit).
- One sample (fresh chlorite schist, Y036561 from M1 pit with the highest sulfur content 1.43%) recorded a classification of PAF (Chart 6).
- Three other samples recorded a classification of Uncertain (two fresh chlorite schists from M1 pit - Y030518 and Y002032, marginally below NAG pH 4.5) and one fresh amphibolite breccia from M36 West YD02056).

Table 8: Acid Formation Potential Summary

Waste Type	# Samples	NAF	PAF-LC	PAF-HC	Uncertain (Nominal PAF)
Transitional					
Chlorite Schists	5	5	0	0	0
Amphibolite	2	2	0	0	0
Pegmatite	3	3	0	0	0
Fresh					
Chlorite Schists	25	22	0	1	2
Amphibolite	12	12	0	0	0
Breccia (Amphibolite)	1	0	0	0	1)
Sheared	3	3	0	0	0
Quartz vein	1	1	0	0	0
Composites					
Low-grade Ore	3	3	0	0	0
Mineralised Waste	4	4	0	0	0

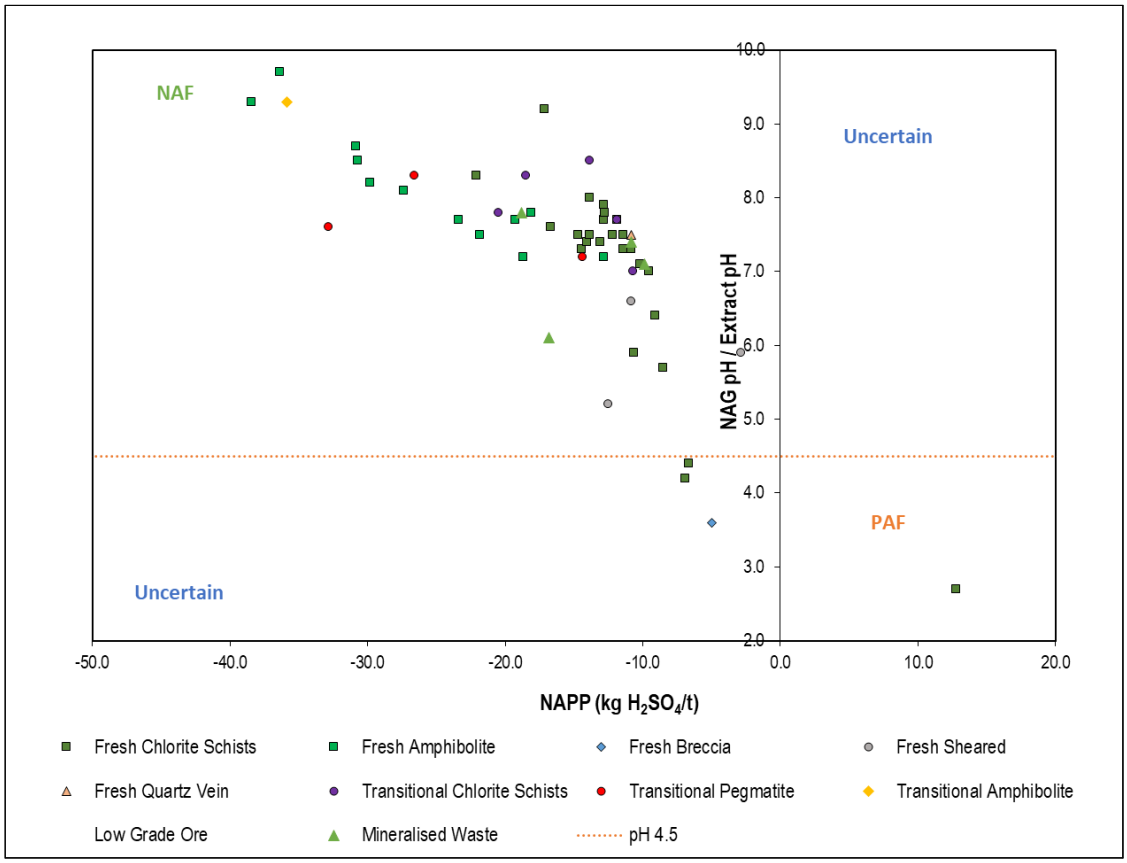

Chart 6: NAPP vs NAG pH Values

A plot of ANC versus maximum potential acidity (AP – corrected for sulfate sulfur) for all samples is shown in Chart 7. The blue and red lines in this chart represent ratios of ANC to AP ratio (neutralisation potential ratio, NPR) of 2:1 and 1:1 respectively. In accordance with the ratio analysis concept discussed in Section 3.1 samples with an NPR of less than two and in particular less than one (red line) are considered uncertain or PAF respectively. An NPR of more than four is considered to have no potential to be acid forming (DIIS 2016). Based on this approach (versus standard NAF/PAF classification on NAG pH as per Section 3.1, key observations are summarised below:

- All the low-grade ore and mineralised waste samples, all transitional samples and all fresh amphibolite samples (other than the amphibolite breccia sample) are classified as NAF showing NPR values above 2.
- For the samples with an NPR less than 2, four samples had an NPR greater than 1, putting them in the 'uncertain category'. Of these four samples, Fresh Sheared sample (YD09141) had an ABA classification of NAF (Table 8) due to the negative NAPP (−12 kg H_2SO_4/t) and NAG pH > 4.5 (pH 5.2).
- As shown in Table 8 and described above, there was only one sample classified as PAF with an NPR of less than 1. This is illustrated in Chart 7 with a fresh chlorite schist, sample ID Y036561 (1.43% sulfur) showing an NPR of 0.7.

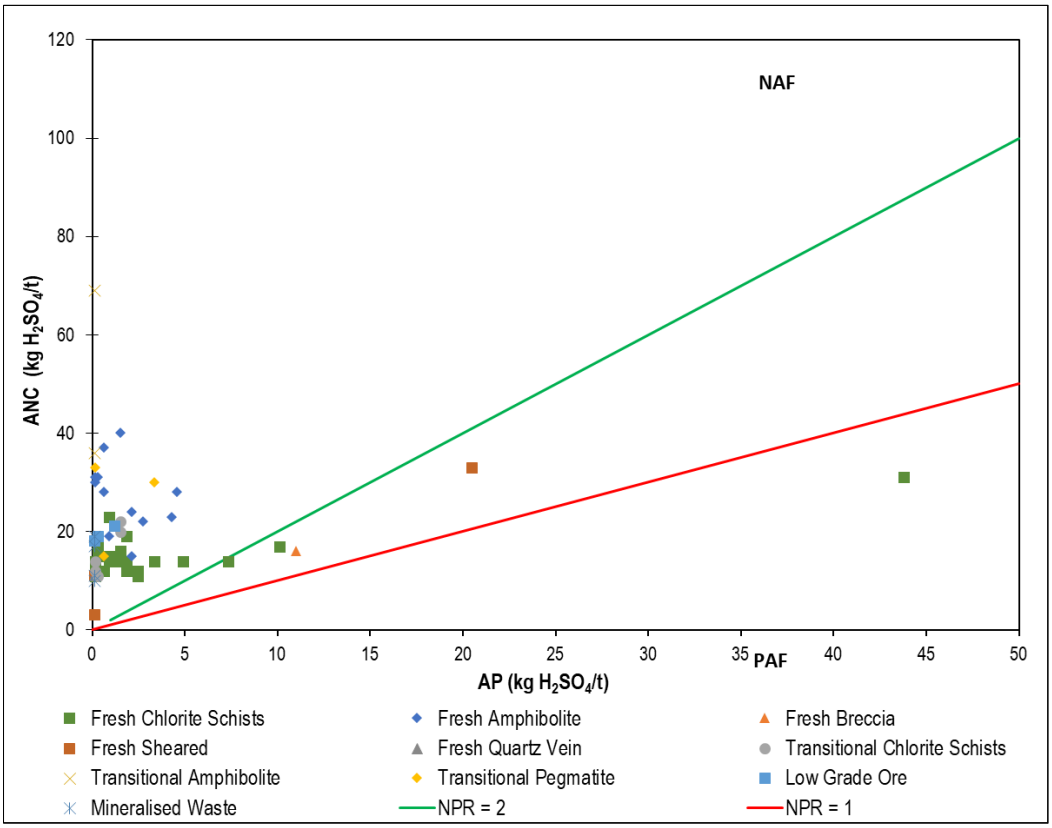

Chart 7: NPR Classification Plot (AP Versus ANC)

6.3 Elemental Composition

6.3.1 Total Elemental Composition

Total elemental concentrations of metal and metalloid for 37 selected samples, together with the calculated GAIs for these samples (as outlined in Section 3.2.2.1), are presented in Table A1-3 and Table A1-4 of Appendix A

Mineral deposits by their nature are anticipated to have some elements present in concentrations above the average crustal abundance. They do, however, provide a useful screening tool for identifying elements requiring further assessment by more specific test methods including leachates. Table 9 summarises the key elements reporting geochemical enrichment. Major results include:

- Most waste and low-grade ore samples showed elevated enrichment in caesium, tellurium and lithium with tantalum, bismuth, beryllium and tungsten also being enriched in various samples. This is somewhat expected as lithium-caesium-tantalum (LCT) are often found together in lithium deposits and have a known 'halo effect' of enrichment into surrounding host rock.
- None of the enriched elements are considered a particular risk to the receiving environment based on having both known high toxicity and potential for mobility. Beryllium, tin, tungsten, tantalum and bismuth for example while potentially toxic to organisms are typically present in highly insoluble forms. Lithium, caesium and rubidium (particularly in mineralised waste and low grade ore) have a higher potential for mobility but are considered of low toxicity overall. Solubility is assessed in following sections.

- Fresh chlorite schist samples were geochemically enriched in beryllium (GAI = 3), caesium (GAI = 3 – 6), lithium (GAI = 3 – 4), rubidium (GAI = 3), tin (GAI = 3 – 4) and tungsten (GAI = 3). The transitional samples were enriched in caesium (GAI = 3 – 5) and lithium (GAI = 3).
- Fresh amphibolite samples were geochemically enriched in bismuth (GAI = 4), caesium (GAI = 3 – 6), lithium (GAI = 3 – 4), rubidium (GAI = 3), tin (GAI = 3) and tungsten (GAI = 5). The transitional samples were enriched in bismuth (GAI = 3), caesium (GAI = 6), lithium (GAI = 4) and tungsten (GAI = 4).
- The fresh sheared samples were the most enriched non-ore bearing sample with enrichments in beryllium (GAI = 3), caesium (GAI = 6), lithium (GAI = 4), rubidium (GAI = 3), sulfur (GAI = 3), tantalum (GAI = 3) and thallium (GAI = 3).
- The mineralised waste sample were the most enriched in LCT elements as expected. Beryllium (GAI = 3 – 4), bismuth (GAI = 4), caesium (GAI = 6), lithium (GAI = 5), rubidium (GAI = 3), tin (GAI = 3), tantalum (GAI = 3 – 4), thallium (GAI = 3) and tungsten (GAI = 3). Of the mineralised waste samples, MW-Comp1 and MW-Comp2 were significantly more enriched than MW- Comp4, which only had enrichments in caesium and lithium.

Table 9: Summary of Total Geochemical Composition and Enrichment

Lithology	Element	Ag	Be	Bi	Cs	Li	Rb	S	Sn	Ta	Tl	W
	Geochemical Abundance	**0.07**	**3**	**0.2**	**3**	**30**	**120**	**500**	**2.5**	**2**	**3**	**1**
Oxide												
Combined Lithologies	Concentration	2.1 – 12	49	3.7 – 11	281 – 789	426 – 840	None	None	None	44	None	14 – 66
	GAI (if enriched)	4 – 6	3	3 – 5	5 – 6	3 – 4				3		3 – 5
Transitional												
Chlorite Schists	Concentration	None	None	None	37 – 148	365	None	None	None	None	None	None
	GAI (if enriched)				3 – 5	3						
Amphibolite	Concentration	None	None	2.4 – 3.3	825	858	None	None	None	None	None	29 – 37
	GAI (if enriched)			3	6	4						4
Pegmatite	Concentration	None	88	27	169	None	None	None	None	62	None	12
	GAI (if enriched)		4	6	5					4		3
Fresh												
Chlorite Schists	Concentration	None	41	None	42 – 957	514 – 922	1,818	None	52 – 72	None	None	12
	GAI (if enriched)		3		3 – 6	3 – 4	3		3 – 4			3
Amphibolite	Concentration	None	None	4.8 – 7.0	46 – 1,011	638 – 808	1,468	None	30	None	None	83
	GAI (if enriched)			4	3 – 6	3 – 4	3		3			5
Breccia	Concentration	None	None	None	112	None	None	None	None	None	None	None

Lithology	Element	Ag	Be	Bi	Cs	Li	Rb	S	Sn	Ta	Tl	W
	Geochemical Abundance	**0.07**	**3**	**0.2**	**3**	**30**	**120**	**500**	**2.5**	**2**	**3**	**1**
	GAI (if enriched)				4							
Sheared	Concentration	None	54	None	3,376	1,345	2,813	6,610	None	45	20	None
	GAI (if enriched)		3		6	4	3	3		3	3	
Low Grade Ore and Mineralised Waste												
Low-grade Ore	Concentration	None	41	None	163	1,934	None	None	None	None	None	None
	GAI (if enriched)		3		5	5						
Mineralised Waste	Concentration	None	44 – 119	6.3	308 – 2,006	1,533 – 1,811	1,769 – 2,244	None	33	25 – 51	13	13
	GAI (if enriched)		3 – 4	4	6	5	3		3	3 – 4	3	3

6.3.2 Total Environmentally Available Composition (Aqua Regia)

Environmentally available concentrations of metal and metalloids were analysed by two-acid digest (aqua regia) and compared to default EIL (DEC 2010) and ACL (NEPM 2013). This is the standard digestion method for environmental soil assessments and can be used as a screening criterion for possible further investigation of risk. Full results are presented in Table A1-5 of Appendix A. Table 10 provides a summary of key environmentally significant metals and metalloids.

Major results included:

- The results of the aqua regia digest were compared to the elemental composition to gauge the proportion of the minerals potentially available to the environment over long term weathering. Elements with the majority of samples being greater than 70% environmentally available compared to totals by four acid were bismuth, cerium, cobalt, caesium, copper, iron, lanthanum, magnesium, molybdenum, nickel, phosphorus, sulfur, tellurium, thorium and zinc.
- Using a comparison of aqua regia results to soil NEPM/DEC environmental investigation levels (EILs) for public open space soils (nominal land classification post closure) or industrial soils (land classification during operations), manganese and vanadium were the main elements that exceeded. These comparisons are conservative in nature however as waste rock is of a much larger particle size than soils (< 2 mm) and hence less is accessible. In addition manganese and vanadium default guidelines are not site specific and do not account for naturally higher concentration in mafic or ultramafic rocks or soils derived from them. Trigger values for barium, manganese and vanadium were taken from the DEC (2010) guidelines as they were not included in the 2013 NEPM program update. These earlier default values are thus not soil type specific and intended even for soils as only a screening tool for risk.
- Vanadium was present in roughly half the samples at concentrations that were greater than 50 mg/kg (NEPM 2013) with the higher vanadium concentrations centred around fresh amphibolite and oxide material.
- Manganese concentrations exceeded the 500 mg/kg DEC 2010 trigger value in 16 of the 37 tested samples, with exceedances observed in all tested lithologies except for pegmatite and breccia.
- Zinc, nickel, chromium and copper only exceeded very conservative soils criteria for ecologically significant areas which would not be applied to Yinnetharra mine waste. Public open space or industrial guidelines were not exceeded except for copper in three of samples. The final land use of the site (post closure) is unlikely to be a site of ecological significance and thus these exceedances are of limited concern regarding future land use and the use of oxide materials for site rehabilitation.
- One sample (fresh sheared) contained barium concentrations greater than 300 mg/kg (DEC 2010). Oxide Schist sample YD00614 reported a silver concentration of 17 mg/kg, which is two orders of magnitude higher than the values reported for the other samples.

Table 10: Summary of Environmentally Significant Metals and Metalloids

Lithology	Element	Ba	Cr	Cu	Mn	Ni	V	Zn
Oxide								
Combined Lithologies	Concentration	None	178	84 – 186	524 – 724	34 – 46	53 – 129	134
	No. Exceedances		1	4	3	5	3	1
Transitional								
Chlorite Schists	Concentration	None	None	None	552 – 553	39 – 55	None	None
	No. Exceedances				2	5		
Amphibolite	Concentration	None	189	93	697 – 839	33 – 42	100 – 125	None
	No. Exceedances		1	1	2	2	2	
Pegmatite	Concentration	None	None	None	None	None	None	None
	No. Exceedances							
Fresh								
Chlorite Schists	Concentration	None	None	89 – 93	550 – 970	35 – 56	53 – 55	138
	No. Exceedances			2	2	12	2	1
Amphibolite	Concentration	None	None	94 – 231	725 – 900	29 – 34	65 – 156	132
	No. Exceedances			3	4	5	5	1
Breccia	Concentration	None	None	129	None	None	None	None
	No. Exceedances			1				
Sheared	Concentration	316	380	312	848	68	160	456
	No. Exceedances	1	1	1	1	1	1	1
Composites								
Low-grade Ore	Concentration	None	None	None	None	None	54	None
	No. Exceedances						1	
Mineralised Waste	Concentration	None	None	None	538 – 699	43	54 – 102	None
	No. Exceedances				2	1	2	
EIL / ACL (DEC 2010 / NEPM 2013) - Ecological Significance		300	160	70	500	25	50	130
EIL / ACL (DEC 2010 / NEPM 2013) - Urban / Residential / POS		300	470	170	500	100	50	390
EIL / ACL (DEC 2010 / NEPM 2013) - Commercial / Industrial		300	770	240	500	170	50	580

6.4 Naturally Occurring Radionuclides

Naturally occurring radioactive materials (NORM) arise due to the presence of one or more radioactive isotopes naturally present in a material. NORM activity in particular is determined by concentrations of thorium (Th-232) and uranium (U-238), which are naturally radioactive gamma (Y) emitting elements present in ores and concentrates. Potassium (K-40) is also a low level gamma emitter treated separately to the above in most assessments. Rubidium (Rb-87) and K-40 are natural low level beta (β) radiation emitters with long half-lives (slow decay rate), due to the Rb-87 and K-40 isotopes respectively, however β emission is a significantly lower risk to health than gamma emission and is normally only assessed in regards for internal ingestion in waters, food etc. (DMP 2010c).

The activity concentrations of the samples were calculated from their total elemental concentrations (Section 6.3.1), assuming secular equilibrium and based on specific activities for each of the four naturally occurring radioactive elements (U, Th, K and Rb). Results are outlined in Table 11, where the specific activities (relates elemental concentration to activity concentration) for naturally occurring proportions of the isotopes applied were: U (U-238) 12,500 Bq/g U, Th (Th-232) 4,090 Bq/g Th, K (K- 40) 30.9 Bq/g K and Rb (Rb-87) 890 Bq/g Rb (DMP 2010a, IAEA 2006).

Table 11: Calculated Mean Activity by Waste Type

Units	U		Th		Total U+Th	K (K-40)		Rb (Rb-87)	
	mg/kg	Bq/g	mg/kg	Bq/g	Bq/g	mg/kg	Bq/g	mg/kg	Bq/g
Exclusion/Exemption Limit	N/A	1	N/A	1	1	N/A	10	N/A	1000
Oxide									
Combined Lithologies	5.29	0.07	12.71	0.05	0.12	2.37	0.00007	567.38	0.50
Transitional									
Chlorite Schists	3.65	0.05	20.94	0.08	0.13	2.67	0.00008	262.21	0.23
Amphibolite	0.85	0.01	2.21	0.01	0.02	1.27	0.00004	550.79	0.49
Pegmatite	6.39	0.08	4.28	0.02	0.10	1.54	0.00005	469.60	0.42
Fresh									
Chlorite Schists	3.44	0.04	21.32	0.09	0.13	3.43	0.0001	583.06	0.52
Amphibolite	1.13	0.01	5.31	0.02	0.04	1.31	0.00004	564.08	0.50
Breccia	3.07	0.04	21.30	0.09	0.12	1.67	0.00005	272.43	0.24
Sheared	0.84	0.01	1.31	0.01	0.02	1.86	0.00006	1408.27	1.25
Composites									
Low-grade Ore	3.20	0.04	1.85	0.01	0.05	0.76	0.00002	685.42	0.61
Mineralised Waste	4.48	0.06	8.88	0.04	0.09	3.08	0.00009	1718.22	1.53

A level of 1 Bq/g head of chain activity concentration is considered 'inherently safe' to humans for uranium and thorium series radionuclides (IAEA 2004, IAEA 2006) and this value is set as the 'exclusion limit' as the resulting effective dose to workers is very unlikely to be more than 1 mSv/year.

The level of 1 Bq/g for these applies individually to each radionuclide (U/Th), however the sum is often compared to this value as a conservative screening tool (Table 11). Levels of Th/U head of chain activity above 10 Bq/g are considered a dangerous good (ten times the exclusion limit) for transport purposes (ARPANSA 2019).

For rubidium, the *Radiation Safety Act 1975 (WA)* and *Radiation Safety (General Regulations) 1983 (WA)* has a defined criterion of 30 Bq/g for a NORM radioactive material or a total activity (accounting for volume and activity) of less than 0.4 M Bq for Rb-87 (Schedule V, General Regulations). A level of 10,000 Bq/g is applicable in relation to placarding and management during transport of Rb-87 based on naturally occurring radioactive material (ARPANSA 2014, Table 2). No exclusion limit specifically for Rb-87 appears to have been set, although IAEA 2004 noted that naturally occurring Rb-87 was assessed and deemed to not require specific risk assessment. Based on ARPANSA 2019 exclusion principles of DG transport criteria being 10 times the NORM exclusion limit, the inferred exclusion limit/inherently safe level for Rb-87 would be 1,000 Bq/g.

Overall, naturally occurring radiation levels in all waste types are low and do not classify under any relevant criteria above, being well below the levels of activity (exemption limits) which would trigger possible further assessment.

6.5 Water Leachate Characterisation

6.5.1 Major Ions, pH and Salinity

Sample pH, EC values and major ions in 1:5 extracts are summarised in Table A1-6 of Appendix A.

Samples across the lithology types were found to have:

- Moderately variable pH values ranging from 7.0 to 9.5. All pH values were circum-neutral to alkaline which is attributed to the majority of the samples being NAF and unlikely to have produced any acid.
- Most samples recorded EC values in the freshwater region; however, four samples (all shallow and within 5 m of surface) exceeded the Livestock Drinking Water Guidelines (ANZECC 2000) of 781.25 µs/cm with values ranging from 936 to 2,372 µs/cm. This indicates surface salinity in the soils and subsoils (if not contamination with saline drill water), however this would need to be confirmed in separate site soils investigations.
- In addition, the concentrations of most major ions were low to moderate and well below relevant default environmental criteria - except in the four most shallow samples above which showed, exceedances to the relevant guidelines for sulfate (YD00614, Y032798) and one sample for chloride (Y032798).
- Of particular note also is what appears a natural but variable elevation in soluble fluoride. Fluoride in 11 of the 24 tested samples was above the Livestock Drinking Water Guidelines (ANZECC 2000) for fluoride of 2 mg/L, with values ranging from 2.3 to 11.9 mg/L. Other samples contained less than 1 mg/L fluoride. Weathering of significant amounts of both tourmaline and biotite (mica) (Section 6.1) in the host/waste rocks of the deposit are being known to release fluoride into groundwaters (Singh and Saxena 2022). Information on existing site

groundwater quality was not available at the time of reporting, it would be expected that fluoride would be elevated in groundwaters near the deposit.

6.5.2 Water Soluble Metals and Metalloids

Observed concentrations of metals and metalloids in the extract may not represent maximum potential concentrations. This test method can be limited by the rates of dissolution, desorption and solubility, especially for sparingly soluble minerals such as gypsum ($CaSO_4.2H_2O$), barite ($BaSO_4$) and fluorite (CaF_2). Hence, an understanding of minerals present is important. Geochemical speciation modelling programs, such as PHREEQC (USGS 2021), provide a useful means for identifying mineral phases that may be responsible for controlling concentrations of water quality constituents and contaminants.

Results for metals and metalloid concentrations in the 1:20 water extracts are presented in Table A1- 7of Appendix A ANZECC livestock (cattle) drinking water guidelines (ANZECC 2000) and Department of Health non-potable groundwater use guidelines (Western Australian Department of Health 2014) are provided for comparison. Key observations of soluble metals and metalloids data are summarised below.

- Despite waste rock samples being enriched in elements mostly associated with LCT pegmatite deposits such as silver, beryllium, bismuth, caesium, lithium, rubidium, sulfur, tin, tantalum, thallium and tungsten (Section 6.3.1), soluble concentrations for all of these elements were low and in the case of silver, beryllium and tin were below analytical limits of reporting. This is consistent with the high natural pH of the rocks which reduces solubility for most metals with the exception of selected amphoteric metals and oxyanions.
- Most tested samples exceeded the NPUG guideline (0.2 mg/L) for aluminium (amphoteric metal) with values ranging from 0.22 mg/L to 4.0 mg/L across samples with multiple samples also having elevated iron concentration. From experience, elevated aluminium and iron concentrations in ASLP leachates are often a function of colloidal particles passing through the 0.45 µm filter. Colloidal materials represent a far lower environmental risk than truly dissolved aluminium species and thus it is unlikely that the concentrations present here pose any environmental risk. This said, levels in current samples of ground material may (given alkaline pH) also represent a partial contribution from dissolution of gibbsite as aluminate ions and also complexation with fluoride as soluble $[Al(F)_2]^{+-}$ these latter (versus colloids) being more likely in fresh rock extracts Reaction with acidic rainwater means that significant mobilisation of aluminium is rarely if ever seen in practice under circum-neutral to alkaline conditions in the environment.
- Minor exceedances of the Freshwater Protection 80% DGV (ANZECC 2000/ANZG 2018) were recorded for vanadium in extracts of amphibolite and mineralised waste although the presence of aquatic systems during operations (highly disturbed) would need to be established. Presence of vanadium (as vanadate oxyanion) again would be consistent with dissolution of tourmaline which is present in the amphibolites/breccia.
- All other tested elements were well below default environmental criteria and in many cases below analytical limits of reporting.

6.6 Dilute Acid Leachate Characterisation

Dilute acetic acid leachate results for the waste rock samples are presented in Table A1-8 of Appendix A. As discussed in Section 3.2.4, analysis of this leachate can provide an indication of metals and metalloids that may be leachable over extended periods if moderately acidic conditions (approximately pH 3.5) were to prevail. In the context of oxide materials this can include the liberation of elements in the oxide matrix if exposed to acidic root exudates from plants used for rehabilitation post closure or with exposure to acidic AMD seepage.

As highlighted in Section 6.2.3, most of the samples are unlikely to form acid due to weathering over time. In any case, the results from the acidic leachates are as follows:

Under the acidic conditions of this test, the primary elements released were iron, calcium, magnesium, manganese and aluminium reflecting acid reactive species. Aluminium in particular was dominant - often being higher than acid released iron which is unusual. Potassium was also present in leachates at higher concentrations than those of the corresponding water leachates. The presence of these elements is indicative of dissolution of acid reactive carbonate, oxide/hydroxide and reactive silicate minerals.

- Aluminium (9 - 78 mg/L) and iron (15 - 59 mg/L) concentrations in the acidic leachates respectively exceeded the Livestock Drinking Water (5 mg/L) and the NPUG (0.3 mg/L) trigger values for all the waste samples analysed across all the weathering zones as well as low-grade ore and mineralised waste. Reactive aluminium hydroxide minerals (such as gibbsite or reactive aluminosilicates) are suggested for this observation.
- Concentrations of chromium were above the Livestock Drinking Water trigger value of 50 mg/L for most of the samples across all waste types and low-grade ore. Concentration for the fresh breccia (amphibolite) sample YD02056, classified as Uncertain (Section 6.2.3), was reported as 50 mg/L.
- Concentrations of manganese exceeded the NPUG trigger value of 5 mg/L on two occasions including fresh chlorite schist sample Y001448 (7.6 mg/L) and the overburden material YD12010 (7.8 mg/L). Exceedance of the Livestock DGV (10 mg/L) was also reported for the mineralised waste composite MW-Comp4 (12 mg/L).
- Cerium was higher than typical for samples from the M36 East deposit in particular (one sample in M36 West) having extractable 1:20 dilute acid concentrations of up to 2.3 mg/L. This correlated with higher concentrations of lanthanum and suggests variable presence of bastnaesite $(La,Ce,Y)CO_3F$. Few guidelines exist for these elements however they are used as reagents in water treatment as they are viewed as being of low toxicity. Concentrations were much lower (as expected) in water extracts. Fluoride was not analysed in the acetic acid extract.
- Exceedances of the ANZG (2018) freshwater ecosystem protection guidelines (80% species protection) were observed for elements such as silver, cadmium, copper and nickel. Given the normally alkaline conditions and the lack of freshwater receptors these exceedances are unlikely to be environmentally significant.

- Overall, release of metals and metalloids under acidic conditions (rehab materials plant roots or net acid formation) will be dominated by aluminium, iron, manganese. Lower to trace concentrations of copper, nickel, cerium, lanthanum and fluoride will also be variably present due to the reactive mineralogy.

6.7 NAG Liquor Characterisation

Results for metals and metalloids rendered soluble under the highly oxidising (NAG test) conditions (Section 3.2.5), which estimate potential element solubility under the influence of oxidation and acid generation are presented in Table A1-9 of Appendix A Results indicated the following:

- Overall NAG liquor concentrations of the key environmentally available metals and metalloids analysed were mostly negligible or below their respective limits of reporting across all waste type. This indicates a very low potential for additional leaching to occur as a result of oxidation of the waste materials.
- Sheared sample (YD01567) and chlorite schist sample (Y030071) showed high concentrations of oxidisable aluminium (314 and 154 mg/kg, respectively). Sheared sample (YD01567) further showed high and outlier concentrations of analytes (3,138 mg/kg Ca, 27 mg/kg Cu, 100 mg/kg Mn, 5,743 mg/kg S, 1.13 mg/kg Y and 98 mg/kg Zn).
- While comparisons can't be made for all samples, the proportion of sulfur leaching from the NAG liquor compared to the elemental composition was above 94%, indicating sulfur is highly leachable and likely in the form of sulfide rather than sulfate.

6.8 Notable Elements by Lithology

Based on the above discussion of water and dilute acetic acid leachate results for waste rock samples presented in Table A1-7 and Table A1-8 of Appendix A a summary of notable elements in waste material is presented in Table 12. Notable elements are those for which health based ANZECC livestock (cattle) drinking water guidelines (ANZECC 2000) and/or Department of Health non-potable groundwater use guidelines (Western Australian Department of Health 2014) were exceeded in 1:5 (water) or 1:20 (acidic) extracts or the element was otherwise of interest based on concentration and potential for toxicity depending on pathway and receptor.

This is intended to provide an indicative list for potential monitoring of metals/metalloids relevant to the waste materials. Note that sulfate has been excluded – sulfate and elevated salts may be present in any sulfidic lithology depending on the degree of recent oxidation but is not itself pH dependent. Iron, although not having health-based guidelines is included as it is a dominant and hence indicative element released from (iron) sulfide oxidation.

Table 12: Summary of Notable Metals/Metalloids

Lithology	Potentially Geochemically Enriched*	Potentially Environmentally Significant**	Neutral to Alkaline Soluble	Acidic Conditions (pH <4.5) Soluble
Oxide				
Combined Lithologies	Ag, Be, Bi, Cs, Li, Ta, W	Cr, Cu, Mn, Ni, V, Zn, F	Mo, F	Al, Ca, Cr, Fe, Mn
Transitional				
Chlorite Schists	Cs, Li	Mn, Ni	Al, Fe, F	Al, Cr, Fe
Amphibolite	Bi, Cs, Li, W	Cr, Cu, Mn, Ni, V	Al, F, V	NA
Pegmatite	Be, Bi, Cs, Ta, W	None	Al, Mo	Al, Fe
Fresh				
Chlorite Schists	Be, Cs, Li, Rb, Sn, W	Cu, Mn, Ni, V, Zn, F	Al, Fe	Al, Cr, Fe, Mn, Ce, La, F
Amphibolite	Bi, Cs, Li, Rb, Sn, W	Cu, Mn, Ni, VF	Al, Fe, Mo, F, V	Al, Cr, Fe
Breccia	Cs	Cu, Mn, Ni, V, F	Al, Fe, Mo, F, V	Al, Fe, Ce, La, F
Sheared	Be, Cs, Li, Rb, S, Ta, Tl	Ba, Cr, Cu, Mn, Ni, V, Zn	None	Al, Cr
Ore and Mineralised Waste				
Low-grade Ore	Be, Cs, Li	V, F, Li	Al, F, Li	Al, Cr, Li
Mineralised Waste	Be, Bi, Cs, Li, Rb, Sn, Ta, Tl, W	Mn, Ni, V, F, Li	Al, Fe, Mo, F, Li	Al, Fe, Mn, Li

** Any instance of GAI of three or more across all samples tested of this type. It does not imply general enrichment in all such samples across the type.*

*** Any EIL (DEC 2010) or ACL (NEPM 2013) exceedance. It does not imply exceedances in all such samples across the type.*

NA: Not Analysed

6.9 Dispersion Potential of Oxide Waste

Oxide waste rock material is generally inert, unlikely to generate acid and metalliferous drainage, and therefore can potentially be used as rehabilitation/regrowth materials provided that they are not prone to dispersion/erosion.

Selected samples of highly weathered (oxide or sufficient clay rich transitional) waste material were analysed for parameters to characterise the likely physical characteristics of oxide waste from the Project. This comprised five oxide samples of clay, schist, saprock and overburden material. Results for analysis of pH, EC and Exchangeable Cations (including derived parameters ECEC and ESP) are provided in Table A1-10 of Appendix A. As indicated previously in Section 3.2.7, the ESP (especially above 15%), is an indication of the sodicity and hence the potential dispersivity of clay-rich waste.

The oxide samples (six) were found to have alkaline pH values ranging from pH 8.2 to 9.4. Salinity was fresh to brackish and exceeded the Livestock drinking water guideline value of 500 mg/L TDS for all samples, excluding saprock sample YD11151, with values ranging from 550 to 1,600 mg/L TDS. The samples that were analysed were found to be highly enriched in caesium with more sporadic exceedances in silver, beryllium, bismuth, lithium, tantalum and tungsten.

All the clay, saprock and overburden (excluding schist) oxide samples analysed were classified as sodic based on their elevated Exchangeable Sodium Percentage (ESP) values, mostly (one exception) ranging from 20 to 29%. Clay samples Y002938, Y032798 and Y005908 are particularly prone to clay dispersion/water erosion, resulting in waste dump instability by processes including tunnelling, rilling and deep gully formation. Therefore, these clays should not be used on slopes as cover and/or rehabilitation material.

6.10 Asbestos

Eleven samples, comprising five chlorite schists, two amphibolites, one sheared, one low-grade ore and two mineralised waste samples were submitted for screening for the presence of fibrous asbestiform minerals. No asbestiform fibres were detected in any sample. The Cohlabs laboratory report is provided in Appendix B.

7. Conclusion and Recommendations

7.1 Key Findings of Geochemical Assessment

Table 13 provides a summary of the key geochemical findings for each waste type. These findings are discussed in more detail in the following subsections.

Table 13: Summary of Key Geochemical Findings

Waste Type	No. Samples Assessed	Proportion of Waste	No. of PAF Samples	Key Water-Soluble Elements	Key Acid-Soluble Elements
Oxide					
Combined Lithologies	6	2.1	0	Mo	Al, Ca, Cr, Fe, Mn
Transitional					
Chlorite Schists	6	18.9	0	Al, Fe	Al, Cr, Fe
Amphibolite	2	2.1	0	NA	NA
Pegmatite	4	1.0	0	Al, Mo	Al, Fe
Fresh					
Chlorite Schists	31	48.7	1	Al, Fe	Al, Cr, Fe, Mn
Amphibolite	15	15.7	0	Al, Fe, Mo	Al, Cr, Fe
Sheared	5	11.4	0	None	Al, Cr
Breccia	1	Negligible	0	Mo	Al, Fe
Quartz Vein	1		0	NA	NA
Ore and Mineralised Waste					
Mineralised Waste	4	0.4	0	Al, Fe, Mo	Al, Fe, Mn
Low-grade Ore	3	1.7***	0	Al, As	Al, Cr

*NA: Not Analysed, ***Portion of LG-Ore versus total amount of material to be excavated*

7.1.1 Oxide Waste

- Assessment of oxide samples selected for analyses indicated:
- High enrichment in caesium for all samples with more sporadic exceedances in silver, beryllium, bismuth, lithium, tantalum and tungsten.
- The oxide samples (six) were found to have alkaline pH values ranging from pH 8.2 to 9.4. Salinity was fresh to brackish and exceeded the Livestock drinking water guideline value of 500 mg/L TDS for all samples, excluding saprock sample YD11151, with values ranging from 550 to 1,600 mg/L TDS. The four samples closest to surface (within 5 m) had the highest salinities.
- Concentrations of water-soluble metals and metalloids indicated very low concentrations of soluble species with the exception of fluoride in particular and sulfate (saline samples) which exceeded the Livestock Drinking Water trigger values.

All the clay, saprock and overburden materials indicated a high potential for clay dispersion and erosion based on high levels of sodicity (greater than 15% ESP). The materials are prone to clay dispersion/water erosion, resulting in waste dump instability by processes including tunnelling, rilling and deep gully formation. Therefore, these clays should not be used on slopes as cover and/or rehabilitation material.

7.1.2 Transitional Waste

Transitional amphibolite and pegmatite waste were all enriched in caesium as well as beryllium, bismuth, lithium, tantalum and tungsten. Sulfur content was low across all samples ranging from <0.01% to 0.11% with ANC values ranging from 11 to 60 kg H_2SO_4/t. All transitional samples of all lithologies were considered NAF with very low likelihood for these samples to form acid from the observed low sulfur content.

Transitional samples (four of twelve selected considered generally representative) were found to be non-saline with the exception of chlorite schist sample Y028530, which exceeded the ANZECC Livestock Drinking Water guideline of 500 mg/L TDS with a value of 823 mg/L TDS.

Due to the non-acidic nature of the transitional waste, no acidic seepage is anticipated to be generated from these materials. However, samples of transitional amphibolites in particular (and some biotite schists) were noted to have higher concentrations of soluble fluoride.

7.1.3 Fresh Waste Rock

Fresh chlorite schist comprised the largest proportion of waste material to be mined. Assessment of 31 samples of fresh mafic rock indicated:

- Sulfur content ranged from <0.01% to 1.43% with only two of the tested 25 samples having a sulfur content greater than the 0.3% threshold (Section 3.1). Carbonates were not present given the mineralogical composition (Section 6.1) which is consistent with their low to moderate ANC values (11 – 22 kg H_2SO_4/t). One sample was classified as PAF (Y036561) with two other classified as Uncertain (likely PAF) with negative NAPP yet a NAG pH which is less than 4.5. Overall, an indicated cutoff for possible PAF classification/potential appears to be in the range of 0.3 to 0.4% w/w sulfur. Samples of waste which were at or above this level and PAF or uncertain were typically deeper in the deposit. They may be structurally related (fault lines). As the amount of possible PAF is indicated to be up to 5 % of fresh waste rock based on assay database information, some PAF management of higher sulfur chlorite schist in particular will be required.
- Low amounts of enrichment in metals with caesium and tellurium being commonly enriched and lithium showing enrichment in 5 out of the 12 analysed samples. Sporadic enrichments were also observed for beryllium, rubidium, tin and tungsten.
- Non-oxidised samples were alkaline in nature (pH 7.8 to 9.1) with low levels of salinity/soluble salts. Concentrations of water-soluble metals and metalloids in eight samples assessed for 1:20 ASLP leachate indicated very low concentrations of soluble species in fresh/unoxidised samples. Fluoride exceeded Livestock Drinking Water guidelines (2.0 mg/L) in one sample Y001448 (30 - 31 mbgl) with a concentration of 4.0 mg/L.

- Under acidic conditions the fresh chlorite schists released significant amounts of aluminium, chromium and manganese (one sample). However, due to the low potential of the material to generate acidity (i.e. one PAF sample out of 25) it is unlikely that these conditions will prevail.

Fresh amphibolite waste was the next major waste type of Yinnetharra Project. Assessment of 15 samples of fresh ultramafic rock indicated:

- Sulfur content ranged from <0.01% to 0.15% with none of the test 12 samples having a sulfur content greater than the 0.3% threshold stipulated as being the minimum content for acid production/ (Section 3.1). Despite low to moderate ANC values (15 – 40 kg H_2SO_4/t), all samples were classified as NAF due to the low AP values of all samples.
- Low levels of enriched metals with only beryllium, caesium, lithium, rubidium, tin and tungsten consistently enriched (GAI 3) in samples.
- Non-oxidised samples were alkaline in nature (pH 8.4 to 9.5) with low levels of salinity/soluble salts and moderate soluble alkalinity. All samples of fresh amphibolite exceeded the ANZECC Livestock Drinking Water guidelines (2.0 mg/L) for fluoride with concentrations ranging from 2.3 to 4.2 mg/L. This is attributed to dissolution of tourmaline in particular which was also seen in soluble vanadium for amphibolites.
- Concentrations of water-soluble metals and metalloids in the four samples assessed for 1:20 ASLP leachate indicated very low concentrations of soluble species in fresh/unoxidised samples.
- Overall NAG liquor concentrations of the key environmentally available metals and metalloids analysed for the fresh amphibolite and chlorite schist waste were mostly negligible or below their respective limits of reporting across all waste type. This indicates a very low potential for additional leaching to occur as a result of oxidation of the waste materials.

7.1.4 Mineralised Waste and Low-Grade Ore

Composite samples were comprised of either low-grade ore (three samples) or mineralised waste (four samples). Assessment of seven samples of fresh ultramafic rock indicated:

- Sulfur content was low and ranged from <0.01% to 0.04% with all four mineralised waste samples recording sulfur content less than the limit of reporting (<0.01%). Despite low to moderate ANC values (10 – 21 kg H_2SO_4/t), all samples were classified as NAF due to the low AP values of all samples.
- Low grade ore and mineralised waste samples showed the highest levels of enriched metals of the samples analysed as expected for a deposit and the ore. All samples were enriched in lithium and caesium with all mineralised waste samples significantly enriched in caesium. Further enrichments were recorded for beryllium (three samples), rubidium and tantalum (two samples) and bismuth, tin, thallium and tungsten (one sample).
- Samples were alkaline in nature (pH 7.9 to 8.8) with low levels of salinity/soluble salts and moderate soluble alkalinity. All samples however exceeded the Livestock Drinking Water

guidelines (2.0 mg/L) for fluoride with concentrations ranging from 3.5 to 12 mg/L. Again, reactive tourmaline (or possibly biotite) is a possible cause for this.

- Despite the higher proportion of enrichments observed, concentrations of water-soluble metals and metalloids in the three composite samples assessed for 1:20 ASLP leachate indicated very low concentrations of soluble species. Fluoride and lithium are indicated as the key species potentially soluble at neutral pH. Lithium concentrations were significantly higher as expected given the nature of the mineralisation of these samples and ranged from 1.37 to 4.45 mg/L.
- Under acidic conditions (very unlikely to occur especially for low grade ore), the mineralised waste and low-grade ore material are anticipated to release concentrations of fluoride, aluminium, and manganese (mineralised waste) above their respective Livestock Drinking Water guideline trigger values.

All waste materials have levels of total uranium and thorium which were not geochemically enriched (well below crustal average concentrations), and natural radiation levels from these materials will not trigger any risk or requirement for further assessment in regards radiation levels.

7.2 Summary of Findings

Overall, the significant majority of waste is NAF, however limited portions of fresh rock waste (indicated as primarily within the chlorite biotite schist), has potential to be PAF where total sulfur concentrations exceed 0.3 to 0.4% w/w. This portion of waste (which may have structural/positional relationship) should be managed as PAF as levels of ANC in most waste rock is also low.

Any potential seepage produced by the waste materials as mined is expected to be non-saline although very near surface materials in this investigation were moderately saline (0 to 4 metres). This should be confirmed with soils investigations prior to mining/harvesting for rehabilitation. Under neutral to alkaline conditions which will dominate concentrations of most species are sufficiently low to be of low risk to the receiving environment at site. One considered exception is fluoride where. seepage from the transitional chlorite schists, transitional or fresh amphibolite, low-grade ore, mineralised waste and oxide materials can all potentially release fluoride concentrations above the 2 mg/L Livestock Drinking Water trigger value (ANZECC 2000).

The fresh rock chlorite biotite schist and sheared zone samples were much lower in soluble fluoride content and appear suitable for rock armouring (provided it is competent/resistant to weathering, see below) to reduce this risk.

7.3 Implications for Waste Management

A summary of geochemical findings and relevant management implications for each waste type are summarised in Table 14.

- samples. Fluoride exceeded Livestock Drinking Water guidelines (2.0 mg/L) in one sample Y001448 (30 - 31 mbgl) with a concentration of 4.0 mg/L.

Oxide waste was found to be highly sodic, and alkaline and samples tested from 0 to 4 metres had moderate salinity. Oxide waste can be treated and managed as NAF. Key implications for management are:

Oxide waste, although sufficiently low in salinity for plant growth potential, is not suitable for rehabilitation of sloping surfaces as the sodic nature will result in particles readily dispersing when wet (i.e. by incident rainfall), causing erosion. Suitability of topsoils for harvesting and re-use should be assessed in a site soils investigation.

Oxide waste should be restricted for use on flat surfaces and may also be suitable for use when placed and compacted as a low permeability covering layer for underlying PAF waste in a waste rock landform.

Although transitional waste was found to be NAF, transitional amphibolite and at least portions of chlorite biotite schists appear prone to leaching of fluoride. Transitional pegmatite by nature has the potential to leach higher concentrations of lithium which is likely of lower risk than fluoride. Transitional chlorite schists which are strongly foliated may also be prone to accelerated weathering upon exposure on slopes leading to minerals/clays within the structure breaking down to form a hardened surface cap which prevents water infiltration and thus becomes unsuitable for plant growth. Due to this and the potential for neutral mine drainage of fluoride in particular, it is suggested to bury transitional waste internally within the waste dump.

Fresh NAF chlorite schists appear the most suitable for rock armouring provided they will suitably resist weathering. Portions which are PAF should be buried internally within the waste rock dump covered by oxide clays.

All fresh amphibolite waste was found to be NAF but also the most prone to fluoride leaching within initial exposure (likely decreases over time) among the waste rock units. It could however be used in instances where any potential seepage of fluoride is suitably controlled (e.g. directed into the pit as a groundwater sink or at least not able to pond in surface waters at the toe) or otherwise be buried as internal waste. Amphibolite is expected to be competent rock and is non-asbestos containing.

All fresh low-grade ore and mineralised waste was found to be NAF. Despite the competent nature of the low-grade ore and mineralised waste as well as low likelihood to form acid upon oxidation, there is high likelihood of leaching increased concentrations of lithium and also fluoride. For this reason, it is recommended to bury the mineralised waste internally and cover the rock with a store and release layer to prevent the leaching of minerals. The low-grade ore material should be stockpiled on top of oxide and impervious clay layers (Run of Mine Pad - ROM Pad) to limit any potential neutral drainage to the environment.

Table 14: Summary of Geochemical Findings and Management Implications by Waste Type

Lithology	Proportion of Waste (%)	Geochemical Findings	Management Implications
Oxide			
Oxidic (Combined Lithologies)	2.1	Upper surface samples were moderately saline in this study, samples were NAF but indicated as having elevated soluble fluoride content. Sodic and erosive on slopes (Section 6).	Clayey materials suitable as ROM pad construction and for any PAF capping layer. Assess potential rehabilitation materials for salinity and fluoride prior to harvesting and use.
Transitional			
Chlorite Biotite Schists	18.9	NAF, low metalloids and salinity, some potential for fluoride solubility	Suggested to be buried as internal waste within the waste dump
Amphibolite	2.1	NAF, low metalloids and salinity, indicated potential for fluoride solubility	
Pegmatite	1.0	NAF. Lithium and fluoride key species which are potentially soluble	
Fresh			
Chlorite Biotite Schists	48.7	Portions above 0.3 to 0.4% w/w sulfur potentially PAF however this is limited volumes. NAF portions appear benign subject to weathering assessment.	NAF chlorite biotite schist is considered benign and the most suitable for use in rock armouring and construction as required. Portions of PAF (<5%) should be buried within the waste dump covered by a layer of clay/oxide material to prevent net seepage through the profile.
Amphibolite	15.7	Likely primarily NAF, apply same criteria as for schists. Risk of initial at least high levels of fluoride in pore water seepage/runoff.	Suggested buried as internal waste within the waste dump. Portions of PAF to be incorporated with other PAF waste
Shear Zone	11.4	Limited waste volume, appears NAF, treat as per Chlorite Biotite Schist as it contains this rock type.	NAF sheared zone material is considered benign and suitable for use in rock armouring and construction as required.
Breccia	Negligible	Limited waste lithology likely overlapping with amphibolite in nature and properties	Suggested to be buried as internal waste within the waste dump as for amphibolite.

Lithology	Proportion of Waste (%)	Geochemical Findings	Management Implications
Quartz Vein		Very limited waste lithology, considered benign unless sulfur content above 0.3 to 0.4% (potentially PAF)	NAF material has no particular implications, limited volume.
Composites			
Mineralised Waste	0.4	Mineralised waste is NAF and generally low risk except for potential release of lithium and fluoride over time. Likely	Suggested to be buried as internal waste within the waste dump.
Low-grade Ore	1.7	Pegmatite is NAF and generally low risk except for potential release of lithium and fluoride over time	Stockpile on clayey/fines based ROM pad and direct stormwater towards collection and re-use in the plant.

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9. Glossary of Terms

Collated Laboratory Results Terminology	Explanation
AC	Acid consuming material. Defined as NAF material which has a NAPP value in excess of -100 kg H2SO4/t
ACM	Acid consuming material.
aeolian	Processes by which wind lifts and transports particulate (e.g. ore dust, soil, tailings).
alkalinity	The capability of water to neutralise acid. Alkalinity is measured in the laboratory by titrating a sample to pH 8.3 and expressing the result with units of milligrams $CaCO_3$ equivalents per litre (mg $CaCO_3$ /L).
amorphous	Describing solid substances lacking a clearly defined crystalline lattice structure usually associated with rock minerals (e.g. iron oxyhydrogen gels and humic substances).
amphoteric	Metal or metalloid that is soluble in both acidic and alkaline media.
ANC	Acid Neutralising Capacity. A process where a sample is reacted with excess 0.5 m HCl at a pH of about 1.5, for 2-3 hours at 80-90ºC followed by back-titration to pH=7 with sodium hydroxide. This determines the acid consumed by soluble materials in the sample.
ankerite	A calcium, iron, magnesium, manganese carbonate mineral of general formula $Ca(Fe,Mg,Mn)(CO_3)_2$. In composition it is closely related to dolomite, but differs from this in having magnesium replaced by varying amounts of iron(II) and manganese.
AP	Acid Potential. Similar to MPA, but only is based on the amount of sulfide-sulfur (calculated at the difference between total sulfur and sulfate-sulfur (SO_4-S)) rather than total sulfur. AP (kg H_2SO_4/t) = (Total S – SO_4-S) x 30.6.
apatite	A group of phosphate minerals (e.g. hydroxylapatite, fluorapatite and chlorapatite) containing high concentrations of hydroxide, fluoride and chloride ions.
basalt	A dark coloured fine grained mafic extrusive igneous rock composed chiefly of calcium plagioclase and pyroxene. Extrusive equivalent of gabbro underlies the ocean basins and comprises oceanic crust.
brackish	Water with intermediate salinity between freshwater and seawater.
breccia	Rock consisting of angular fragments of stones cemented by finer calcareous material.
calcite	Calcium carbonate $CaCO_3$.
calcrete	Breccia or conglomerate cemented together by calcareous material, formed in soils under semi-arid conditions.
CC ANC	Calculated Carbonate Acid Neutralising Potential. The estimated amount of ANC provided by carbonate minerals. CC ANC (kg H2SO4/t) = TC or TIC (%) x 81.7
chalcopyrite	A copper iron sulfide mineral with the chemical formula $CuFeS_2$.
circum-neutral pH	pH value near 7.
dolomite	Calcium magnesium carbonate $CaMg(CO_3)_2$.
EC	Electrical conductivity. A measurement of solution salinity. Conversion: 1000 µS/cm = 1 dS/m = 1 mS/cm
Effective NAPP	NAPP calculated using CC ANC rather than traditional ANC.

Collated Laboratory Results Terminology	Explanation
	Effective NAPP (kg H2SO4/t) = AP – CC ANC
evapotranspiration	Process by which water is transferred from the land to the atmosphere by evaporation from the soil and other surfaces, and by transpiration (update and evaporation from leaves) from plants.
feldspar	Abundant rock forming aluminosilicate mineral with substitution varieties of potassium, calcium and sodium. Potassium feldspars can themselves be subject to substitution by other alkali metals such as rubidium and caesium but also lithium.
felsic	Silicate minerals, magma, and rocks which are enriched in the lighter elements such as silicon, oxygen, aluminium, sodium, and potassium.
granite	A coarse-grained, intrusive igneous rock composed primarily of light coloured minerals such as quartz, plagioclase, orthoclase and muscovite mica. Granite is one of the main components of continental crust.
mafic	Descriptive of igneous rock containing a high content of ferromagnesian silicate minerals, but less than those present in ultramafic rocks. Common mafic rocks include basalt, dolerite and gabbro.
MPA	Maximum Potential Acidity. A calculation where the total sulfur in the sample is assumed to all be present as pyrite. This value is multiplied by 30.6 to produce a value known as the Maximum Potential Acidity reported in units of kg H2SO4/t. MPA should include only the non-sulfate sulfur to avoid over-estimation of acid production in which case it may be referred to as AP.
NAF	Non Acid Forming
NAG	Net Acid Generation. A process where a sample is reacted with 15% hydrogen peroxide solution at pH = 4.5 to oxidise all sulfides and then time allowed for the solution to react with acid soluble materials. This is a direct measure of the acid generating capacity of the sample but can be affected by the presence of organic materials.
NAGpH	The pH after the NAG test with hydrogen peroxide and heating is completed i.e. oxidation of all sulfides.
NAPP	Net Acid Producing Potential. NAPP (kg H_2SO_4/t) = AP – ANC.
oxidisable sulfur	A form of sulfur (sulfide, S^{2-}) that reacts with oxygen and water to form sulfuric acid (H_2SO_4). It is estimated as the fraction that remains when sulfate (SO_4^{2-}) is subtracted from the total sulfur. An alternative method for estimating oxidisable sulfur is by measurement of chromium reducible sulfur.
PAF	Potentially Acid Forming.
PAF-HC	Potentially Acid Forming – High Capacity. Waste rock classification for samples with NAPP values greater than 10 kg H_2SO_4/t.
PAF-LC	Potentially Acid Forming – Low Capacity. Waste rock classification for samples with NAPP values less than or equal to 10 kg H_2SO_4/t.
palaeochannel / palaeovalley	A palaeochannel is a remnant of an inactive river or stream channel that has been filled or buried by younger sediment.
pegmatite	Very coarse intrusive igneous rock that commonly consist of quartz, feldspar and mica.
pentlandite	An iron-nickel sulfide with the formula $(Fe,Ni)_9S_8$.
playa	Denotes a dry lake or flat that may periodically fill with water to form a lake.

Collated Laboratory Results Terminology	Explanation
porphyry	An igneous rock with texture consisting of large crystals (phenocrysts) dispersed in a fine grained feldspathic matrix or groundmass. The phenocrysts may consist of quartz, feldspar etc.
pyrite	Iron (II) sulfide, FeS_2. Pyrite is the most common sulfide minerals and the major acid forming mineral oxidising to produce sulfuric acid.
pyrrhotite	Iron (II) sulfide, Fe_7S_8 or $Fe_{(1-x)}S$ where S = 0 to 0.2. The second most common iron sulfide mineral with produces varying amounts of sulfuric acid upon oxidation depending on the amount of oxygen available – it may react instead to produce elemental sulfur rather than sulfuric acid.
QXRD	Quantitative X-ray Diffraction analysis, a technique used to estimate relative proportions of waste rock comprising key mineral phase constituents.
saprock	A rock chemically broken down in its original place by deep weathering of the bedrock surface. It consists of partially weathered and unweathered primary minerals and maintains all of the fabric and structural features of the parent fresh rock.
saprolite	Highly weathered saprock. Minerals such as feldspars and micas have been fully weathered to clay minerals, while only highly resistant minerals such as quartz and zircon remain unaltered. Saprolite still retains the fabric and some of the structural features of the parent fresh rock.
siderite	Iron(II) carbonate $FeCO_3$. Oxidation of Iron(II) to iron(III) following reaction with acid results in siderite being non-net acid neutralising (unlike calcite for example).
spodumene	Lithium aluminium inosilicate $[LiAl(SiO_3)_2]$ the primary source of 'hard rock' lithium.
sulfide	Minerals comprising reduced sulfur (i.e. S^{2-}), such as iron (II) sulfide, FeS_2. Pyrite is the most common sulfide minerals and the major acid forming mineral, oxidising to produce sulfuric acid.
syenite	A coarse grained intrusive igneous of general composition similar to granite but low in quartz (<5%) and dominated by alkaline feldspars (normally orthoclase).
TIC	Total Inorganic Carbon.
ultramafic	An igneous rock with very low silica content and rich in minerals such as hypersthene, augite and olivine. These rocks are also known as ultrabasic rocks.

APPENDIX A

APPENDIX A:
COLLATED LABORATORY RESULTS

MBS ENVIRONMENTAL

MARTINICK BOSCH SELL PTY LTD
ABN 60 102 614 479
MBS ENVIRONMENTAL
environmental and geoscience consultants

Table A1-1: Sample Descriptions

Sample ID	Hole ID	From	To	Depth (mbgl)	Type	Weathering	Lithology	Location
YD00614	YNRD006	3	3.6	3 - 3.6	Waste	Oxide	Schist	M1
Y002938	YRRD007	3	4	3 - 4	Waste	Oxide	Clay	M1
Y028530	YRRD271	0	4	0 - 4	Waste	Transitional	Chlorite Biotite Schist	M1
Y044514	YRRD424	11	12	11 - 12	Waste	Transitional	Amphibolite	M1
Y032089	YRRD290	38	39	38 - 39	Waste	Transitional	Chlorite Biotite Schist	M1
Y042938	YRRD404	43	44	43 - 44	Waste	Transitional	Pegmatite	M1
Y043748	YRRD418	19	20	19 - 20	Waste	Fresh	Amphibolite	M1
Y035276	YRRD322	20	21	20 - 21	Waste	Fresh	Amphibolite	M1
YD05863	YDRD010	27.54	28.67	27.54 - 28.67	Waste	Fresh	Sheared	M1
Y027826	YRRD267	28	29	28 - 29	Waste	Fresh	Chlorite Zinwaldite Schist	M1
Y028539	YRRD271	47	48	47 - 48	Waste	Fresh	Chlorite Biotite Schist	M1
Y036561	YRRD332	61	62	61 - 62	Waste	Fresh	Chlorite Biotite Schist	M1
Y029720	YRRD277	63	64	63 - 64	Waste	Fresh	Amphibolite	M1
Y035300	YRRD322	64	65	64 - 65	Waste	Fresh	Chlorite Biotite Schist	M1
Y030469	YRRD282	65	66	65 - 66	Waste	Fresh	Chlorite Biotite Schist	M1
Y029114	YRRD274	70	71	70 - 71	Waste	Fresh	Amphibolite	M1
Y029247	YRRD275	70	74	70 - 74	Waste	Fresh	Chlorite Biotite Schist	M1
Y030020	YRRD279	81	82	81 - 82	Waste	Fresh	Amphibolite	M1
Y033094	YRRD296	82	83	82 - 83	Waste	Fresh	Chlorite Biotite Schist	M1
Y043821	YRRD419	91	92	91 - 92	Waste	Fresh	Chlorite Biotite Schist	M1
Y030518	YRRD282	97	98	97 - 98	Waste	Fresh	Amphibolite	M1
YD01567	YNRD008	109	109.68	109 - 109.68	Waste	Fresh	Sheared	M1
Y030071	YRRD279	129	130	129 - 130	Waste	Fresh	Chlorite Biotite Schist	M1
Y027852	YRRD267	139	140	139 - 140	Waste	Fresh	Chlorite Zinwaldite Schist	M1
Y004567	YRRD025	177	178	177 - 178	Waste	Fresh	Chlorite Biotite Schist	M1
Y002032	YRRD001	210	211	210 - 211	Waste	Fresh	Chlorite Biotite Schist	M1
YD11151	YDRD035	4.53	5.23	4.53 - 5.23	Waste	Oxide	Saprock	M36 East
Y038670	YRRD363	10	11	10 - 11	Waste	Transitional	Pegmatite	M36 East
Y010511	YRRD112	38	39	38 - 39	Waste	Transitional	Chlorite Biotite Schist	M36 East
Y016629	YRRD181	43	44	43 - 44	Waste	Transitional	Pegmatite	M36 East
Y016092	YRRD158	15	16	15 - 16	Waste	Fresh	Quartz vein	M36 East
Y010311	YRRD081	51	52	51 - 52	Waste	Fresh	Chlorite Biotite Schist	M36 East
Y039402	YRRD367	52	53	52 - 53	Waste	Fresh	Chlorite Biotite Schist	M36 East
Y010316	YRRD081	55	56	55 - 56	Waste	Fresh	Chlorite Biotite Schist	M36 East
Y036166	YRRD341	56	57	56 - 57	Waste	Fresh	Amphibolite	M36 East
Y038539	YRRD361	97	98	97 - 98	Waste	Fresh	Chlorite Biotite Schist	M36 East
Y013172	YRRD107	114	115	114 - 115	Waste	Fresh	Amphibolite	M36 East
Y037982	YRRD355	138	139	138 - 139	Waste	Fresh	Amphibolite	M36 East
YD11906	YDRD039	143.85	144.76	143.85 - 144.76	Waste	Fresh	Chlorite Biotite Schist	M36 East
Y039429	YRRD367	156	157	156 - 157	Waste	Fresh	Chlorite Biotite Schist	M36 East
YD11036	YDRD034	157.56	158.05	157.56 - 158.05	Waste	Fresh	Sheared	M36 East
YD11928	YDRD039	163	164	163 - 164	Waste	Fresh	Chlorite Zinwaldite Schist	M36 East
YD11218	YDRD035	188.08	188.66	188.08 - 188.66	Waste	Fresh	Sheared	M36 East
Y032798	YRRD305	1	2	1 - 2	Waste	Oxide	Clay	M36 West
YD12010	YDRD040	1	2	1 - 2	Waste	Oxide	Overburden general	M36 West
Y033508	YRRD315	11	12	11 - 12	Waste	Transitional	Amphibolite	M36 West
Y041586	YRRD399	22	26	22 - 26	Waste	Transitional	Chlorite Biotite Schist	M36 West
Y033417	YRRD313	12	13	12 - 13	Waste	Fresh	Amphibolite	M36 West
Y033021	YRRD311	38	39	38 - 39	Waste	Fresh	Amphibolite	M36 West
Y033608	YRRD317	41	42	41 - 42	Waste	Fresh	Amphibolite	M36 West
Y000503	YNRD015	47	48	47 - 48	Waste	Fresh	Chlorite Biotite Schist	M36 West
Y041801	YRRD400	60	61	60 - 61	Waste	Fresh	Chlorite Zinwaldite Schist	M36 West
Y033560	YRRD315	74	75	74 - 75	Waste	Fresh	Chlorite Biotite Schist	M36 West
YD03838	YNEX013	82	83	82 - 83	Waste	Fresh	Chlorite Biotite Schist	M36 West
YD02056	YNEX003	111	112	111 - 112	Waste	Fresh	Breccia	M36 West
Y031889	YRRD295	126	127	126 - 127	Waste	Fresh	Chlorite Biotite Schist	M36 West
Y005908	YRRD044	2	3	2 - 3	Waste	Oxide	Clay	M47
Y008813	YRRD084	14	15	14 - 15	Waste	Transitional	Chlorite Biotite Schist	M47
Y005079	YRRD031	21	22	21 - 22	Waste	Transitional	Pegmatite	M47
Y008809	YRRD084	10	11	10 - 11	Waste	Fresh	Chlorite Biotite Schist	M47
Y021618	YRRD250	45	46	45 - 46	Waste	Fresh	Amphibolite	M47
YD01846	YNEX005	64	64.59	64 - 64.59	Waste	Fresh	Chlorite Biotite Schist	M47
Y040198	YRRD378	76	77	76 - 77	Waste	Fresh	Chlorite Biotite Schist	M47
YD09141	YDRD020	93	93.66	93 - 93.66	Waste	Fresh	Sheared	M47
Y039826	YRRD376	100	101	100 - 101	Waste	Fresh	Chlorite Biotite Schist	M47
Y018894	YRRD212	107	108	107 - 108	Waste	Fresh	Amphibolite	M47
Y008673	YRRD082	118	119	118 - 119	Waste	Fresh	Amphibolite	M47
Y005149	YRRD031	125	126	125 - 126	Waste	Fresh	Chlorite Biotite Schist	M47
Y001442	YNRD024	25	26	25 - 26	Waste	Transitional	Chlorite Biotite Schist	M69
Y001448	YNRD024	30	31	30 - 31	Waste	Fresh	Chlorite Biotite Schist	M69
Y001482	YNRD024	67	68	67 - 68	Waste	Fresh	Chlorite Biotite Schist	M69
LG-Comp1	-	-	-	-	LG-Ore	-	Low Grade Ore	-
LG-Comp2	-	-	-	-	LG-Ore	-	Low Grade Ore	-
LG-Comp3	-	-	-	-	LG-Ore	-	Low Grade Ore	-
MW-Comp1	-	-	-	-	Mineralised Waste	-	Min Waste	-
MW-Comp2	-	-	-	-	Mineralised Waste	-	Min Waste	-
MW-Comp3	-	-	-	-	Mineralised Waste	-	Min Waste	-
MW-Comp4	-	-	-	-	Mineralised Waste	-	Min Waste	-

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Table A1-2: Acid Base Accounting (ABA) Summary

Sample ID	Depth (mbgl)	Lithology	Weathering	Type	Deposit	Location	pH	EC	TDS	Total S	SO4_S	Total C	Acid Insoluble C	ANC	AP	NAPP	NAG pH	NAG (pH 4.5)	NAG (pH 7)	MPA	CC-ANC	Eff. NAPP (CC-ANC)	NPR	Classification
							pH Units	uS/cm	mg/L	%	%	%	%	kg H_2SO_4/tonne			pH Units	kg H_2SO_4/tonne					Ratio	
Y044514	11 - 12	Amphibolite	Transitional	Waste	Li2O	M1	8.3	297	190	<0.01	-	0.61	-	69	<0.3	-69	10.4	0	0	<0.3	50	-69	69.0	NAF
Y028530	0 - 4	Chlorite Biotite Schist	Transitional	Waste	Li2O	M1	7.9	1157	740	0.05	-	0.09	-	20	1.5	-18	8.3	0	0	1.5	7	-6	13.1	NAF
Y042938	43 - 44	Pegmatite	Transitional	Waste	Li2O	M1	9.5	295	189	0.11	-	0.1	-	30	3.4	-27	8.3	0	0	3.4	8	-5	8.9	NAF
Y043748	19 - 20	Amphibolite	Fresh	Waste	Li2O	M1	8.6	270	173	0.07	-	0.04	-	24	2.1	-22	7.5	0	0	2.1	3	-1	11.2	NAF
Y035276	20 - 21	Amphibolite	Fresh	Waste	Li2O	M1	8.5	329	211	0.01	-	0.1	-	31	0.3	-31	8.5	0	0	0.3	8	-8	101.3	NAF
Y029720	63 - 64	Amphibolite	Fresh	Waste	Li2O	M1	9.1	312	200	0.02	-	0.19	-	37	0.6	-36	9.7	0	0	0.6	16	-15	60.5	NAF
Y029114	70 - 71	Amphibolite	Fresh	Waste	Li2O	M1	8.6	431	276	0.09	-	0.02	-	22	2.8	-19	7.7	0	0	2.8	2	1	8.0	NAF
Y030020	81 - 82	Amphibolite	Fresh	Waste	Li2O	M1	8.5	452	289	0.05	-	0.22	-	40	1.5	-38	9.3	0	0	1.5	18	-16	26.1	NAF
Y030518	97 - 98	Amphibolite	Fresh	Waste	Li2O	M1	8.7	354	227	0.03	-	0.01	-	19	0.9	-18	7.8	0	0	0.9	1	0	20.7	NAF
Y030071	129 - 130	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	7.8	319	204	0.24	-	<0.01	-	14	7.3	-7	4.4	0	1	7.3	<0.8	-7	1.9	Uncertain
Y002032	210 - 211	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	8.9	415	266	0.33	-	0.06	-	17	10.1	-7	4.2	0	3	10.1	5	5	1.7	Uncertain
Y036561	61 - 62	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	9.2	234	150	1.43	-	<0.01	-	31	43.8	13	2.7	15	21	43.8	<0.8	13	0.7	PAF
Y035300	64 - 65	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	7.8	235	150	0.06	-	<0.01	-	12	1.8	-10	7.1	0	0	1.8	<0.8	-10	6.5	NAF
Y030469	65 - 66	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	9.4	429	275	0.06	-	0.1	-	19	1.8	-17	9.2	0	0	1.8	8	-6	10.3	NAF
Y029247	70 - 74	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	8.9	357	228	0.03	-	0.01	-	14	0.9	-13	7.4	0	0	0.9	1	0	15.3	NAF
Y033094	82 - 83	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	7.8	474	303	0.05	-	<0.01	-	16	1.5	-14	7.3	0	0	1.5	<0.8	-14	10.5	NAF
Y043821	91 - 92	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	8.1	185	118	<0.01	-	<0.01	-	13	<0.3	-13	7.7	0	0	<0.3	<0.8	-13	13.0	NAF
Y027852	139 - 140	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M1	9.1	132	84	0.03	-	<0.01	-	15	0.9	-14	7.4	0	0	0.9	<0.8	-14	16.3	NAF
Y027826	28 - 29	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M1	8.4	241	154	0.02	-	<0.01	-	12	0.6	-11	7.5	0	0	0.6	<0.8	-11	19.6	NAF
YD05863	27.54 - 28.67	Sheared	Fresh	Waste	Li2O	M1	9.1	49	31	<0.01	-	<0.01	-	11	<0.3	-11	6.6	0	5	<0.3	<0.8	-11	11.0	NAF
Y010511	38 - 39	Chlorite Biotite Schist	Transitional	Waste	Li2O	M36 East	8.4	103	66	<0.01	-	0.03	-	12	<0.3	-12	7.7	0	0	<0.3	2	-12	12.0	NAF
Y016629	43 - 44	Pegmatite	Transitional	Waste	Li2O	M36 East	9	304	195	0.02	-	0.03	-	15	0.6	-14	7.2	0	0	0.6	2	-2	24.5	NAF
Y013172	114 - 115	Amphibolite	Fresh	Waste	Li2O	M36 East	8.8	269	172	0.14	-	0.05	-	23	4.3	-19	7.2	0	0	4.3	4	0	5.4	NAF
Y036166	56 - 57	Amphibolite	Fresh	Waste	Li2O	M36 East	9.4	303	194	0.15	-	0.04	-	28	4.6	-23	7.7	0	0	4.6	3	1	6.1	NAF
YD11906	143.85 - 144.76	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	9.6	143	92	0.01	-	<0.01	-	17	0.3	-17	7.6	0	0	0.3	<0.8	-17	55.6	NAF
Y039429	156 - 157	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	8.7	214	137	<0.01	-	0.01	-	13	<0.3	-13	7.9	0	0	<0.3	1	-13	13.0	NAF
Y010311	51 - 52	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	9.3	186	119	0.04	-	0.02	-	14	1.2	-13	7.8	0	0	1.2	2	0	11.4	NAF
Y039402	52 - 53	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	8.8	220	141	<0.01	-	0.01	-	14	<0.3	-14	8	0	0	<0.3	1	-14	14.0	NAF
Y038539	97 - 98	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	8.7	228	146	0.16	-	<0.01	-	14	4.9	-9	6.4	0	0	4.9	<0.8	-9	2.9	NAF
YD11928	163 - 164	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M36 East	9.4	134	86	0.02	-	<0.01	-	12	0.6	-11	7.3	0	0	0.6	<0.8	-11	19.6	NAF
Y016092	15 - 16	Quartz vein	Fresh	Waste	Li2O	M36 East	7.6	136	87	<0.01	-	0.03	-	11	<0.3	-11	7.5	0	0	<0.3	2	-11	11.0	NAF
YD11036	157.56 - 158.05	Sheared	Fresh	Waste	Li2O	M36 East	7.6	44	28	<0.01	-	<0.01	-	3	<0.3	-3	5.9	0	4	<0.3	<0.8	-3	3.0	NAF
Y033508	11 - 12	Amphibolite	Transitional	Waste	Li2O	M36 West	9.5	343	220	<0.01	-	0.26	-	36	<0.3	-36	9.3	0	0	<0.3	21	-36	36.0	NAF
Y041586	22 - 26	Chlorite Biotite Schist	Transitional	Waste	Li2O	M36 West	9.1	194	124	0.05	-	0.02	-	22	1.5	-20	7.8	0	0	1.5	2	0	14.4	NAF
Y033417	12 - 13	Amphibolite	Fresh	Waste	Li2O	M36 West	9.1	488	312	<0.01	-	0.1	-	30	<0.3	-30	8.2	0	0	<0.3	8	-30	30.0	NAF
Y033021	38 - 39	Amphibolite	Fresh	Waste	Li2O	M36 West	8.4	253	162	0.07	-	<0.01	-	15	2.1	-13	7.2	0	0	2.1	<0.8	-13	7.0	NAF
YD02056	111 - 112	Breccia	Fresh	Waste	Li2O	M36 West	6.7	60	38	0.36	-	0.01	-	16	11.0	-5	3.6	2	5	11.0	1	10	1.5	Uncertain
Y031889	126 - 127	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 West	7.7	368	236	0.11	-	0.07	-	14	3.4	-11	5.9	0	0	3.4	6	-2	4.2	NAF
Y000503	47 - 48	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 West	9.3	137	88	0.03	-	0.12	-	23	0.9	-22	8.3	0	0	0.9	10	-9	25.1	NAF
Y033560	74 - 75	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 West	8.4	284	182	0.06	-	<0.01	-	14	1.8	-12	7.5	0	0	1.8	<0.8	-12	7.6	NAF
Y041801	60 - 61	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M36 West	8.3	244	156	0.08	-	<0.01	-	12	2.4	-10	7	0	0	2.4	<0.8	-10	4.9	NAF
Y008813	14 - 15	Chlorite Biotite Schist	Transitional	Waste	Li2O	M47	7.9	257	164	<0.01	-	<0.01	-	14	<0.3	-14	8.5	0	0	<0.3	<0.8	-14	14.0	NAF
Y005079	21 - 22	Pegmatite	Transitional	Waste	Li2O	M47	8.7	302	193	<0.01	-	0.12	-	33	<0.3	-33	7.6	0	0	<0.3	10	-33	33.0	NAF
Y008673	118 - 119	Amphibolite	Fresh	Waste	Li2O	M47	9.7	296	189	<0.01	-	0.07	-	31	<0.3	-31	8.7	0	0	<0.3	6	-31	31.0	NAF
Y021618	45 - 46	Amphibolite	Fresh	Waste	Li2O	M47	8.6	727	465	0.02	-	0.08	-	28	0.6	-27	8.1	0	0	0.6	7	-6	45.8	NAF
Y039826	100 - 101	Chlorite Biotite Schist	Fresh	Waste	Li2O	M47	8.4	219	140	<0.01	-	0.01	-	14	<0.3	-14	7.5	0	0	<0.3	1	-14	14.0	NAF
Y005149	125 - 126	Chlorite Biotite Schist	Fresh	Waste	Li2O	M47	8.1	107	68	<0.01	-	<0.01	-	11	<0.3	-11	7.3	0	0	<0.3	<0.8	-11	11.0	NAF
Y040198	76 - 77	Chlorite Biotite Schist	Fresh	Waste	Li2O	M47	7.7	206	132	<0.01	-	<0.01	-	12	<0.3	-12	7.7	0	0	<0.3	<0.8	-12	12.0	NAF
YD09141	93 - 93.66	Sheared	Fresh	Waste	Li2O	M47	9.8	350	224	0.67	-	0.03	-	33	20.5	-12	5.2	0	1	20.5	2	18	1.6	NAF
Y001442	25 - 26	Chlorite Biotite Schist	Transitional	Waste	Li2O	M69	7.2	115	74	0.01	-	0.06	-	11	0.3	-11	7	0	0	0.3	5	-5	35.9	NAF
Y001448	30 - 31	Chlorite Biotite Schist	Fresh	Waste	Li2O	M69	7.7	127	81	0.01	-	0.26	-	15	0.3	-15	7.5	0	0	0.3	21	-21	49.0	NAF
Y001482	67 - 68	Chlorite Biotite Schist	Fresh	Waste	Li2O	M69	7.4	225	144	0.08	-	0.03	-	11	2.4	-9	5.7	0	1	2.4	2	0	4.5	NAF
LG-Comp1	-	Low Grade Ore	-	LG-Ore	Li2O	-	7.7	354	227	0.01	-	0.03	-	19	0.3	-19	7.3	0	0	0.3	2	-2	62.1	NAF
LG-Comp2	-	Low Grade Ore	-	LG-Ore	Li2O	-	9.4	215	138	<0.01	-	0.02	-	18	<0.3	-18	7.7	0	0	<0.3	2	-18	18.0	NAF
LG-Comp3	-	Low Grade Ore	-	LG-Ore	Li2O	-	9.2	324	207	0.04	-	0.02	-	21	1.2	-20	7.4	0	0	1.2	2	0	17.2	NAF
MW-Comp1	-	Min Waste	-	Mineralised Waste	Li2O	-	9	236	151	<0.01	-	0.03	-	17	<0.3	-17	6.1	0	6	<0.3	2	-17	17.0	NAF
MW-Comp2	-	Min Waste	-	Mineralised Waste	Li2O	-	8	201	129	<0.01	-	0.01	-	19	<0.3	-19	7.8	0	0	<0.3	1	-19	19.0	NAF
MW-Comp3	-	Min Waste	-	Mineralised Waste	Li2O	-	9.1	284	182	<0.01	-	0.01	-	10	<0.3	-10	7.1	0	0	<0.3	1	-10	10.0	NAF
MW-Comp4	-	Min Waste	-	Mineralised Waste	Li2O	-	8	378	242	<0.01	-	<0.01	-	11	<0.3	-11	7.4	0	0	<0.3	<0.8	-11	11.0	NAF

Table A1-3: Summary of Elemental Composition Results

Sample ID	Depth (mbgl)	Lithology	Weathering	Type	Location	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo
						mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	%	mg/kg	mg/kg
YD00614	3 - 3.6	Schist	Oxide	Waste	M1	12.22	6.7	1.5	363	3.3	0.50	3.1	0.04	75	20	69	23	84	4.8	19	2.4	2.9	0.06	2.0	38	106	1.0	509	1.9
Y044514	11 - 12	Amphibolite	Transitional	Waste	M1	0.19	7.1	1.1	89	3.8	2.4	7.3	0.43	14	47	376	36	94	7.8	17	3.6	0.74	0.14	0.48	5.8	68	4.3	1,489	3.2
Y028530	0 - 4	Chlorite Biotite Schist	Transitional	Waste	M1	<0.05	9.1	0.80	445	3.3	0.52	0.55	<0.01	99	21	92	20	21	5.8	26	2.8	3.5	0.07	3.0	48	124	1.4	481	0.56
Y043748	19 - 20	Amphibolite	Fresh	Waste	M1	0.09	7.6	0.50	172	7.3	4.8	7.4	0.17	14	46	275	46	70	8.6	20	4.0	0.75	0.15	0.63	5.9	97	3.9	1,573	3.0
Y029114	70 - 71	Amphibolite	Fresh	Waste	M1	0.07	7.2	0.30	11	1.3	0.77	8.0	0.15	13	54	433	3.1	93	8.6	17	2.4	0.78	0.08	0.18	5.6	68	5.0	1,741	1.2
Y030071	129 - 130	Chlorite Biotite Schist	Fresh	Waste	M1	<0.05	9.6	0.50	402	11	1.1	0.10	0.04	95	19	96	172	58	5.1	25	4.9	3.5	0.07	3.8	46	922	1.1	537	4.7
Y002032	210 - 211	Chlorite Biotite Schist	Fresh	Waste	M1	<0.05	9.5	0.70	789	5.9	2.0	0.32	0.02	112	20	106	165	94	5.5	31	4.3	3.7	0.13	4.0	55	514	1.4	736	1.6
Y035300	64 - 65	Chlorite Biotite Schist	Fresh	Waste	M1	<0.05	8.8	<0.2	477	2.7	0.22	0.24	0.01	107	21	102	30	40	5.5	25	3.0	3.3	0.08	2.6	52	324	1.1	452	1.3
Y043821	91 - 92	Chlorite Biotite Schist	Fresh	Waste	M1	<0.05	10	<0.2	461	5.2	0.60	0.31	0.02	121	23	112	26	20	5.7	28	3.0	3.6	0.08	3.3	58	202	1.3	564	0.67
Y027826	28 - 29	Chlorite Zinwaldite Schist	Fresh	Waste	M1	<0.05	11	<0.2	479	2.9	0.18	0.16	<0.01	122	25	118	42	17	6.1	29	2.8	3.4	0.10	3.7	60	158	1.3	511	0.79
YD11151	4.53 - 5.23	Saprock	Oxide	Waste	M36 East	<0.05	9.1	1.6	277	10	0.58	1.3	0.02	108	26	100	597	193	6.6	24	4.5	3.8	0.07	2.8	53	272	1.8	502	0.47
Y010511	38 - 39	Chlorite Biotite Schist	Transitional	Waste	M36 East	<0.05	10	1.5	499	3.6	0.18	0.26	0.01	119	24	113	37	21	6.2	28	3.0	3.4	0.08	2.9	59	168	1.3	678	1.0
Y016629	43 - 44	Pegmatite	Transitional	Waste	M36 East	<0.05	8.2	0.70	584	88	27	0.91	0.02	20	4.9	28	169	24	1.4	28	8.8	2.2	0.05	1.5	10	255	0.32	203	3.0
Y036166	56 - 57	Amphibolite	Fresh	Waste	M36 East	0.20	7.8	4.3	199	8.4	7.0	7.0	0.16	19	44	176	162	232	9.0	20	4.1	0.97	0.23	0.85	8.2	303	4.0	1,805	1.3
Y010311	51 - 52	Chlorite Biotite Schist	Fresh	Waste	M36 East	<0.05	10	2.2	578	4.2	0.64	0.24	<0.01	120	24	115	47	30	5.8	28	3.3	4.0	0.09	3.1	59	157	1.3	571	1.0
Y039402	52 - 53	Chlorite Biotite Schist	Fresh	Waste	M36 East	<0.05	11	0.50	586	4.0	0.87	0.24	<0.01	127	24	121	64	18	6.0	29	3.4	3.9	0.07	3.0	64	272	1.4	796	0.73
Y038539	97 - 98	Chlorite Biotite Schist	Fresh	Waste	M36 East	<0.05	9.5	1.6	588	3.7	0.21	0.28	<0.01	112	26	117	55	62	7.0	27	2.9	4.0	0.08	3.1	54	274	1.4	811	0.71
YD11928	163 - 164	Chlorite Zinwaldite Schist	Fresh	Waste	M36 East	<0.05	11	1.1	471	7.0	0.07	0.68	<0.01	121	22	112	283	7.2	5.6	26	4.6	3.7	0.09	3.3	60	522	1.3	516	0.18
YD11036	157.56 - 158.05	Sheared	Fresh	Waste	M36 East	<0.05	0.26	0.60	27	0.10	0.04	0.12	<0.01	3.2	0.90	13	1.2	4.5	0.71	0.88	0.50	0.10	<0.01	0.06	1.7	4.1	0.09	76	1.2
Y032798	1 - 2	Clay	Oxide	Waste	M36 West	<0.05	7.4	5.2	519	49	3.7	1.4	0.01	16	22	183	281	93	6.2	17	2.8	1.7	0.07	3.4	7.6	840	2.3	680	1.3
YD12010	1 - 2	Overburden general	Oxide	Waste	M36 West	2.13	9.3	2.1	543	29	0.53	0.71	0.04	110	28	106	318	85	5.2	26	5.9	3.6	0.10	3.1	62	650	1.3	866	0.75
Y033508	11 - 12	Amphibolite	Transitional	Waste	M36 West	0.11	7.4	1.3	263	17	3.3	5.8	0.18	17	39	144	825	12	8.3	22	5.3	0.75	0.34	2.1	7.6	858	3.7	1,520	0.88
Y033417	12 - 13	Amphibolite	Fresh	Waste	M36 West	<0.05	8.4	2.5	214	8.7	0.88	5.5	0.11	18	43	214	799	107	8.5	21	3.8	0.80	0.08	1.6	7.2	808	3.3	1,433	0.77
Y033021	38 - 39	Amphibolite	Fresh	Waste	M36 West	<0.05	9.3	0.90	534	20	0.32	0.24	<0.01	109	18	92	498	15	5.0	27	5.9	2.8	0.07	3.4	54	638	1.1	319	0.74
YD02056	111 - 112	Breccia	Fresh	Waste	M36 West	0.06	7.6	2.1	329	4.4	0.29	0.48	0.04	117	25	75	112	131	4.8	22	5.0	3.5	0.08	1.7	57	290	1.0	582	0.63
Y031889	126 - 127	Chlorite Biotite Schist	Fresh	Waste	M36 West	<0.05	10	0.60	478	41	0.39	0.21	0.01	111	21	103	343	56	5.4	30	4.9	3.3	0.11	4.5	55	608	1.4	732	1.9
Y005908	2 - 3	Clay	Oxide	Waste	M47	<0.05	6.7	4.3	55	22	11	3.6	0.12	17	43	296	789	54	7.9	18	5.7	0.91	0.06	0.53	7.6	426	3.0	1,220	2.0
Y008813	14 - 15	Chlorite Biotite Schist	Transitional	Waste	M47	0.07	9.4	8.6	568	3.0	0.08	0.38	0.06	107	25	116	40	28	6.0	26	2.8	4.1	0.10	2.8	51	149	1.4	677	0.50
Y008673	118 - 119	Amphibolite	Fresh	Waste	M47	<0.05	8.1	2.3	103	13	1.1	4.2	0.17	15	44	250	1,011	5.0	7.5	19	3.7	0.77	0.08	1.2	6.8	663	4.9	1,829	1.1
Y005149	125 - 126	Chlorite Biotite Schist	Fresh	Waste	M47	<0.05	10	1.0	410	9.3	0.23	0.20	<0.01	120	24	96	170	8.3	5.3	29	4.2	3.7	0.09	3.3	60	307	1.3	663	0.75
YD09141	93 - 93.66	Sheared	Fresh	Waste	M47	0.20	8.7	20	399	54	0.85	2.1	0.57	13	43	335	3,376	313	7.9	25	5.3	0.59	0.08	3.7	5.2	1,345	4.5	1,230	0.06
Y001442	25 - 26	Chlorite Biotite Schist	Transitional	Waste	M69	<0.05	8.3	0.40	284	5.5	2.1	0.48	<0.01	105	23	103	148	24	6.5	24	3.9	4.1	0.08	2.0	51	365	1.5	798	2.5
Y001448	30 - 31	Chlorite Biotite Schist	Fresh	Waste	M69	<0.05	8.1	0.80	280	9.1	2.3	0.27	0.02	97	24	100	957	94	7.4	24	6.6	3.8	0.07	3.5	47	904	1.6	1,980	2.5
LG-Comp3	-	Low Grade Ore	-	LG-Ore	-	<0.05	7.9	14	24	41	1.2	5.4	0.23	12	35	197	163	30	5.9	20	6.9	1.1	0.08	0.76	4.9	1,934	3.0	1,355	1.0
MW-Comp1	-	Min Waste	-	Mineralised Waste	-	<0.05	9.0	0.50	186	119	6.3	0.84	0.05	41	7.8	44	344	5.3	2.1	33	9.9	2.3	0.03	2.4	21	1,811	0.47	618	1.7
MW-Comp2	-	Min Waste	-	Mineralised Waste	-	<0.05	8.4	5.5	426	44	2.0	0.74	0.03	62	24	137	2,006	47	6.5	27	9.1	2.8	0.08	3.9	30	1,533	2.4	876	2.4
MW-Comp4	-	Min Waste	-	Mineralised Waste	-	<0.05	7.0	1.3	159	20	1.8	0.24	0.11	30	7.5	44	308	15	2.0	21	8.8	1.5	0.03	2.9	13	1,640	0.28	694	1.4

Sample ID	Depth (mbgl)	Lithology	Weathering	Type	Location	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
						%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
YD00614	3 - 3.6	Schist	Oxide	Waste	M1	0.86	16	45	275	18	286	<0.002	330	0.020	22	0.05	6.5	77	1.5	0.008	22	4,880	1.3	3.3	100	6.5	7.9	78	116
Y044514	11 - 12	Amphibolite	Transitional	Waste	M1	0.72	18	58	455	10	250	<0.002	1,520	0.047	22	0.10	4.8	43	1.7	0.036	20	6,455	0.88	3.0	113	7.6	13	61	141
Y028530	0 - 4	Chlorite Biotite Schist	Transitional	Waste	M1	0.82	15	46	320	14	314	<0.002	80	0.037	23	<0.05	5.3	85	1.4	0.050	24	4,564	1.3	3.7	99	5.5	10	97	130
Y043748	19 - 20	Amphibolite	Fresh	Waste	M1	1.7	4.2	48	642	20	143	<0.002	1,500	0.303	49	0.25	14	122	0.45	0.075	2.7	7,468	1.0	0.55	246	4.9	28	126	28
Y029114	70 - 71	Amphibolite	Fresh	Waste	M1	2.1	4.1	43	198	56	759	<0.002	110	0.160	44	<0.05	4.1	103	1.8	0.005	3.1	4,000	5.4	1.2	238	5.9	11	187	26
Y030071	129 - 130	Chlorite Biotite Schist	Fresh	Waste	M1	0.63	13	41	265	11	246	<0.002	520	0.060	19	0.15	4.6	57	1.2	0.052	21	4,149	1.1	2.6	93	5.9	12	72	119
Y002032	210 - 211	Chlorite Biotite Schist	Fresh	Waste	M1	0.94	15	46	275	31	185	<0.002	110	0.034	21	0.08	4.7	99	1.5	0.017	23	4,742	0.70	3.6	95	3.4	8.9	100	120
Y035300	64 - 65	Chlorite Biotite Schist	Fresh	Waste	M1	1.5	6.4	75	630	15	113	<0.002	90	0.114	43	0.08	13	101	1.7	0.289	1.9	5,867	0.65	0.72	217	29	22	104	22
Y043821	91 - 92	Chlorite Biotite Schist	Fresh	Waste	M1	3.9	95	10	2,796	13	470	<0.002	270	0.061	4.4	<0.05	8.5	50	62	0.048	4.3	1,013	1.8	6.4	20	12	4.3	20	34
Y027826	28 - 29	Chlorite Zinwaldite Schist	Fresh	Waste	M1	0.81	33	55	1,233	34	576	<0.002	1,070	0.128	28	0.62	7.6	90	44	0.036	3.7	4,668	3.6	11	146	7.4	18	156	37
YD11151	4.53 - 5.23	Saprock	Oxide	Waste	M36 East	0.71	14	42	268	13	260	<0.002	550	0.024	19	<0.05	4.7	68	1.7	0.027	20	4,181	1.2	2.7	82	4.6	7.4	40	109
Y010511	38 - 39	Chlorite Biotite Schist	Transitional	Waste	M36 East	0.75	18	41	439	21	495	<0.002	30	0.039	22	<0.05	7.5	72	16	0.015	22	4,813	2.7	3.4	93	9.7	13	99	124
Y016629	43 - 44	Pegmatite	Transitional	Waste	M36 East	0.60	17	41	456	18	1,818	<0.002	200	0.041	16	0.28	9.1	36	3.7	0.057	19	5,016	9.3	2.8	93	5.2	25	153	129
Y036166	56 - 57	Amphibolite	Fresh	Waste	M36 East	0.65	22	35	669	12	865	<0.002	780	0.030	19	0.10	30	52	11	0.021	20	4,262	4.0	3.3	80	12	14	58	84
Y010311	51 - 52	Chlorite Biotite Schist	Fresh	Waste	M36 East	1.0	17	60	511	31	169	<0.002	60	0.099	21	0.08	4.3	52	1.3	0.010	20	6453	0.65	3.5	112	5.9	15	95	143
Y039402	52 - 53	Chlorite Biotite Schist	Fresh	Waste	M36 East	0.84	7.6	42	649	15	989	<0.002	50	0.150	49	<0.05	25	72	4.7	0.005	2.5	6,160	5.8	0.99	233	37	24	132	32
Y038539	97 - 98	Chlorite Biotite Schist	Fresh	Waste	M36 East	0.59	12	39	339	14	197	<0.002	4,600	0.086	14	2.0	5.0	73	1.6	0.046	15	3,583	0.78	3.3	72	66	13	96	90
YD11928	163 - 164	Chlorite Zinwaldite Schist	Fresh	Waste	M36 East	1.4	16	38	268	16	445	<0.002	40	0.051	18	<0.05	7.6	111	1.4	0.031	21	4,795	3.0	4.0	87	4.7	15	87	134
YD11036	157.56 - 158.05	Sheared	Fresh	Waste	M36 East	1.2	19.59	70	771	79	609	<0.002	70	0.352	40	0.34	9.4	95	22	0.150	2.8	6801	4.5	4.5	218	8.4	21	85	25
Y032798	1 - 2	Clay	Oxide	Waste	M36 West	1.0	26	35	649	14	893	<0.002	2,390	0.030	18	0.07	7.4	35	7.2	0.042	17	4,018	4.8	3.6	81	7.9	6.8	55	112
YD12010	1 - 2	Overburden general	Oxide	Waste	M36 West	0.62	38	40	747	17	846	<0.002	3,400	0.060	20	0.11	52	35	14	0.048	21	4,409	3.5	4.7	87	12	11	70	123
Y033508	11 - 12	Amphibolite	Transitional	Waste	M36 West	0.67	15	43	258	16	204	<0.002	390	0.041	21	0.07	5.1	62	1.4	0.033	23	4,607	0.82	3.6	97	5.1	9.9	80	128
Y033417	12 - 13	Amphibolite	Fresh	Waste	M36 West	1.8	4.0	49	607	13	141	<0.002	740	0.071	50	0.19	13	118	1.9	0.043	1.9	7,695	0.73	0.52	281	83	24	121	22
Y033021	38 - 39	Amphibolite	Fresh	Waste	M36 West	1.3	4.8	38	574	20	1,468	<0.002	90	0.265	44	0.08	7.5	125	1.2	0.026	2.5	7524	8.2	0.91	245	1.4	25	161	29
YD02056	111 - 112	Breccia	Fresh	Waste	M36 West	0.53	16	28	1,763	16	272	<0.002	3,440	0.055	20	0.24	26	49	1.4	0.067	21	4,175	1.3	3.1	73	7.6	18	72	119
Y031889	126 - 127	Chlorite Biotite Schist	Fresh	Waste	M36 West	0.02	0.70	2	137	1.9	3.6	<0.002	50	0.122	1	<0.05	0.30	3.6	0.04	<0.005	0.5	156	0.04	0.25	4	0.19	0.94	3.0	3.6
Y005908	2 - 3	Clay	Oxide	Waste	M47	0.76	16	44	282	16	260	<0.002	60	0.014	21	0.09	7.5	70	1.6	0.048	22	4,876	1.0	4.0	98	8.9	9.9	86	126
Y008813	14 - 15	Chlorite Biotite Schist	Transitional	Waste	M47	1.3	16	45	337	20	382	<0.002	290	0.037	21	<0.05	6.8	105	1.3	0.008	23	4,791	1.8	3.1	93	8.9	15	68	129
Y008673	118 - 119	Amphibolite	Fresh	Waste	M47	1.5	2.9	83	366	10	8.5	<0.002	920	0.043	49	0.21	2.8	109	0.27	0.025	1.8	6,801	0.07	0.36	242	2.6	24	105	25
Y005149	125 - 126	Chlorite Biotite Schist	Fresh	Waste	M47	1.6	38	71	1,637	169	2,813	<0.002	6,610	0.281	46	0.91	15	96	45	0.037	2.1	6,593	20	1.4	178	2.1	16	483	20
YD09141	93 - 93.66	Sheared	Fresh	Waste	M47	1.0	16	37	132	20	1,010	<0.002	220	0.094	20	0.35	16	79	3.7	0.038	20	4,653	5.1	3.4	104	14	18	63	117
Y001442	25 - 26	Chlorite Biotite Schist	Transitional	Waste	M69	0.60	24	42	753	17	989	<0.002	1,220	0.057	20	0.09	72	49	12	0.027	21	4,519	4.8	3.4	89	9.3	12	88	112
Y001448	30 - 31	Chlorite Biotite Schist	Fresh	Waste	M69	0.87	18	47	383	18	449	<0.002	170	0.036	17	0.15	5.0	53	2.1	0.106	20	5,274	2.1	4.9	99	4.6	17	127	138
LG-Comp3	-	Low Grade Ore	-	LG-Ore	-	2.4	18.15	47	2,003	22	685	<0.002	390	0.532	31	0.09	8.5	90	14	<0.005	1.9	4876	2.4	3.2	157	9.0	17	107	25
MW-Comp1	-	Min Waste	-	Mineralised Waste	-	2.7	43	14	2,420	16	1,769	<0.002	80	0.069	7.4	<0.05	33	48	25	<0.005	7.9	1,538	6.8	4.8	30	13	6.9	66	47
MW-Comp2	-	Min Waste	-	Mineralised Waste	-	1.0	34	45	1,368	27	2,244	<0.002	100	0.061	22	0.08	22	47	51	0.069	12	4,827	13	4.7	125	5.6	11	108	88
MW-Comp4	-	Min Waste	-	Mineralised Waste	-	2.9	38	15	1,233	13	1,142	<0.002	80	0.030	6.4	0.10	21	37	12	0.007	6.7	1,704	6.8	4.0	32	10	3.5	51	40

Table A1-4: Global Abundance Indices (GAIs)

Sample ID	Depth (mbgl)	Lithology	Weathering	Deposit	Type	Location	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
YD00614	3 - 3.6	Schist	Oxide	Li2O	Waste	M1	6	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	4.00	0	0	0	0	0	5.00	0	0	0
Y044514	11 - 12	Amphibolite	Transitional	Li2O	Waste	M1	0	0	0	0	0	3.00	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	6	0	0	0	0	0	4.00	0	0	0
Y028530	0 - 4	Chlorite Biotite Schist	Transitional	Li2O	Waste	M1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	1	0	0	0
Y043748	19 - 20	Amphibolite	Fresh	Li2O	Waste	M1	0	0	0	0	0	4.00	0	0	0	0	0	6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4.00	0	0	0	0	0	5.00	0	0	0
Y029114	70 - 71	Amphibolite	Fresh	Li2O	Waste	M1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4.00	0	0	0	0	0	0	0	0	0
Y030071	129 - 130	Chlorite Biotite Schist	Fresh	Li2O	Waste	M1	0	0	0	0	1	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0	4.00	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	1	0	4.00	0	0	0	1	0	2	0	0	0
Y002032	210 - 211	Chlorite Biotite Schist	Fresh	Li2O	Waste	M1	0	0	0	0	0	2	0	0	0	0	0	5.00	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	0	0	0	2	0	2	0	0	0	3.00	0	2	6	0	0	1	0	0	3.00	0	0	0
Y035300	64 - 65	Chlorite Biotite Schist	Fresh	Li2O	Waste	M1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.00	0	0	0	0	0	1	0	0	0
Y043821	91 - 92	Chlorite Biotite Schist	Fresh	Li2O	Waste	M1	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5.00	0	0	0	0	0	2	0	0	0
Y027826	28 - 29	Chlorite Zinwaldite Schist	Fresh	Li2O	Waste	M1	0	0	0	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0
YD11151	4.53 - 5.23	Saprock	Oxide	Li2O	Waste	M36 East	0	0	0	0	1	0	0	0	0	0	0	7	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	4.00	0	0	1	0	0	1	0	0	0
Y010511	38 - 39	Chlorite Biotite Schist	Transitional	Li2O	Waste	M36 East	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	1	0	0	0
Y016629	43 - 44	Pegmatite	Transitional	Li2O	Waste	M36 East	0	0	0	0	4.00	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	4.00	5.00	0	0	0	0	0	3.00	0	0	0
Y036166	56 - 57	Amphibolite	Fresh	Li2O	Waste	M36 East	0	0	0	0	0	4.00	0	0	0	0	0	6	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	5.00	0	0	0	0	0	1	0	0	0
Y010311	51 - 52	Chlorite Biotite Schist	Fresh	Li2O	Waste	M36 East	0	0	0	0	0	1	0	0	0	0	0	3.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.00	0	0	0	0	0	1	0	0	0
Y039402	52 - 53	Chlorite Biotite Schist	Fresh	Li2O	Waste	M36 East	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.00	0	0	0	0	0	1	0	0	0
Y038539	97 - 98	Chlorite Biotite Schist	Fresh	Li2O	Waste	M36 East	0	0	0	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4.00	0	0	0	0	0	2	0	0	0
YD11928	163 - 164	Chlorite Zinwaldite Schist	Fresh	Li2O	Waste	M36 East	0	0	0	0	0	0	0	0	0	0	0	5.00	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0
YD11036	157.56 - 158.05	Sheared	Fresh	Li2O	Waste	M36 East	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Y032798	1 - 2	Clay	Oxide	Li2O	Waste	M36 West	0	0	0	0	3.00	3.00	0	0	0	0	0	5.00	0	0	0	0	0	0	0	0	4.00	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	3.00	4.00	0	0	0	1	0	2	0	0	0
YD12010	1 - 2	Overburden general	Oxide	Li2O	Waste	M36 West	4.00	0	0	0	2	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	4.00	0	0	1	0	0	3.00	0	0	0
Y033508	11 - 12	Amphibolite	Transitional	Li2O	Waste	M36 West	0	0	0	0	1	3.00	0	0	0	0	0	7	0	0	0	0	0	1	0	0	4.00	0	0	0	0	0	0	0	0	2	0	0	0	1	0	2	0	0	1	0	0	1	0	0	4.00	0	0	0
Y033417	12 - 13	Amphibolite	Fresh	Li2O	Waste	M36 West	0	0	0	0	0	1	0	0	0	0	0	7	0	0	0	0	0	0	0	0	4.00	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	1	0	0	4.00	0	0	2	0	0	0	0	0	0
Y033021	38 - 39	Amphibolite	Fresh	Li2O	Waste	M36 West	0	0	0	0	2	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3.00	0	1	3.00	0	0	1	0	0	2	0	0	0
YD02056	111 - 112	Breccia	Fresh	Li2O	Waste	M36 West	0	0	0	0	0	0	0	0	0	0	0	4.00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	5.00	0	0	0	0	0	2	0	0	0
Y031889	126 - 127	Chlorite Biotite Schist	Fresh	Li2O	Waste	M36 West	0	0	0	0	3.00	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	4.00	0	2	4.00	0	0	1	0	0	2	0	0	0
Y005908	2 - 3	Clay	Oxide	Li2O	Waste	M47	0	0	0	0	2	5.00	0	0	0	0	0	7	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	2	6	0	0	1	0	0	2	0	0	0
Y008813	14 - 15	Chlorite Biotite Schist	Transitional	Li2O	Waste	M47	0	0	0	0	0	6	0	0	0	0	0	3.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0
Y008673	118 - 119	Amphibolite	Fresh	Li2O	Waste	M47	6	0	0	0	1	1	0	0	0	0	0	7	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0
Y005149	125 - 126	Chlorite Biotite Schist	Fresh	Li2O	Waste	M47	0	0	0	0	1	0	0	0	0	0	0	5.00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	2	3.00	0	0	0	0	0	2	0	0	0
YD09141	93 - 93.66	Sheared	Fresh	Li2O	Waste	M47	0	0	0	0	3.00	1	0	1	0	0	0	9	1	0	0	0	0	0	0	0	4.00	0	0	0	0	0	0	0	0	0	2	3.00	0	3.00	0	0	0	1	1	0	3.00	4.00	0	0	3.00	0	0	0	2	0
Y001442	25 - 26	Chlorite Biotite Schist	Transitional	Li2O	Waste	M69	0	0	0	0	0	2	0	0	0	0	0	5.00	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	0	0	0	0	1	0	0	0
Y001448	30 - 31	Chlorite Biotite Schist	Fresh	Li2O	Waste	M69	0	0	0	0	1	2	0	0	0	0	0	6	0	0	0	0	0	0	0	0	4.00	0	0	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	1	0	5.00	0	0	2	0	0	1	0	0	0
LG-Comp3	-	Low Grade Ore	-	Li2O	LG-Ore	-	0	0	0	0	3.00	2	0	0	0	0	0	5.00	0	0	0	0	0	0	0	0	5.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	2	0	0	0
MW-Comp1	-	Min Waste	-	Li2O	Mineralised Waste	-	0	0	0	0	4.00	4.00	0	0	0	0	0	6	0	0	0	0	0	0	0	0	5.00	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	3.00	0	3.00	0	0	0	2	0	0	3.00	0	0	0
MW-Comp2	-	Min Waste	-	Li2O	Mineralised Waste	-	0	0	0	0	3.00	2	0	0	0	0	0	6	0	0	0	0	0	0	0	0	5.00	0	0	0	0	0	0	0	0	3.00	0	0	0	0	0	2	0	4.00	5.00	0	0	3.00	0	0	1	0	0	0
MW-Comp4	-	Min Waste	-	Li2O	Mineralised Waste	-	0	0	0	0	2	2	0	0	0	0	0	6	0	0	0	0	0	0	0	0	5.00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	1	2	0	0	2	0	0	2	0	0	0
Average Crustal Abundance							0.07	8	25	430	3	0.2	3	0.18	45	25	200	3	60	5	17	15	3	0.1	2.6	30	30	2.1	900	2	2.4	20	80	1000	16	120	0.001	500	0.2	16	0.2	2.5	350	2	0.001	10	5000	1	3	150	1	30	70	160
							mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	%	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg

Values of three of higher are highlighted.

Where elemental concentrations were below laboratory limit of reporting (<LOR), a GAI of zero was assigned.

Table A1-5 Summary of Aqua Regia Composition Results

Sample ID	Depth (mbgl)	Lithology	Weathering	Type	Deposit	Location	Ag mg/kg	Al mg/kg	As mg/kg	Au mg/kg	B mg/kg	Ba mg/kg	Be mg/kg	Bi mg/kg	Ca mg/kg	Cd mg/kg
YD00614	3 - 3.6	Schist	Oxide	Waste	Li2O	M1	17	19958	1.0	0.0022	3.90	109	0.74	0.36	27,206	0.029
Y044514	11 - 12	Amphibolite	Transitional	Waste	Li2O	M1	0.18	27012	0.62	0.0004	2.60	71	1.44	1.94	31,750	0.237
Y028530	0 - 4	Chlorite Biotite Schist	Transitional	Waste	Li2O	M1	0.02	28134	0.26	0.0010	4.50	61	1.38	0.42	4,756	0.006
Y043748	19 - 20	Amphibolite	Fresh	Waste	Li2O	M1	0.09	25019	0.35	0.0002	1.10	140	2.31	4.33	27,786	0.102
Y029114	70 - 71	Amphibolite	Fresh	Waste	Li2O	M1	0.07	18150	0.14	0.0002	1.10	3.6	0.34	0.40	19,879	0.061
Y030071	129 - 130	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	0.02	25964	0.28	0.0002	2.00	90	1.98	1.02	853	0.042
Y002032	210 - 211	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	0.03	24918	0.55	0.0001	3.30	166	1.59	2.03	2,517	0.011
Y035300	64 - 65	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	<0.01	26313	0.13	0.0002	0.90	61	0.60	0.21	712	0.005
Y043821	91 - 92	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	<0.01	27013	0.07	0.0005	1.10	51	0.59	0.76	976	0.014
Y027826	28 - 29	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M1	<0.01	26274	0.11	<0.0001	0.80	60	0.92	0.14	556	0.002
YD11151	4.53 - 5.23	Saprock	Oxide	Waste	Li2O	M36 East	0.04	30131	0.72	0.0028	4.40	78	2.40	0.44	6,331	0.010
Y010511	38 - 39	Chlorite Biotite Schist	Transitional	Waste	Li2O	M36 East	0.01	31978	0.48	0.0002	1.00	58	0.51	0.17	629	0.004
Y016629	43 - 44	Pegmatite	Transitional	Waste	Li2O	M36 East	0.03	9542	0.84	0.0011	1.00	105	1.04	24.86	6,184	0.016
Y036166	56 - 57	Amphibolite	Fresh	Waste	Li2O	M36 East	0.20	28562	3.2	0.0020	0.80	183	2.66	5.91	26,117	0.097
Y010311	51 - 52	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	<0.01	31977	3.1	0.0019	1.00	78	0.92	0.63	1,326	<0.002
Y039402	52 - 53	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	<0.01	33646	0.33	0.0024	1.10	83	0.71	0.77	992	0.005
Y038539	97 - 98	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	0.01	26308	1.3	0.0002	1.70	79	0.52	0.20	1,293	0.002
YD11928	163 - 164	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M36 East	<0.01	27067	0.66	0.0001	1.40	66	1.98	0.08	1,203	0.003
YD11036	157.56 - 158.05	Sheared	Fresh	Waste	Li2O	M36 East	<0.01	1225	0.44	<0.0001	0.50	10	0.05	0.03	898	0.003
Y032798	1 - 2	Clay	Oxide	Waste	Li2O	M36 West	0.04	37021	4.8	0.0007	19.80	287	6.06	2.82	10,763	0.007
YD12010	1 - 2	Overburden general	Oxide	Waste	Li2O	M36 West	2.26	28146	1.4	0.0017	12.60	185	3.45	0.47	5,209	0.018
Y033508	11 - 12	Amphibolite	Transitional	Waste	Li2O	M36 West	0.12	40666	1.0	0.0002	5.60	259	6.04	1.63	22,218	0.123
Y033417	12 - 13	Amphibolite	Fresh	Waste	Li2O	M36 West	0.03	40732	1.9	0.0010	4.2	213	4.35	0.29	19,030	0.053
Y033021	38 - 39	Amphibolite	Fresh	Waste	Li2O	M36 West	<0.01	23673	0.67	0.0004	18.10	151	2.86	0.28	1,638	0.006
YD02056	111 - 112	Breccia	Fresh	Waste	Li2O	M36 West	0.07	13928	2.2	0.0002	24.80	58	0.95	0.25	3,892	0.030
Y031889	126 - 127	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 West	0.01	24179	0.53	0.0002	2.60	82	2.76	0.34	1,804	0.012
Y005908	2 - 3	Clay	Oxide	Waste	Li2O	M47	0.02	29002	3.4	0.0005	24.6	44	5.50	9.34	12,519	0.039
Y008813	14 - 15	Chlorite Biotite Schist	Transitional	Waste	Li2O	M47	0.07	24994	2.2	<0.0001	1.10	45	0.50	0.05	1,651	0.051
Y008673	118 - 119	Amphibolite	Fresh	Waste	Li2O	M47	0.04	32470	1.4	<0.0001	1.30	66	2.53	0.92	10,433	0.065
Y005149	125 - 126	Chlorite Biotite Schist	Fresh	Waste	Li2O	M47	<0.01	23754	0.69	<0.0001	1.70	30	0.57	0.26	1,079	0.008
YD09141	93 - 93.66	Sheared	Fresh	Waste	Li2O	M47	0.22	46138	19	0.0005	3.30	316	9.70	0.85	5,699	0.548
Y001442	25 - 26	Chlorite Biotite Schist	Transitional	Waste	Li2O	M69	0.01	31513	0.24	0.0015	1.20	32	0.76	1.19	996	0.006
Y001448	30 - 31	Chlorite Biotite Schist	Fresh	Waste	Li2O	M69	0.04	37657	0.40	0.0031	2.40	114	3.17	1.74	1,182	0.010
LG-Comp3	-	Low Grade Ore	-	LG-Ore	Li2O	0	0.02	21117	18	0.0016	4.30	10	12.40	1.03	18,634	0.084
MW-Comp1	-	Min Waste	-	Mineralised Waste	Li2O	0	0.01	16072	0.42	0.0002	22.70	70	12.40	7.08	7,313	0.045
MW-Comp2	-	Min Waste	-	Mineralised Waste	Li2O	0	0.03	43755	5.4	0.0012	2.70	267	5.30	1.78	3,676	0.028
MW-Comp4	-	Min Waste	-	Mineralised Waste	Li2O	0	0.03	12198	1.0	0.0007	4.80	43	1.79	1.72	2,324	0.092
EIL / ACL (DEC 2010 / NEPM 2013) - Ecological Significance							N/G	N/G	40	N/G	N/G	300	N/G	N/G	N/G	3
EIL / ACL (DEC 2010 / NEPM 2013) - Urban / Residential / POS							N/G	N/G	100	N/G	N/G	300	N/G	N/G	N/G	3
EIL / ACL (DEC 2010 / NEPM 2013) - Commercial / Industrial							N/G	N/G	160	N/G	N/G	300	N/G	N/G	N/G	3

Sample ID	Ce mg/kg	Co mg/kg	Cr mg/kg	Cs mg/kg	Cu mg/kg	Fe mg/kg	Ga mg/kg	Ge mg/kg	Hf mg/kg	Hg mg/kg	In mg/kg	K mg/kg	La mg/kg	Li mg/kg	Mg mg/kg	Mn mg/kg	Mo mg/kg	Na mg/kg	Nb mg/kg
YD00614	61	16	38	13	84	40,681	6.17	0.05	0.65	<0.002	0.020	3,038	33	72	8,672	338	1.31	375	0.78
Y044514	12	24	189	34	93	40,685	7.56	0.19	0.15	<0.002	0.067	3,323	5.3	53	20,805	697	2.90	3,244	0.09
Y028530	66	20	43	6.17	20	52,618	8.43	0.02	0.66	<0.002	0.026	3,170	34	95	12,056	424	0.58	1,303	0.04
Y043748	12	25	128	45	69	44,342	7.99	0.20	0.15	<0.002	0.078	4,479	5.4	75	20,103	725	2.80	3,817	0.16
Y029114	12	19	119	2.72	94	25,103	4.51	0.07	0.06	<0.002	0.022	607	5.3	22	13,464	436	0.96	3,303	0.08
Y030071	49	17	43	149	62	43,283	7.36	0.05	0.62	<0.002	0.026	12,607	25	598	9,704	392	6.70	924	0.51
Y002032	56	17	47	129	88	43,603	9.33	0.06	0.49	<0.002	0.029	12,187	29	345	10,858	491	1.54	691	0.98
Y035300	92	20	47	16	41	47,408	8.03	0.03	0.52	<0.002	0.019	3,737	48	190	10,373	323	1.12	648	0.39
Y043821	102	20	46	15	20	47,394	8.18	0.03	0.62	<0.002	0.025	4,616	53	133	11,476	393	0.70	621	0.41
Y027826	63	22	52	30	16	49,432	8.51	0.03	0.50	<0.002	0.021	7,353	33	103	11,210	349	0.70	733	0.47
YD11151	99	21	60	541	186	58,696	10	0.10	0.61	<0.002	0.033	10,560	52	202	16,518	406	0.49	1,372	0.27
Y010511	110	22	51	9.68	24	56,244	9.61	0.02	0.61	<0.002	0.028	3,177	58	120	12,593	496	1.01	546	0.27
Y016629	17	3.98	16	119	23	10,958	3.67	0.04	0.33	<0.002	0.009	3,686	8.7	122	2,136	131	2.93	1,037	1.02
Y036166	14	27	117	154	231	48,425	8.64	0.23	0.17	<0.002	0.099	7,045	6.7	227	22,260	855	1.22	3,611	0.12
Y010311	107	25	52	19	30	53,783	9.49	0.02	0.58	<0.002	0.027	4,049	55	103	11,554	453	1.17	561	0.28
Y039402	115	22	59	17	18	52,135	10	0.02	0.60	<0.002	0.026	4,034	60	196	12,385	550	0.65	790	0.23
Y038539	100	24	67	12	65	58,719	9.50	0.02	0.49	<0.002	0.025	3,776	51	158	12,118	456	0.78	599	0.34
YD11928	104	19	44	208	6.77	44,382	8.09	0.06	0.64	<0.002	0.023	6,796	54	304	10,617	328	0.12	524	0.37
YD11036	2	0.71	9	1.25	2.94	6,601	0.46	0.02	0.02	0.003	<0.002	152	1.3	3.5	710	63	0.94	118	0.21
Y032798	13	19	158	231	86	55,798	11	0.15	0.37	0	0.052	4,493	6.4	289	19,225	524	1.09	6,012	0.31
YD12010	102	24	51	241	84	44,688	8.63	0.08	0.86	<0.002	0.035	7,795	61	355	11,164	588	0.69	2,197	0.38
Y033508	11	29	118	811	11	53,745	11	0.23	0.16	<0.002	0.097	19,161	5.3	765	28,672	839	0.87	2,608	0.15
Y033417	13	34	145	751	102	58,515	11	0.20	0.17	<0.002	0.034	14692	5.5	687	24,955	847.5	0.67	3,895	0.11
Y033021	87	12	38	364	15	34,440	8.13	0.08	0.65	<0.002	0.028	11,009	45	376	6,442	185	0.67	1,030	0.80
YD02056	97	15	17	55	129	23,975	4.96	0.04	0.26	<0.002	0.024	3,484	50	135	4,449	287	0.45	389	0.62
Y031889	102	19	46	251	59	43,886	8.13	0.06	0.89	<0.002	0.027	13,029	52	363	10,812	450	2.40	897	0.79
Y005908	12	26	178	716	50	53,722	8.12	0.35	0.23	<0.002	0.038	4111	5.3	295	15,078	723.7	1.79	4323	0.22
Y008813	96	22	52	9.37	25	50,487	8.31	0.02	0.60	0.015	0.019	1893	48	103	12,417	552.3	0.46	556	0.11
Y008673	14	30	153	989	4.06	47,915	10	0.19	0.15	<0.002	0.035	9,932	6.7	508	33,320	900	0.97	1,747	0.07
Y005149	102	21	38	36	7.42	40,932	7.44	0.03	0.55	<0.002	0.019	2,301	53	153	10,861	422	0.78	395	0.30
YD09141	11	41	380	>1000.00	312	73,719	18.25	0.37	0.11	<0.002	0.063	31,895	4.7	1,309	44,237	848	0.09	979	2.16
Y001442	100	22	59	118	21	59,040	10	0.05	0.47	<0.002	0.031	3,569	51	263	14,483	553	2.32	325	0.43
Y001448	89	21	64	901	93	67,605	12	0.17	0.83	<0.002	0.040	19,826	45	733	14,553	970	2.23	710	0.58
LG-Comp3	8.4	19	82	134	28	21,030	5.17	0.14	0.14	<0.002	0.024	2698	3.9	556	9,686	496.2	0.81	2958	0.54
MW-Comp1	36	2.16	18	142	5.28	9,747	6.83	0.12	0.71	<0.002	0.014	7,333	19	684	1,388	325	1.69	1,062	2.02
MW-Comp2	39	22	115	>1000.00	44	60,542	15	0.51	0.78	<0.002	0.064	28,168	20	1,289	23,361	699	2.29	1,193	1.20
MW-Comp4	34	4.31	17	206	20	13,702	3.40	0.11	0.41	<0.002	0.009	6,027	18	378	1,669	538	1.40	1,222	0.74
EIL / ACL (DEC 2010 / NEPM 2013) - Ecological Significance	N/G	50	160	N/G	70	N/G	N/G	N/G	N/G	1	N/G	N/G	N/G	N/G	N/G	500	40	N/G	N/G
EIL / ACL (DEC 2010 / NEPM 2013) - Urban / Residential / POS	N/G	50	470	N/G	170	N/G	N/G	N/G	N/G	1	N/G	N/G	N/G	N/G	N/G	500	40	N/G	N/G
EIL / ACL (DEC 2010 / NEPM 2013) - Commercial / Industrial	N/G	50	770	N/G	240	N/G	N/G	N/G	N/G	1	N/G	N/G	N/G	N/G	N/G	500	40	N/G	N/G

Sample ID	Ni mg/kg	P mg/kg	Pb mg/kg	Pd mg/kg	Pt mg/kg	Rb mg/kg	Re mg/kg	S mg/kg	Sb mg/kg	Sc mg/kg	Se mg/kg	Sn mg/kg	Sr mg/kg	Ta mg/kg	Te mg/kg	Th mg/kg	Ti mg/kg	Tl mg/kg	U mg/kg	V mg/kg	W mg/kg	Y mg/kg	Zn mg/kg	Zr mg/kg
YD00614	34	327	5.13	0.002	<0.002	54	0.0003	4,841	0.060	3.12	1.41	0.90	27	0.006	0.045	10	344	0.33	2.15	31	44	6.70	83	22
Y044514	42	656	5.83	0.001	<0.002	99	0.0004	84	0.049	18	0.05	4.88	28	0.007	0.250	1.63	1,932	0.61	0.51	100	17	11	60	4.59
Y028530	39	253	2.40	0.002	<0.002	32	0.0002	533	0.041	3.72	0.05	0.47	11.52	<0.005	0.039	17	56	0.17	1.20	30	0.60	4.95	64	23
Y043748	29	629	3.58	<0.001	<0.002	133	0.0006	783	0.046	22	0.17	5.89	14	0.010	0.035	1.62	2,958	0.69	0.31	130	50	12	72	4.52
Y029114	34	374	2.76	<0.001	<0.002	5.20	0.0005	961	0.014	12	0.17	0.83	24	<0.005	0.021	1.63	1,189	0.04	0.27	65	1.53	7.68	31	1.80
Y030071	35	545	5.12	0.002	<0.002	479	0.0013	2,651	0.022	4.54	0.12	1.61	6.27	0.013	0.034	11	1,144	3.17	2.60	32	1.19	3.21	35	22
Y002032	36	672	4.86	0.002	<0.002	446	0.0003	3,405	0.025	4.72	0.11	14	3.98	0.039	0.036	12	1,221	2.33	2.59	31	1.28	6.17	60	17
Y035300	40	254	2.72	0.002	<0.002	68	<0.0002	620	0.015	4.01	0.07	0.68	6.78	0.008	0.024	17	601	0.48	1.72	25	0.65	4.23	28	20
Y043821	40	264	2.54	0.002	<0.002	71	<0.0002	57	0.021	4.15	0.02	1.01	5.91	0.013	0.033	19	802	0.44	2.95	27	0.49	5.36	75	25
Y027826	42	221	3.15	0.002	<0.002	119	<0.0002	319	0.010	4.15	0.02	1.21	5.37	0.012	0.007	14	922	0.73	1.85	34	0.64	3.68	68	18
YD11151	35	254	3.27	0.001	<0.002	302	<0.0002	44	0.025	7.85	<0.01	2.77	21	<0.005	0.020	16	1,114	2.41	2.68	46	0.38	7.53	79	22
Y010511	43	247	3.77	0.002	<0.002	23	0.0002	103	0.020	4.47	0.05	0.52	7.29	0.010	0.010	17	463	0.12	2.47	27	0.21	4.39	93	24
Y016629	9.36	2,709	6.59	0.001	<0.002	182	0.0003	246	0.048	1.25	0.07	1.54	7.88	0.039	0.043	3.67	221	0.94	5.74	8	6.30	3.09	17	7.04
Y036166	32	661	5.48	<0.001	<0.002	137	0.0004	1,560	0.141	22	0.19	5.82	16	0.007	0.077	2.17	2,799	0.98	0.32	125	2.40	13	73	5.67
Y010311	43	240	3.24	0.002	<0.002	32	0.0002	457	0.017	4.41	0.05	0.60	6.72	0.005	0.023	19	515	0.16	2.68	27	0.34	5.37	77	23
Y039402	43	298	3.27	0.003	<0.002	47	<0.0002	91	0.014	5.40	0.02	0.63	9.57	<0.005	0.040	21	442	0.22	2.38	29	0.55	5.90	91	24
Y038539	56	445	2.35	0.002	<0.002	35	0.0003	1,653	0.024	4.53	0.09	0.63	4.59	0.010	0.030	18	725	0.14	2.06	53	1.01	9.60	54	20
YD11928	40	305	3.05	0.002	<0.002	164	<0.0002	259	0.011	4.96	0.01	1.24	5.81	0.007	0.012	20	714	1.06	2.15	28	0.66	11	59	23
YD11036	1.82	144	1.69	<0.001	<0.002	1.89	<0.0002	48	0.058	0.40	0.01	0.16	2.74	<0.005	0.004	0.35	42	0.01	0.17	3	0.08	0.66	3	0.92
Y032798	46	1,272	31	0.001	<0.002	347	<0.0002	1,113	0.076	21	0.57	4.70	70	0.011	0.034	2.89	1,058	2.23	8.45	122	1.02	13	134	6.51
YD12010	35	119	6.87	0.002	<0.002	469	0.0002	239	0.064	5.98	0.26	5.72	30	<0.005	0.032	18	912	3.20	2.48	53	4.34	12	52	30
Y033508	33	668	6.17	<0.001	<0.002	963	<0.0002	46	0.071	17	0.01	8.48	22	<0.005	0.007	1.75	2,832	5.72	0.52	125	20.83	9.21	98	4.80
Y033417	29.31	591	7.30	<0.001	<0.002	>1000	0.0003	89	0.075	20	0.07	3.25	34	<0.005	0.019	1.86	3338	7.94	0.57	156	0.54	10	119	5.53
Y033021	23	653	3.77	0.002	<0.002	410	<0.0002	802	0.022	5.04	0.04	8.15	7.77	0.051	0.016	18	884	2.30	2.52	31	2.03	8.47	35	23
YD02056	14	1,808	8.03	<0.001	<0.002	98	<0.0002	3,673	0.036	3.90	0.20	4.30	5.49	0.014	0.054	19	459	0.64	1.94	13	1.05	13	38	12
Y031889	38	755	4.80	0.002	<0.002	456	0.0002	1,230	0.044	4.00	0.06	17	6.16	0.048	0.023	19	1,118	2.99	2.19	37	0.99	9.14	77	32
Y005908	41.33	747	63	<0.001	<0.002	552	0.0003	61	0.120	25	0.28	5.12	37	0.009	0.112	2.07	1903	4.19	3.48	129	1.42	9.20	47.5	5.36
Y008813	55.4	484	3.15	0.002	<0.002	14.032	<0.0002	60	0.046	3.71	<0.01	0.34	6.47	<0.005	0.003	14	314	0.08	2.33	36	0.26	8.62	85	24
Y008673	32	187	24	<0.001	<0.002	705	0.0003	110	0.064	15	0.01	1.47	4.60	0.007	0.004	2.55	1,564	5.11	0.95	115	2.75	4.52	132	4.61
Y005149	36	431	2.83	0.002	<0.002	42	<0.0002	28	0.019	3.09	<0.01	0.52	4.83	0.016	0.015	20	458	0.29	2.03	20	0.60	6.74	84	21
YD09141	68	1,683	126	<0.001	<0.002	>1000	0.0002	6,842	0.233	37	0.81	11	5.34	0.181	0.040	1.77	2,410	19	0.76	160	0.49	12	456	2.94
Y001442	46	391	3.10	0.003	0.002	197	0.0014	170	0.031	4.67	0.06	0.75	3.52	0.009	0.046	18	637	1.28	3.65	38	0.28	9.70	119	16
Y001448	39	451	6.21	0.002	<0.002	>1000	0.0007	214	0.036	6.68	0.15	4.21	8.53	<0.005	0.035	18	1,694	8.28	1.99	55	0.57	9.58	138	28
LG-Comp3	17.92	1,689	9.95	<0.001	<0.002	288	0.0007	353	0.183	9.51	0.06	2.32	36	0.032	0.005	1.63	1172	1.28	2.86	54	3.75	5.57	36.2	3.14
MW-Comp1	4.14	2,482	8.63	0.001	<0.002	605	0.0002	93	0.026	2.61	<0.01	9.78	26	0.031	0.003	7.15	273	2.36	4.26	11	6.61	5.04	18	15
MW-Comp2	43	1,399	8.62	0.002	<0.002	>1000	0.0010	96	0.037	16	0.05	17	8.28	0.055	0.058	7.92	1,779	12	2.34	102	1.19	8.39	92	26
MW-Comp4	9.22	1,187	6.51	0.001	<0.002	534	<0.0002	78	0.030	1.34	0.06	4.09	16	0.008	0.004	7.12	205	2.68	3.99	8	2.10	3.34	26	12
EIL / ACL (DEC 2010 / NEPM 2013) - Ecological Significance	25	N/G	470	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	50	N/G	N/G	N/G	N/G	N/G	N/G	N/G	50	N/G	N/G	130	N/G
EIL / ACL (DEC 2010 / NEPM 2013) - Urban / Residential / POS	100	N/G	1,100	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	50	N/G	N/G	N/G	N/G	N/G	N/G	N/G	50	N/G	N/G	390	N/G
EIL / ACL (DEC 2010 / NEPM 2013) - Commercial / Industrial	170	N/G	1,800	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	50	N/G	N/G	N/G	N/G	N/G	N/G	N/G	50	N/G	N/G	580	N/G

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Table A1-6: ASLP Water Majors

Sample ID	Depth (mbgl)	Lithology	Weathering	Type	Deposit	Location	pH	EC	TDS	Ca	K	Mg	Na	Sulfate	Fluoride	Chloride	Alkalinity (mg $CaCO_3$/L)			
								µs/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	OH-	CO3	HCO3	Total Alkalinity
YD00614	3 - 3.6	Schist	Oxide	Waste	Li2O	M1	7.3	2,056	1,378	626	8.0	4.96	7.1	1,541	1	4.0	<1	<1	40	40
Y028530	0 - 4	Chlorite Biotite Schist	Transitional	Waste	Li2O	M1	7.7	1,229	823	80	26	9.65	156	296	3.2	185	<1	<1	39	39
Y043821	91 - 92	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	8.1	224	150	0.33	24	0.62	27	6.0	0.40	36	<1	2.0	48	50
Y035300	64 - 65	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	7.9	265	178	0.13	26	0.52	34	13	0.40	53	<1	<1	34	34
Y027826	28 - 29	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M1	8.2	270	181	0.35	30	0.45	32	13	0.30	45	<1	<1	39	39
Y043748	19 - 20	Amphibolite	Fresh	Waste	Li2O	M1	8.8	282	189	12	24	3.49	30	22	4.2	25	<1	17	67	85
Y016629	43 - 44	Pegmatite	Transitional	Waste	Li2O	M36 East	8.5	327	219	2.87	18	0.48	55	16	1.8	47	<1	<1	68	68
Y010511	38 - 39	Chlorite Biotite Schist	Transitional	Waste	Li2O	M36 East	8.3	122	82	0.04	14	0.38	16	2.7	0.40	14	<1	<1	43	43
Y038539	97 - 98	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	8.4	265	178	1.47	40	0.79	25	11	0.40	32	<1	1.0	62	62
Y039402	52 - 53	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	8.6	282	189	1.17	38	0.79	32	5.1	0.40	32	<1	3.0	81	84
YD11928	163 - 164	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M36 East	9.1	167	112	1.58	30	0.66	13	1.8	1.0	5.0	<1	14	62	76
Y036166	56 - 57	Amphibolite	Fresh	Waste	Li2O	M36 East	9.4	323	216	4.48	42	1.48	31	33	3.9	29	<1	43	44	87
YD11036	157.56 - 158.05	Sheared	Fresh	Waste	Li2O	M36 East	7.6	62	42	3.61	2.1	2.76	2.2	2.1	0.30	3.0	<1	<1	25	25
Y032798	1 - 2	Clay	Oxide	Waste	Li2O	M36 West	7.7	2,372	1,589	49	7.8	9.22	475	619	10	295	<1	<1	122	122
YD12010	1 - 2	Overburden general	Oxide	Waste	Li2O	M36 West	8	936	627	25	0.80	5.70	163	115	12	172	<1	<1	72	72
Y033021	38 - 39	Amphibolite	Fresh	Waste	Li2O	M36 West	8.4	288	193	0.1	45	0.67	27	14	2.3	40	<1	<1	60	60
YD02056	111 - 112	Breccia	Fresh	Waste	Li2O	M36 West	7.0	59	40	1.73	6.2	1.26	3.2	14	0.50	3.0	<1	<1	10	10
Y008813	14 - 15	Chlorite Biotite Schist	Transitional	Waste	Li2O	M47	8.2	275	184	5.24	15	1.41	44	20	1.6	34	<1	<1	61	61
Y005149	125 - 126	Chlorite Biotite Schist	Fresh	Waste	Li2O	M47	8.4	124	83	0.23	15	0.43	17	2.7	0.90	11	<1	<1	45	45
Y008673	118 - 119	Amphibolite	Fresh	Waste	Li2O	M47	9.5	311	208	2.53	40	1.09	32	3.9	3.6	29	<1	48	48	96
Y001448	30 - 31	Chlorite Biotite Schist	Fresh	Waste	Li2O	M69	7.8	156	105	0.17	25	0.49	14	3.9	4.0	4.0	<1	<1	61	61
LG-Comp3	-	Low Grade Ore	-	LG-Ore	Li2O	-	8.8	321	215	4.23	13	1.14	41	12	12	35	<1	6.0	65	71
MW-Comp2	-	Min Waste	-	Mineralised Waste	Li2O	-	8.4	241	161	0.07	42	0.37	18	4.5	8.6	16	<1	6.0	67	73
MW-Comp4	-	Min Waste	-	Mineralised Waste	Li2O	-	7.9	393	263	0.71	17	0.60	64	22	3.5	79	<1	<1	43	43
Livestock Drinking Water DGV (ANZECC 2000/ANZG 2018)							6.5-8.5	781.25	500	1000	N/G	500	N/G	500	2	N/G	N/G	N/G	N/G	N/G
NPUG (DER 2014)							N/G	N/G	N/G	N/G	N/G	N/G	N/G	1000	15	250	N/G	N/G	N/G	N/G
Freshwater Protection 90% DGV (ANZECC 2000/ANZG 2018)							N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G

N/G : No applicable guideline value.

Table A1-7: ASLP Water Metals

Sample ID	Depth (mbgl)	Lithology	Weathering	Type	Deposit	Location	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Hg	K	La	Li	Hf	Mg	Mn	Mo	Na	Ni	Pb	Rb	Sb	Sc	Sn	Sr	Ta	Te	Ti	Tl	V	W	Zn
							µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	mg/L
YD00614	3 - 3.6	Schist	Oxide	Waste	Li2O	M1	0.02	0.18	0.40	39	<0.1	<0.005	626	<0.02	0.043	0.20	<0.01	<0.001	<0.01	<0.01	0.1	8.0	0.089	39	<0.005	4.96	0.046	7.3	7.1	<0.01	<0.5	14	0.20	<0.01	<0.1	633	<0.001	<0.1	<0.01	0.03	<0.01	2.902	<0.01
Y028530	0 - 4	Chlorite Biotite Schist	Transitional	Waste	Li2O	M1	<0.01	0.05	0.10	18	0.30	<0.005	80	<0.02	0.008	<0.1	<0.01	0.20	<0.01	<0.01	<0.1	26	0.007	1,034	<0.005	9.65	0.014	10	156	<0.01	<0.5	586	0.01	<0.01	<0.1	186	0.270	<0.1	<0.01	0.05	<0.01	2.56	<0.01
Y043821	91 - 92	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	<0.01	1.17	0.10	6.94	<0.1	0.039	0.33	<0.02	5.10	0.30	<0.01	0.002	<0.01	0.46	<0.1	24	2.61	26	0.20	0.62	0.004	2.7	27	<0.01	1.7	93	0.03	<0.01	<0.1	2.5	0.015	<0.1	<0.01	0.05	<0.01	10	<0.01
Y035300	64 - 65	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	<0.01	0.94	<0.1	2.93	<0.1	<0.005	0.13	<0.02	1.64	<0.1	<0.01	0.004	<0.01	0.25	<0.1	26	0.89	109	0.032	0.52	0.002	5.0	34	<0.01	<0.5	122	0.01	<0.01	<0.1	2.2	0.003	<0.1	<0.01	0.06	<0.01	1.80	<0.01
Y027826	28 - 29	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M1	<0.01	1.38	0.10	8.90	0.10	0.011	0.35	<0.02	0.22	0.30	<0.01	0.003	<0.01	0.49	<0.1	30	0.09	24	0.26	0.45	0.004	4.2	32	<0.01	<0.5	102	0.03	<0.01	0.10	3.1	0.012	<0.1	0.01	0.06	<0.01	7.65	<0.01
Y043748	19 - 20	Amphibolite	Fresh	Waste	Li2O	M1	0.01	0.30	1.80	6.06	<0.1	<0.005	12	<0.02	0.003	<0.1	<0.01	<0.001	<0.01	<0.01	<0.1	24	0.003	42	<0.005	3.49	0.001	35	30	<0.01	<0.5	42	0.53	<0.01	0.20	11	0.001	<0.1	<0.01	0.14	0.030	503	<0.01
Y010511	38 - 39	Chlorite Biotite Schist	Transitional	Waste	Li2O	M36 East	<0.01	2.26	0.50	17	<0.1	0.018	0.04	<0.02	7.42	0.40	<0.01	0.49	<0.01	1.07	<0.1	14	3.96	1,406	0.30	0.38	0.008	2.7	16	<0.01	0.9	1,003	0.07	<0.01	0.20	2.1	<0.001	<0.1	<0.01	0.03	<0.01	2.69	<0.01
Y016629	43 - 44	Pegmatite	Transitional	Waste	Li2O	M36 East	<0.01	0.97	1.50	3.30	<0.1	0.115	2.87	<0.02	0.015	<0.1	<0.01	<0.001	<0.01	0.030	<0.1	18	0.008	33	0.008	0.48	<0.001	15	55	<0.01	<0.5	6.7	0.39	<0.01	<0.1	5.5	0.004	<0.1	<0.01	0.15	<0.01	55	<0.01
Y038539	97 - 98	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	<0.01	1.23	<0.1	4.25	<0.1	0.005	1.47	<0.02	0.93	<0.1	<0.01	0.010	<0.01	0.15	<0.1	40	0.49	126	0.03	0.79	0.002	2.3	25	<0.01	<0.5	152	0.11	<0.01	<0.1	3.1	0.004	<0.1	<0.01	0.06	<0.01	3.86	<0.01
Y039402	52 - 53	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	<0.01	2.00	0.20	11	<0.1	0.044	1.17	<0.02	3.04	0.30	<0.01	0.016	<0.01	0.66	<0.1	38	1.57	79	0.11	0.79	0.007	4.8	32	<0.01	<0.5	192	0.07	<0.01	0.10	4.6	0.008	<0.1	<0.01	0.12	<0.01	4.02	<0.01
YD11928	163 - 164	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M36 East	<0.01	3.99	1.80	24	0.20	0.018	1.58	<0.02	7.18	0.70	<0.01	0.083	<0.01	1.64	<0.1	30	3.78	218	0.083	0.66	0.012	0.3	13	<0.01	1.0	212	0.15	<0.01	0.40	4.4	0.021	<0.1	0.02	0.18	<0.01	3.63	0.020
Y036166	56 - 57	Amphibolite	Fresh	Waste	Li2O	M36 East	<0.01	0.55	11	4.34	<0.1	0.011	4.48	<0.02	0.002	<0.1	<0.01	0.035	<0.01	<0.01	<0.1	42	<0.002	291	<0.005	1.48	<0.001	3.9	31	<0.01	<0.5	270	0.55	<0.01	<0.1	7.5	0.026	<0.1	<0.01	0.16	0.030	39	<0.01
YD11036	157.56 - 158.05	Sheared	Fresh	Waste	Li2O	M36 East	<0.01	0.08	0.90	3.96	<0.1	0.006	3.61	<0.02	0.75	0.10	<0.01	0.11	<0.01	0.050	<0.1	2.1	0.36	1,487	0.010	2.76	0.015	1.6	2.2	<0.01	0.70	316	0.30	<0.01	<0.1	9.7	<0.001	<0.1	<0.01	<0.01	<0.01	0.61	<0.01
Y032798	1 - 2	Clay	Oxide	Waste	Li2O	M36 West	<0.01	0.02	3.00	38	<0.1	<0.005	49	<0.02	0.009	0.30	<0.01	0.005	<0.01	<0.01	<0.1	7.8	0.004	383	<0.005	9.22	0.139	21	475	<0.01	<0.5	56	0.11	<0.01	<0.1	340	0.002	<0.1	<0.01	0.18	<0.01	13	<0.01
YD12010	1 - 2	Overburden general	Oxide	Waste	Li2O	M36 West	<0.01	0.04	0.70	8.24	<0.1	<0.005	25	<0.02	0.008	0.20	<0.01	<0.001	<0.01	<0.01	<0.1	0.8	0.010	1,179	<0.005	5.70	0.006	12	163	<0.01	<0.5	3.2	0.10	<0.01	<0.1	106	0.001	<0.1	<0.01	<0.01	<0.01	158	<0.01
Y033021	38 - 39	Amphibolite	Fresh	Waste	Li2O	M36 West	<0.01	3.60	3.60	30	<0.1	0.056	0.10	<0.02	9.25	0.70	<0.01	0.003	<0.01	1.56	<0.1	45	4.85	8.2	0.11	0.67	0.009	2.1	27	<0.01	0.9	44	0.18	<0.01	1.70	2.5	0.014	<0.1	0.06	0.52	<0.01	15	<0.01
YD02056	111 - 112	Breccia	Fresh	Waste	Li2O	M36 West	<0.01	0.03	0.80	3.31	<0.1	<0.005	1.73	<0.02	0.041	<0.1	<0.01	0.018	<0.01	<0.01	<0.1	6.2	0.027	286	<0.005	1.26	0.014	12	3.2	<0.01	<0.5	319	0.39	<0.01	<0.1	6.0	0.001	<0.1	<0.01	0.03	<0.01	1.79	<0.01
Y008813	14 - 15	Chlorite Biotite Schist	Transitional	Waste	Li2O	M47	<0.01	0.22	1.10	1.14	<0.1	<0.005	5.24	<0.02	0.025	<0.1	<0.01	<0.001	<0.01	<0.01	<0.1	15	0.017	8.1	<0.005	1.41	<0.001	4.5	44	<0.01	<0.5	15	0.03	<0.01	<0.1	11	<0.001	<0.1	<0.01	0.02	<0.01	2.11	<0.01
Y005149	125 - 126	Chlorite Biotite Schist	Fresh	Waste	Li2O	M47	<0.01	1.83	0.80	12	0.20	0.053	0.23	<0.02	19	0.50	<0.01	0.024	<0.01	0.89	<0.1	15	9.66	41	0.63	0.43	0.009	1.9	17	<0.01	1.0	119	0.16	<0.01	0.30	2.5	0.062	<0.1	<0.01	0.16	<0.01	3.04	<0.01
Y008673	118 - 119	Amphibolite	Fresh	Waste	Li2O	M47	<0.01	0.67	1.00	0.49	<0.1	<0.005	2.53	<0.02	0.019	<0.1	<0.01	<0.001	<0.01	<0.01	<0.1	40	0.011	14	<0.005	1.09	<0.001	4.2	32	<0.01	<0.5	22	0.22	<0.01	<0.1	1.8	0.001	<0.1	<0.01	0.54	0.020	45	<0.01
Y001448	30 - 31	Chlorite Biotite Schist	Fresh	Waste	Li2O	M69	<0.01	0.27	0.30	0.77	<0.1	0.009	0.17	<0.02	0.58	0.20	<0.01	0.078	<0.01	0.16	<0.1	25	0.30	1,107	0.019	0.49	0.003	7.0	14	<0.01	<0.5	492	0.46	<0.01	<0.1	1.2	0.004	<0.1	<0.01	0.25	<0.01	2.79	<0.01
LG-Comp3	-	Low Grade Ore	-	LG-Ore	Li2O	-	<0.01	0.72	41	0.15	<0.1	<0.005	4.23	<0.02	<0.002	<0.1	<0.01	0.094	<0.01	<0.01	<0.1	13	<0.002	4,445	<0.005	1.14	0.001	3.6	41	<0.01	<0.5	685	1.03	<0.01	<0.1	4.4	0.001	<0.1	<0.01	0.28	0.020	28	<0.01
MW-Comp2	-	Min Waste	-	Mineralised Waste	Li2O	-	<0.01	1.41	6.40	3.47	<0.1	0.056	0.07	<0.02	0.30	0.20	<0.01	0.41	<0.01	0.45	<0.1	42	0.14	3,153	0.045	0.37	0.005	7.9	18	<0.01	<0.5	1,007	0.08	<0.01	0.10	0.57	0.045	<0.1	0.02	0.62	0.010	7.7	<0.01
MW-Comp4	-	Min Waste	-	Mineralised Waste	Li2O	-	<0.01	0.18	2.60	0.43	<0.1	<0.005	0.71	<0.02	<0.002	<0.1	<0.01	0.012	<0.01	<0.01	<0.1	17	<0.002	1,367	<0.005	0.60	0.041	12	64	<0.01	<0.5	326	0.09	<0.01	<0.1	3.5	<0.001	<0.1	<0.01	0.23	<0.01	11	<0.01
Livestock Drinking Water DGV (ANZECC 2000/ANZG 2018)							N/G	5	500	N/G	60	N/G	1000	10	N/G	1000	0.05	N/G	1	N/G	2	N/G	N/G	N/G	N/G	500	10	150	N/G	1	100	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	0.1	N/G	20
NPUG (DER 2014)							1000	0.2	100	20000	600	N/G	N/G	20	N/G	N/G	0.5	N/G	20	0.3	10	N/G	N/G	N/G	N/G	N/G	5	500	N/G	0.2	100.00	N/G	30	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	3
Freshwater Protection 80% DGV (ANZECC 2000/ANZG 2018)							0.2	0.15	140	N/G	N/G	N/G	N/G	0.8	N/G	N/G	0.04	N/G	0.0025	N/G	5.4	N/G	N/G	N/G	N/G	N/G	3.6	N/G	N/G	0.017	9.4	N/G	9	N/G	N/G	N/G	N/G	N/G	N/G	N/G	0.006	N/G	0.031

N/G : No applicable guideline value.

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Table A1-8: ASLP Acid Leachate - Metals

Sample ID	Depth (mbgl)	Lithology	Weathering	Type	Deposit	Location	Ag	Al	As	Ba	Bi	Ca	Cd	Ce	Co	Cr	Cu	Fe	Hg	K	La	Hf	Mg	Mn	Mo	Na	Ni	Pb	Sb	Sc	Sn	Sr	Te	Ti	Tl	V	W
							µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L
YD00614	3 - 3.6	Schist	Oxide	Waste	Li2O	M1	3.7	29	1.2	186	0.019	1,230	0.91	165	81	0.05	0.80	43	<0.1	18	167	0.11	30	1.9	1.74	6.3	0.09	5.6	0.22	<0.01	<0.1	1,012	<0.1	<0.01	0.16	<0.01	6.85
Y043748	19 - 20	Amphibolite	Fresh	Waste	Li2O	M1	0.12	41	0.80	709	0.25	66	0.38	137	46	0.10	0.12	51	<0.1	24	61	0.061	42	1.7	0.82	15	0.06	1.2	0.06	0.02	<0.1	79	<0.1	0.02	1.17	<0.01	2.24
Y016629	43 - 44	Pegmatite	Transitional	Waste	Li2O	M36 East	<0.01	33	0.40	781	14	27	0.13	63	10	0.03	0.09	19	<0.1	26	33	0.095	5.6	0.50	0.50	25	0.04	7.1	0.08	<0.01	<0.1	89	<0.1	<0.01	1.57	<0.01	0.06
Y010511	38 - 39	Chlorite Biotite Schist	Transitional	Waste	Li2O	M36 East	0.04	76	0.40	429	0.070	5.2	0.04	1,738	30	0.08	0.09	54	<0.1	51	842	0.033	22	0.95	0.07	14	0.06	4.8	<0.01	0.02	<0.1	150	<0.1	<0.01	0.40	<0.01	0.14
Y038539	97 - 98	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	<0.01	78	0.30	659	0.19	13	0.06	2,307	31	0.08	0.15	55	<0.1	60	1,064	0.035	28	1.3	0.06	15	0.10	5.6	0.01	0.02	<0.1	93	<0.1	<0.01	0.67	<0.01	<0.02
YD11928	163 - 164	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M36 East	<0.01	60	2.0	351	0.10	18	0.04	2,008	26	0.06	<0.01	49	<0.1	48	966	0.032	16	0.94	0.08	8.7	0.04	9.1	<0.01	0.02	<0.1	103	<0.1	0.01	1.15	<0.01	<0.02
Y036166	56 - 57	Amphibolite	Fresh	Waste	Li2O	M36 East	0.03	51	3.6	1,076	0.95	89	0.65	144	51	0.10	0.53	52	<0.1	45	67	0.038	57	2.2	0.17	16	0.08	3.2	0.07	0.02	<0.1	133	0.2	0.03	1.77	<0.01	0.07
YD11036	157.56 - 158.05	Sheared	Fresh	Waste	Li2O	M36 East	<0.01	9	1.9	138	0.022	11	0.07	14	6.5	0.08	0.03	59	<0.1	2.7	7.5	0.005	6.4	0.74	4.40	1.2	0.01	4.0	0.16	<0.01	0.1	28	<0.1	0.01	0.12	<0.01	0.03
YD12010	1 - 2	Overburden general	Oxide	Waste	Li2O	M36 West	1.2	50	0.20	378	<0.005	205	0.11	47	303	0.06	0.18	15	<0.1	4.5	23	0.039	40	7.8	0.08	67	0.07	2.3	0.02	<0.01	<0.1	877	<0.1	<0.01	0.09	<0.01	0.13
YD02056	111 - 112	Breccia	Fresh	Waste	Li2O	M36 West	<0.01	54	3.2	540	0.18	14	0.24	1,520	22	0.05	0.48	43	<0.1	39	730	0.10	12	0.93	0.33	7.1	0.03	21	0.05	0.01	0.2	69	0.1	<0.01	1.28	<0.01	0.07
Y001448	30 - 31	Chlorite Biotite Schist	Fresh	Waste	Li2O	M69	0.01	51	0.30	307	0.38	8.3	0.06	552	165	0.09	0.65	95	<0.1	66	264	0.055	23	7.6	0.14	9.4	0.13	3.5	0.06	<0.01	<0.1	193	<0.1	0.01	4.61	<0.01	<0.02
LG-Comp3	-	Low Grade Ore	-	LG-Ore	Li2O	-	0.04	42	4.1	34	0.10	62	0.44	59	27	0.07	0.07	21	<0.1	21	28	0.037	21	1.6	0.16	23	0.03	2.2	0.27	<0.01	<0.1	95	<0.1	0.01	4.53	<0.01	0.14
MW-Comp4	-	Min Waste	-	Mineralised Waste	Li2O	-	0.02	27	0.70	135	0.31	27	1.16	12	16	0.03	0.09	31	<0.1	32	6.1	0.013	8.5	12	0.33	33	0.03	6.5	0.02	<0.01	<0.1	185	<0.1	<0.01	2.85	<0.01	0.06
Livestock Drinking Water DGV (ANZECC 2000/ANZG 2018)							N/G	5	25	N/G	N/G	1000	10	N/G	1000	0.05	1	N/G	2	N/G	N/G	N/G	500	10	10	N/G	1	100	N/G	N/G	N/G	N/G	N/G	N/G	N/G	0.1	N/G
NPUG (DER 2014)							1000	0.2	100	20000	N/G	N/G	20	N/G	N/G	0.5	20	0.3	10	N/G	N/G	N/G	N/G	5	500	N/G	0.2	100	30	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G
Freshwater Protection 80% DGV (ANZECC 2000/ANZG 2018)							0.2	0.15	140	N/G	N/G	N/G	0.8	N/G	N/G	0.04	0.0025	N/G	5.4	N/G	N/G	N/G	N/G	3.6	N/G	N/G	0.017	9.4	9	N/G	N/G	N/G	N/G	N/G	N/G	0.006	N/G
Freshwater Protection 95% DGV (ANZECC 2000/ANZG 2018)							0.05	0.055	13	N/G	N/G	N/G	0.2	N/G	1.4	0.0033	0.0014	0.3	0.6	N/G	N/G	N/G	N/G	1.9	N/G	N/G	0.011	3.4	9	N/G	N/G	N/G	N/G	N/G	0.03	0.006	N/G

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Table A1-9: Summary of NAG Liquor Metals

Sample ID	Depth (mbgl)	Lithology	Weathering	Type	Deposit	Location	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	La	Li	Mg	Mn
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Y043748	19 - 20	Amphibolite	Fresh	Waste	Li2O	M1	<0.1	17	<1	1.0	0.50	<0.1	<0.01	781	<0.1	<0.01	0	4.0	<0.005	<1	<1	<0.1	<0.1	<0.01	<0.01	608	<0.01	5.50	437	<1
Y030518	97 - 98	Amphibolite	Fresh	Waste	Li2O	M1	<0.1	35	<1	2.0	<0.1	<0.1	<0.01	669	<0.1	<0.01	0	2.0	<0.005	<1	2.0	<0.1	<0.1	<0.01	<0.01	151	<0.01	1.30	258	<1
Y030071	129 - 130	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	<0.1	154	<1	5.0	5.90	0.1	<0.01	154	<0.1	0.03	0.7	<1	<0.005	3.0	<1	<0.1	<0.1	<0.01	<0.01	1,793	0.19	56	471	60
Y035300	64 - 65	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	<0.1	4.0	<1	2.0	<0.1	<0.1	<0.01	35	<0.1	<0.01	0	3.0	<0.005	<1	<1	<0.1	<0.1	<0.01	<0.01	790	<0.01	0.60	250	<1
Y033094	82 - 83	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	<0.1	2.0	<1	4.0	<0.1	<0.1	<0.01	120	<0.1	<0.01	0	3.0	<0.005	<1	<1	<0.1	<0.1	<0.01	<0.01	1,030	<0.01	0.10	257	<1
Y043821	91 - 92	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	<0.1	4.0	<1	2.0	<0.1	<0.1	<0.01	53	<0.1	<0.01	0	2.0	<0.005	<1	2.0	<0.1	<0.1	<0.01	<0.01	747	<0.01	0.10	180	<1
YD01567	109 - 109.68	Sheared	Fresh	Waste	Li2O	M1	<0.1	314	<1	1.0	16.2	0.2	<0.01	3,138	0.5	1.65	7.2	<1	0.006	27	15	<0.1	<0.1	<0.01	<0.01	1866	1.19	31.80	551	100
Y037982	138 - 139	Amphibolite	Fresh	Waste	Li2O	M36 East	<0.1	24	<1	1.0	<0.1	<0.1	<0.01	1,091	<0.1	<0.01	0	8.0	0.014	<1	1.0	0.20	<0.1	<0.01	<0.01	880	<0.01	11.70	187	<1
YD11906	143.85 - 144.76	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	<0.1	12	<1	2.0	<0.1	<0.1	<0.01	55	<0.1	0.05	0	2.0	0.018	<1	6.0	<0.1	<0.1	<0.01	<0.01	1,817	0.03	9.70	167	<1
Y039402	52 - 53	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	<0.1	24	<1	2.0	<0.1	<0.1	<0.01	41	<0.1	0.05	0	5.0	<0.005	<1	7.0	0.20	<0.1	<0.01	<0.01	1,011	0.02	0.20	105	<1
YD11928	163 - 164	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M36 East	<0.1	4.0	<1	1.0	<0.1	<0.1	<0.01	196	<0.1	<0.01	0	2.0	<0.005	<1	<1	<0.1	<0.1	<0.01	<0.01	877	<0.01	2.00	200	<1
Y016092	15 - 16	Quartz vein	Fresh	Waste	Li2O	M36 East	<0.1	2.0	<1	2.0	<0.1	<0.1	<0.01	133	<0.1	<0.01	0	2.0	<0.005	<1	<1	<0.1	<0.1	<0.01	<0.01	484	<0.01	0.30	224	<1
Y033021	38 - 39	Amphibolite	Fresh	Waste	Li2O	M36 West	<0.1	3.0	<1	9.0	0.20	<0.1	<0.01	47	<0.1	<0.01	0	2.0	0.011	<1	<1	<0.1	<0.1	<0.01	<0.01	1,841	<0.01	4.30	217	<1
Y031889	126 - 127	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 West	<0.1	3.0	<1	2.0	0.30	<0.1	<0.01	171	<0.1	<0.01	0	1.0	<0.005	<1	<1	<0.1	<0.1	<0.01	<0.01	1,492	<0.01	4.10	291	12
Y018894	107 - 108	Amphibolite	Fresh	Waste	Li2O	M47	<0.1	28	<1	2.0	<0.1	<0.1	<0.01	804	<0.1	<0.01	0	6.0	<0.005	<1	<1	<0.1	<0.1	<0.01	<0.01	74	<0.01	4.30	518	<1
Y039826	100 - 101	Chlorite Biotite Schist	Fresh	Waste	Li2O	M47	<0.1	4.0	1	2.0	<0.1	<0.1	<0.01	37	<0.1	0.0	0	2.0	0.028	<1	4.0	<0.1	<0.1	<0.01	<0.01	1,494	0.01	3.80	126	<1
Y040198	76 - 77	Chlorite Biotite Schist	Fresh	Waste	Li2O	M47	<0.1	9.0	<1	2.0	<0.1	<0.1	<0.01	25	<0.1	<0.01	0	2.0	<0.005	<1	<1	<0.1	<0.1	<0.01	<0.01	776	<0.01	0.20	201	<1

Sample ID	Depth (mbgl)	Amphibolite	Weathering	Waste	Li2O	Location	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Y043748	19 - 20	Amphibolite	Fresh	Waste	Li2O	M1	2.00	372	0.11	<1	<10	<2	12	840	<0.05	<1	<2	<0.1	0.59	0.19	<0.1	<0.01	6.0	<0.02	0.03	5.0	14.6	<0.05	<1
Y030518	97 - 98	Amphibolite	Fresh	Waste	Li2O	M1	0.30	409	0.11	<1	<10	<2	2.1	423	<0.05	<1	<2	<0.1	1.14	0.01	<0.1	<0.01	2.0	<0.02	0.02	3.0	1.5	<0.05	<1
Y030071	129 - 130	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	6.40	523	<0.05	5	<10	<2	37	2,252	<0.05	<1	<2	<0.1	1.95	<0.01	<0.1	<0.01	<1	0.10	0.05	2.0	0.9	0.16	1
Y035300	64 - 65	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	0.20	399	<0.05	<1	<10	<2	5.3	604	<0.05	<1	<2	<0.1	0.41	<0.01	<0.1	<0.01	<1	<0.02	0.03	3.0	0.4	<0.05	<1
Y033094	82 - 83	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	0.20	562	0.21	<1	<10	<2	6.4	624	<0.05	<1	<2	<0.1	0.41	0.15	<0.1	<0.01	<1	<0.02	0.43	2.0	0.9	<0.05	<1
Y043821	91 - 92	Chlorite Biotite Schist	Fresh	Waste	Li2O	M1	0.30	314	<0.05	<1	<10	<2	4.1	63	<0.05	<1	<2	<0.1	0.25	0.01	<0.1	<0.01	<1	<0.02	0.12	2.0	0.7	<0.05	<1
YD01567	109 - 109.68	Sheared	Fresh	Waste	Li2O	M1	<0.1	197	<0.05	16	<10	10.0	43.13	5743	<0.05	<1	<2	<0.1	1.94	<0.01	<0.1	<0.01	<1	0.17	0.49	2.0	<0.1	1.13	98
Y037982	138 - 139	Amphibolite	Fresh	Waste	Li2O	M36 East	0.10	377	<0.05	<1	<10	<2	12	1,308	<0.05	<1	<2	<0.1	0.82	<0.01	<0.1	<0.01	<1	<0.02	<0.01	8.0	3.0	<0.05	<1
YD11906	143.85 - 144.76	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	<0.1	182	0.16	<1	<10	<2	34	177	<0.05	<1	<2	<0.1	0.18	0.23	<0.1	0.01	1.0	0.03	0.41	3.0	0.3	<0.05	<1
Y039402	52 - 53	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 East	0.20	429	0.13	<1	<10	<2	6.7	84	<0.05	<1	<2	<0.1	0.18	0.01	<0.1	0.01	2.0	<0.02	0.18	4.0	0.6	<0.05	<1
YD11928	163 - 164	Chlorite Zinwaldite Schist	Fresh	Waste	Li2O	M36 East	<0.1	213	<0.05	<1	<10	<2	8.8	275	<0.05	<1	<2	<0.1	0.40	<0.01	<0.1	<0.01	<1	<0.02	0.06	2.0	0.2	<0.05	<1
Y016092	15 - 16	Quartz vein	Fresh	Waste	Li2O	M36 East	0.30	285	<0.05	<1	<10	<2	2.5	19	<0.05	<1	<2	<0.1	0.55	<0.01	<0.1	<0.01	<1	<0.02	0.03	2.0	0.8	<0.05	<1
Y033021	38 - 39	Amphibolite	Fresh	Waste	Li2O	M36 West	0.10	513	0.05	<1	<10	<2	34	786	<0.05	<1	<2	<0.1	0.43	0.07	<0.1	<0.01	<1	0.03	0.12	3.0	1.1	<0.05	<1
Y031889	126 - 127	Chlorite Biotite Schist	Fresh	Waste	Li2O	M36 West	0.90	432	<0.05	<1	<10	<2	24	1,228	<0.05	<1	<2	<0.1	0.96	0.01	<0.1	<0.01	<1	0.04	0.02	2.0	0.5	<0.05	<1
Y018894	107 - 108	Amphibolite	Fresh	Waste	Li2O	M47	0.60	329	0.06	<1	<10	<2	1.4	873	0.06	<1	<2	<0.1	0.53	0.01	<0.1	<0.01	7.0	<0.02	0.03	4.0	3.5	<0.05	<1
Y039826	100 - 101	Chlorite Biotite Schist	Fresh	Waste	Li2O	M47	2.00	316	0.07	<1	<10	<2	38	114	<0.05	<1	<2	<0.1	0.14	0.04	<0.1	<0.01	<1	0.04	0.21	3.0	0.6	<0.05	<1
Y040198	76 - 77	Chlorite Biotite Schist	Fresh	Waste	Li2O	M47	0.40	310	<0.05	<1	<10	<2	4.1	149	<0.05	<1	<2	<0.1	0.19	<0.01	<0.1	<0.01	<1	<0.02	0.11	3.0	0.5	<0.05	<1

Table A1-10: pH, Salility and Cation Exchange Capacity

Sample ID	Deposit	Lithology	Weathering	Location	EC	TDS	pH	Exchangeable Cations (cmol(+)/kg)					
					µS/cm	mg/L	SU	Ca	K	Mg	Na	ECEC	ESP (%)
Y002938	Li2O	Clay	Oxide	M1	1,100	704	8.8	25	0.65	12	13	50.65	25.7
YD00614	Li2O	Schist	Oxide	M1	2,500	1,600	8.2	11	1	0.61	<0.02	12.61	0.0
YD11151	Li2O	Saprock	Oxide	M36 East	360	230	9.4	4.5	1.1	1.2	2	8.8	22.7
Y032798	Li2O	Clay	Oxide	M36 West	1900	1,216	8.5	30	0.52	6.7	15	52.22	28.7
YD12010	Li2O	Overburden general	Oxide	M36 West	930	595	8.7	10	0.38	3	3.3	16.68	19.8
Y005908	Li2O	Clay	Oxide	M47	860	550	9.2	16	0.75	8.4	9.1	34.25	26.6

APPENDIX B

APPENDIX B:
LABORATORY REPORTS

MBS ENVIRONMENTAL

GOVERNMENT OF WESTERN AUSTRALIA

ChemCentre
Scientific Services Division
Report of Examination

Resources and Chemistry Precinct
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Bentley
WA 6102
T +61 8 9422 9800
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www.chemcentre.wa.gov.au
ABN 40 991 885 705

Purchase Order: DLYWRC
ChemCentre Reference: 24S1201 R0

MBS Environmental
4 Cook St
West Perth WA 6005

Attention: Elliott Duncan

Report on: 6 samples received on 12/09/2024

LAB ID	Material	Client ID and Description
24S1201 / 001	solid	YD00614 YNMC067, M1_Oxide_xsc
24S1201 / 002	solid	Y002938 YNMC068, M1_Oxide_ocy
24S1201 / 003	solid	YD11151 YNMC069, M36E_Oxide_osr
24S1201 / 004	solid	Y032798 YNMC070, M36W_Oxide_ocy
24S1201 / 005	solid	Y005908 YNMC071, M47_Oxide_ocy
24S1201 / 006	solid	YD12010 YNMC072, M36W_Oxide_oou

LAB ID			001	002	003	004
Client ID^			YD00614	Y002938	YD11151	Y032798
Sampled^						
Analyte	**Method**	**Unit**				
Electrical Conductivity	(1:5)	mS/m	250	110	36	190
pH	(H2O)		8.2	8.8	9.4	8.5
Exchangeable Sodium %*	(calc)	%	0.6	25.5	23.1	28.3
Calcium	(exch)	cmol(+)/kg	11	25	4.5	30
Magnesium	(exch)	cmol(+)/kg	0.61	12	1.2	6.7
Potassium	(exch)	cmol(+)/kg	1.0	0.65	1.1	0.52
Sodium	(exch)	cmol(+)/kg	<0.02	13	2.0	15
Date Analysed	(1:5)		30/09/2024	30/09/2024	30/09/2024	30/09/2024
	(calc)		07/10/2024	07/10/2024	07/10/2024	07/10/2024
	(exch)		07/10/2024	07/10/2024	07/10/2024	07/10/2024
	(H2O)		30/09/2024	30/09/2024	30/09/2024	30/09/2024
Sample Condition			Ambient	Ambient	Ambient	Ambient

LAB ID			005	006
Client ID^			Y005908	YD12010
Sampled^				
Analyte	**Method**	**Unit**		
Electrical Conductivity	(1:5)	mS/m	86	93
pH	(H2O)		9.2	8.7
Exchangeable Sodium %*	(calc)	%	26.8	19.5
Calcium	(exch)	cmol(+)/kg	16	10
Magnesium	(exch)	cmol(+)/kg	8.4	3.0
Potassium	(exch)	cmol(+)/kg	0.75	0.38
Sodium	(exch)	cmol(+)/kg	9.1	3.3

LAB ID			005	006
Client ID^				
Sampled^				
Analyte	**Method**	**Unit**		
Date Analysed	(1:5)		30/09/2024	30/09/2024
	(calc)		07/10/2024	07/10/2024
	(exch)		07/10/2024	07/10/2024
	(H2O)		30/09/2024	30/09/2024
Sample Condition			Ambient	Ambient

Method	**Method Description**
(1:5)	Electrical conductivity of 1:5 soil extract at 25 C by in-house method S02 (Method 3A1; Rayment & Lyons (2011)).
(calc)	Result based on calculation from another analyte
(exch)	Exchangeable cations extracted in NH4Cl or BaCl2 by in house methods S22.0, S22.1 and S21. (Methods 15A1, 15C1 and 15E1; Rayment & Lyons (2011))
(H2O)	pH of 1:5 soil:water extract by in-house method S01 (Method 4A1; Rayment & Lyons (2011))

Results are based on a air-dry (40C) , <2 mm basis. The results apply only to samples as received. This report may only be reproduced in full. Unless otherwise advised, the samples in this job will be disposed of after a holding period of 30 days from the report date shown below.

Exchangeable Sodium Percentage (ESP)

The ESP is a measure of sodicity (i.e exchangeable Na+) based on a soils exchange complex . High levels of sodium can adversley effect plant growth and soil structure.
The table below (categorised by Northcote and Skene, 1972) relates % ESP to soil sodicity. This table should only be used as a guide as it tolerance can vary on soil type and plant species.

ESP<6 non-sodic
ESP 6-15 sodic
ESP>15 strongly sodic

*Analysis not covered by scope of ChemCentre's NATA accreditation.
^Information provided by client, unless otherwise stated.

Geoffrey Firns
Team Leader
SSD Inorganic Chemistry
10-Oct-2024

MINERALS
TEST REPORT

CLIENT

MARTINICK BOSCH SELL PTY LTD
4 Cook Street
WEST PERTH, W.A. 6005
AUSTRALIA

JOB INFORMATION

JOB CODE	: 282.0/2408790
NO. SAMPLES	: 80
NO. ELEMENTS	: 72
CLIENT ORDER NO.	: DLYWRC (Job 1 of 1)
SAMPLE SUBMISSION NO.	:
PROJECT	: DLYWRC
SAMPLE TYPE	: Various
DATE RECEIVED	: 24/05/2024
DATE TESTED	: 10/06/2024 - 21/08/2024
DATE REPORTED	: 21/08/2024
DATE PRINTED	: 22/08/2024

REPORT NOTES

1. Amended Report: 4A results for Rb included to sample YD09141

TESTED BY

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

APPROVED SIGNATURE FOR

Andrew RILEY
Regional Manager
Geochemistry Western Australia

SIGNIFICANT FIGURES

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

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

MEASUREMENT OF UNCERTAINTY

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

SAMPLE STORAGE

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

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

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

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

ELEMENTS	Au	Ag	Ag	Ag	Ag	Ag
UNITS	ppb	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	0.1	0.01	0.05	0.01	0.01	0.1
DIGEST	AR005/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	0.2	0.02	X			X
0002 Y029247						
0003 Y043821	0.5	X	X	X		X
0004 Y036561						
0005 Y002032	0.1	0.03	X			
0006 Y035300	0.2	X	X	X		X
0007 Y030469						
0008 Y033094						X
0009 Y027826	X	X	X	X		
0010 Y027852						
0011 Y010311	1.9	X	X			
0012 YD11906						X
0013 Y038539	0.2	0.01	X	X		
0014 Y039402	2.4	X	X	X		X
0015 Y039429						
0016 YD11928	0.1	X	X	X		X
0017 Y000503						
0018 Y033560						
0019 Y031889	0.2	0.01	X			X
0020 Y041801						
0021 Y039826						X
0022 Y005149	X	X	X	X		
0023 Y040198						X
0024 Y001448	3.1	0.04	X	X		
0025 Y001482						
0026 Y028530	1.0	0.02	X	X		
0027 Y044514	0.4	0.18	0.19			
0028 Y042938						
0029 Y016629	1.1	0.03	X	X		
0030 Y010511	0.2	0.01	X	X		
0031 Y041586						
0032 Y033508	0.2	0.12	0.11			
0033 Y001442	1.5	0.01	X			
0034 Y005079						
0035 Y008813	X	0.07	0.07	X		
0036 Y035276						
0037 Y043748	0.2	0.09	0.09	0.01		X
0038 Y030020						
0039 Y029114	0.2	0.07	0.07			
0040 Y030518						X

ELEMENTS	Al	Al	Al	Al	Al	ANC
UNITS	%	ppm	mg/l	mg/l	mg/Kg	kgH2SO4/t
DETECTION LIMIT	0.0001	10	0.01	0.01	1	1
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	ANCx/
ANALYTICAL FINISH	MS	MS	OE	OE	OE	VOL
SAMPLE NUMBERS						
0001 Y030071	2.5964	9.61%			154	14
0002 Y029247						14
0003 Y043821	2.7013	10.40%	1.17		4	13
0004 Y036561						31
0005 Y002032	2.4918	9.49%				17
0006 Y035300	2.6313	8.85%	0.94		4	12
0007 Y030469						19
0008 Y033094					2	16
0009 Y027826	2.6274	10.64%	1.38			12
0010 Y027852						15
0011 Y010311	3.1977	10.15%				14
0012 YD11906					12	17
0013 Y038539	2.6308	9.51%	1.23			14
0014 Y039402	3.3646	10.71%	2.00		24	14
0015 Y039429						13
0016 YD11928	2.7067	10.71%	3.99		4	12
0017 Y000503						23
0018 Y033560						14
0019 Y031889	2.4179	10.19%			3	14
0020 Y041801						12
0021 Y039826					4	14
0022 Y005149	2.3754	10.40%	1.83			11
0023 Y040198					9	12
0024 Y001448	3.7657	8.14%	0.27			15
0025 Y001482						11
0026 Y028530	2.8134	9.09%	0.05			20
0027 Y044514	2.7012	7.06%				69
0028 Y042938						30
0029 Y016629	0.9542	8.21%	0.97			15
0030 Y010511	3.1978	10.38%	2.26			12
0031 Y041586						22
0032 Y033508	4.0666	7.43%				36
0033 Y001442	3.1513	8.31%				11
0034 Y005079						33
0035 Y008813	2.4994	9.44%	0.22			14
0036 Y035276						31
0037 Y043748	2.5019	7.57%	0.30		17	24
0038 Y030020						40
0039 Y029114	1.8150	7.16%				22
0040 Y030518					35	19

ELEMENTS	As	As	As	As	As	B
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.03	0.2	0.1	0.1	1	0.5
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	0.28	0.5			X	2.0
0002 Y029247						
0003 Y043821	0.07	X	0.1		X	1.1
0004 Y036561						
0005 Y002032	0.55	0.7				3.3
0006 Y035300	0.13	X	X		X	0.9
0007 Y030469						
0008 Y033094					X	
0009 Y027826	0.11	X	0.1			0.8
0010 Y027852						
0011 Y010311	3.14	2.2				1.0
0012 YD11906					X	
0013 Y038539	1.34	1.6	X			1.7
0014 Y039402	0.33	0.5	0.2		X	1.1
0015 Y039429						
0016 YD11928	0.66	1.1	1.8		X	1.4
0017 Y000503						
0018 Y033560						
0019 Y031889	0.53	0.6			X	2.6
0020 Y041801						
0021 Y039826					1	
0022 Y005149	0.69	1.0	0.8			1.7
0023 Y040198					X	
0024 Y001448	0.40	0.8	0.3			2.4
0025 Y001482						
0026 Y028530	0.26	0.8	0.1			4.5
0027 Y044514	0.62	1.1				2.6
0028 Y042938						
0029 Y016629	0.84	0.7	1.5			1.0
0030 Y010511	0.48	1.5	0.5			1.0
0031 Y041586						
0032 Y033508	1.00	1.3				5.6
0033 Y001442	0.24	0.4				1.2
0034 Y005079						
0035 Y008813	2.24	8.6	1.1			1.1
0036 Y035276						
0037 Y043748	0.35	0.5	1.8		X	1.1
0038 Y030020						
0039 Y029114	0.14	0.3				1.1
0040 Y030518					X	

ELEMENTS	B	B	B	Ba	Ba	Ba
UNITS	mg/l	mg/l	mg/Kg	ppm	ppm	ug/l
DETECTION LIMIT	0.01	0.01	1	0.05	0.1	0.05
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	OE	OE	OE	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071			5	89.67	401.7	
0002 Y029247						
0003 Y043821	0.02		2	50.80	461.1	6.94
0004 Y036561						
0005 Y002032				165.85	788.9	
0006 Y035300	X		2	61.22	476.5	2.93
0007 Y030469						
0008 Y033094			4			
0009 Y027826	0.01			59.68	478.5	8.90
0010 Y027852						
0011 Y010311				78.12	577.5	
0012 YD11906			2			
0013 Y038539	0.02			78.50	587.5	4.25
0014 Y039402	X		2	82.89	585.5	11.15
0015 Y039429						
0016 YD11928	0.01		1	66.39	470.9	23.87
0017 Y000503						
0018 Y033560						
0019 Y031889			2	81.98	478.1	
0020 Y041801						
0021 Y039826			2			
0022 Y005149	0.02			29.83	410.1	12.46
0023 Y040198			2			
0024 Y001448	0.02			113.84	280.3	0.77
0025 Y001482						
0026 Y028530	0.09			60.98	445.3	17.63
0027 Y044514				71.16	88.9	
0028 Y042938						
0029 Y016629	0.02			105.44	584.1	3.30
0030 Y010511	X			58.33	498.6	16.89
0031 Y041586						
0032 Y033508				258.51	263.1	
0033 Y001442				31.98	283.6	
0034 Y005079						
0035 Y008813	X			45.07	567.8	1.14
0036 Y035276						
0037 Y043748	X		1	140.39	171.7	6.06
0038 Y030020						
0039 Y029114				3.61	10.6	
0040 Y030518			2			

ELEMENTS	Ba	Ba	Be	Be	Be	Be
UNITS	ug/l	mg/Kg	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.05	0.1	0.005	0.05	0.1	0.1
DIGEST	ASLP/	NAGx/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071		5.9	1.977	11.16		
0002 Y029247						
0003 Y043821		X	0.591	5.24	X	
0004 Y036561						
0005 Y002032			1.585	5.94		
0006 Y035300		X	0.599	2.70	X	
0007 Y030469						
0008 Y033094		X				
0009 Y027826			0.922	2.87	0.1	
0010 Y027852						
0011 Y010311			0.924	4.21		
0012 YD11906		X				
0013 Y038539			0.522	3.66	X	
0014 Y039402		X	0.713	4.04	X	
0015 Y039429						
0016 YD11928		X	1.982	6.99	0.2	
0017 Y000503						
0018 Y033560						
0019 Y031889		0.3	2.758	41.09		
0020 Y041801						
0021 Y039826		X				
0022 Y005149			0.572	9.26	0.2	
0023 Y040198		X				
0024 Y001448			3.165	9.13	X	
0025 Y001482						
0026 Y028530			1.379	3.27	X	
0027 Y044514			1.440	3.83		
0028 Y042938						
0029 Y016629			1.042	87.65	X	
0030 Y010511			0.507	3.63	X	
0031 Y041586						
0032 Y033508			6.040	16.56		
0033 Y001442			0.760	5.50		
0034 Y005079						
0035 Y008813			0.500	3.00	X	
0036 Y035276						
0037 Y043748		0.5	2.307	7.31	X	
0038 Y030020						
0039 Y029114			0.336	1.29		
0040 Y030518		X				

ELEMENTS	Be	Bi	Bi	Bi	Bi	Bi
UNITS	mg/Kg	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	0.1	0.005	0.01	0.005	0.005	0.01
DIGEST	NAGx/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	0.1	1.017	1.09			X
0002 Y029247						
0003 Y043821	X	0.755	0.60	0.039		X
0004 Y036561						
0005 Y002032		2.031	1.95			
0006 Y035300	X	0.214	0.22	X		X
0007 Y030469						
0008 Y033094	X					X
0009 Y027826		0.138	0.18	0.011		
0010 Y027852						
0011 Y010311		0.626	0.64			
0012 YD11906	X					X
0013 Y038539		0.201	0.21	0.005		
0014 Y039402	X	0.768	0.87	0.044		X
0015 Y039429						
0016 YD11928	X	0.075	0.07	0.018		X
0017 Y000503						
0018 Y033560						
0019 Y031889	X	0.342	0.39			X
0020 Y041801						
0021 Y039826	X					X
0022 Y005149		0.260	0.23	0.053		
0023 Y040198	X					X
0024 Y001448		1.739	2.30	0.009		
0025 Y001482						
0026 Y028530		0.417	0.52	X		
0027 Y044514		1.942	2.40			
0028 Y042938						
0029 Y016629		24.856	27.29	0.115		
0030 Y010511		0.165	0.18	0.018		
0031 Y041586						
0032 Y033508		1.626	3.27			
0033 Y001442		1.187	2.06			
0034 Y005079						
0035 Y008813		0.048	0.08	X		
0036 Y035276						
0037 Y043748	X	4.327	4.82	X		X
0038 Y030020						
0039 Y029114		0.397	0.77			
0040 Y030518	X					X

ELEMENTS	C	CO3	Ca	Ca	Ca	Ca
UNITS	%	mgCaCO3/L	%	ppm	mg/l	mg/l
DETECTION LIMIT	0.01	1	0.0001	20	0.01	0.01
DIGEST		18Ws5/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	/CSA	VOL	MS	MS	OE	OE
SAMPLE NUMBERS						
0001 Y030071	X		0.0853	1003		
0002 Y029247	0.01					
0003 Y043821	X	2	0.0976	3087	0.33	
0004 Y036561	X					
0005 Y002032	0.06		0.2517	3240		
0006 Y035300	X	X	0.0712	2389	0.13	
0007 Y030469	0.10					
0008 Y033094	X					
0009 Y027826	X	X	0.0556	1634	0.35	
0010 Y027852	X					
0011 Y010311	0.02		0.1326	2352		
0012 YD11906	X					
0013 Y038539	X	1	0.1293	2771	1.47	
0014 Y039402	0.01	3	0.0992	2379	1.17	
0015 Y039429	0.01					
0016 YD11928	X	14	0.1203	6790	1.58	
0017 Y000503	0.12					
0018 Y033560	X					
0019 Y031889	0.07		0.1804	2098		
0020 Y041801	X					
0021 Y039826	0.01					
0022 Y005149	X	X	0.1079	1960	0.23	
0023 Y040198	X					
0024 Y001448	0.26	X	0.1182	2694	0.17	
0025 Y001482	0.03					
0026 Y028530	0.09	X	0.4756	5513	79.75	
0027 Y044514	0.61		3.1750	7.32%		
0028 Y042938	0.10					
0029 Y016629	0.03	X	0.6184	9130	2.87	
0030 Y010511	0.03	X	0.0629	2625	0.04	
0031 Y041586	0.02					
0032 Y033508	0.26		2.2218	5.81%		
0033 Y001442	0.06		0.0996	4838		
0034 Y005079	0.12					
0035 Y008813	X	X	0.1651	3818	5.24	
0036 Y035276	0.10					
0037 Y043748	0.04	17	2.7786	7.38%	11.61	
0038 Y030020	0.22					
0039 Y029114	0.02		1.9879	7.97%		
0040 Y030518	0.01					

ELEMENTS	Ca	Cd	Cd	Cd	Cd	Cd
UNITS	mg/Kg	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	1	0.002	0.01	0.02	0.02	0.1
DIGEST	NAGx/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	OE	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	154	0.042	0.04			X
0002 Y029247						
0003 Y043821	53	0.014	0.02	X		X
0004 Y036561						
0005 Y002032		0.011	0.02			
0006 Y035300	35	0.005	0.01	X		X
0007 Y030469						
0008 Y033094	120					X
0009 Y027826		0.002	X	X		
0010 Y027852						
0011 Y010311		X	X			
0012 YD11906	55					X
0013 Y038539		0.002	X	X		
0014 Y039402	41	0.005	X	X		X
0015 Y039429						
0016 YD11928	196	0.003	X	X		X
0017 Y000503						
0018 Y033560						
0019 Y031889	171	0.012	0.01			X
0020 Y041801						
0021 Y039826	37					X
0022 Y005149		0.008	X	X		
0023 Y040198	25					X
0024 Y001448		0.010	0.02	X		
0025 Y001482						
0026 Y028530		0.006	X	X		
0027 Y044514		0.237	0.43			
0028 Y042938						
0029 Y016629		0.016	0.02	X		
0030 Y010511		0.004	0.01	X		
0031 Y041586						
0032 Y033508		0.123	0.18			
0033 Y001442		0.006	X			
0034 Y005079						
0035 Y008813		0.051	0.06	X		
0036 Y035276						
0037 Y043748	781	0.102	0.17	X		X
0038 Y030020						
0039 Y029114		0.061	0.15			
0040 Y030518	669					X

ELEMENTS	Ce	Ce	Ce	Ce	Ce	Cl
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	mg/l
DETECTION LIMIT	0.002	0.01	0.002	0.002	0.01	2
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	18Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	COL
SAMPLE NUMBERS						
0001 Y030071	48.988	95.06			0.03	
0002 Y029247						
0003 Y043821	101.995	121.17	5.095		X	36
0004 Y036561						
0005 Y002032	55.697	111.85				
0006 Y035300	92.034	106.64	1.640		X	53
0007 Y030469						
0008 Y033094					X	
0009 Y027826	62.757	122.11	0.221			45
0010 Y027852						
0011 Y010311	106.912	119.67				
0012 YD11906					0.05	
0013 Y038539	99.949	112.32	0.925			32
0014 Y039402	114.707	127.31	3.040		0.05	32
0015 Y039429						
0016 YD11928	103.546	121.16	7.183		X	5
0017 Y000503						
0018 Y033560						
0019 Y031889	102.172	110.95			X	
0020 Y041801						
0021 Y039826					0.03	
0022 Y005149	101.527	120.19	19.205			11
0023 Y040198					X	
0024 Y001448	89.119	97.25	0.583			4
0025 Y001482						
0026 Y028530	65.850	98.62	0.008			185
0027 Y044514	11.633	13.59				
0028 Y042938						
0029 Y016629	16.809	19.81	0.015			47
0030 Y010511	110.143	118.94	7.415			14
0031 Y041586						
0032 Y033508	10.915	17.07				
0033 Y001442	100.077	104.87				
0034 Y005079						
0035 Y008813	96.012	107.21	0.025			34
0036 Y035276						
0037 Y043748	11.909	14.08	0.003		X	25
0038 Y030020						
0039 Y029114	11.557	13.24				
0040 Y030518					X	

ELEMENTS	Co	Co	Co	Co	Co	ColourChange
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	NONE
DETECTION LIMIT	0.01	0.1	0.1	0.1	0.1	0
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	ANCx/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	QUAL
SAMPLE NUMBERS						
0001 Y030071	17.28	19.1			0.7	Yes
0002 Y029247						Yes
0003 Y043821	20.35	22.8	0.3		0.0	Yes
0004 Y036561						Yes
0005 Y002032	17.01	20.3				Yes
0006 Y035300	19.88	20.8	X		0.0	Yes
0007 Y030469						Yes
0008 Y033094					0.0	Yes
0009 Y027826	21.77	24.7	0.3			Yes
0010 Y027852						Yes
0011 Y010311	25.01	24.0				Yes
0012 YD11906					0.0	Yes
0013 Y038539	24.25	25.6	X			Yes
0014 Y039402	22.17	24.3	0.3		0.0	Yes
0015 Y039429						Yes
0016 YD11928	19.29	22.2	0.7		0.0	Yes
0017 Y000503						Yes
0018 Y033560						Yes
0019 Y031889	18.53	20.8			0.0	Yes
0020 Y041801						Yes
0021 Y039826					0.0	Yes
0022 Y005149	20.60	24.3	0.5			Yes
0023 Y040198					0.0	Yes
0024 Y001448	21.44	23.9	0.2			Yes
0025 Y001482						Yes
0026 Y028530	20.08	21.2	X			Yes
0027 Y044514	23.90	46.9				Yes
0028 Y042938						Yes
0029 Y016629	3.98	4.9	X			
0030 Y010511	22.25	23.9	0.4			Yes
0031 Y041586						Yes
0032 Y033508	28.81	38.6				Yes
0033 Y001442	21.55	23.0				Yes
0034 Y005079						Yes
0035 Y008813	21.81	25.4	X			Yes
0036 Y035276						Yes
0037 Y043748	25.04	46.1	X		0.0	Yes
0038 Y030020						Yes
0039 Y029114	18.94	54.3				Yes
0040 Y030518					0.0	Yes

ELEMENTS	Cr	Cr	Cr	Cr	Cr	Cs
UNITS	ppm	ppm	mg/l	mg/l	mg/Kg	ppm
DETECTION LIMIT	0.1	0.2	0.01	0.01	1	0.01
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	OE	OE	OE	MS
SAMPLE NUMBERS						
0001 Y030071	43.0	96.0			X	149.19
0002 Y029247						
0003 Y043821	46.3	112.0	X		2	15.21
0004 Y036561						
0005 Y002032	47.3	105.8				128.55
0006 Y035300	46.7	102.2	X		3	16.22
0007 Y030469						
0008 Y033094					3	
0009 Y027826	52.3	118.2	X			29.86
0010 Y027852						
0011 Y010311	51.9	115.2				18.78
0012 YD11906					2	
0013 Y038539	66.6	116.7	X			12.08
0014 Y039402	59.2	120.5	X		5	17.34
0015 Y039429						
0016 YD11928	44.2	112.1	X		2	207.76
0017 Y000503						
0018 Y033560						
0019 Y031889	45.8	103.2			1	250.69
0020 Y041801						
0021 Y039826					2	
0022 Y005149	37.6	96.2	X			36.03
0023 Y040198					2	
0024 Y001448	64.2	100.0	X			901.22
0025 Y001482						
0026 Y028530	42.7	92.4	X			6.17
0027 Y044514	188.8	376.2				34.11
0028 Y042938						
0029 Y016629	16.1	28.3	X			118.60
0030 Y010511	51.2	112.7	X			9.68
0031 Y041586						
0032 Y033508	118.0	144.3				811.22
0033 Y001442	59.3	103.2				117.64
0034 Y005079						
0035 Y008813	52.3	115.8	X			9.37
0036 Y035276						
0037 Y043748	128.3	275.1	X		4	44.68
0038 Y030020						
0039 Y029114	119.3	433.0				2.72
0040 Y030518					2	

ELEMENTS	Cs	Cs	Cs	Cs	Cs-Rp1	Cu
UNITS	ppm	ug/l	ug/l	mg/Kg	ppm	ppm
DETECTION LIMIT	0.05	0.001	0.001	0.005	0.05	0.05
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	4AH/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	172.37			X		61.93
0002 Y029247						
0003 Y043821	26.13	0.002		X		19.50
0004 Y036561						
0005 Y002032	165.48					88.48
0006 Y035300	30.36	0.004		X		40.86
0007 Y030469						
0008 Y033094				X		
0009 Y027826	41.98	0.003				16.20
0010 Y027852						
0011 Y010311	47.04					30.25
0012 YD11906				0.018		
0013 Y038539	55.44	0.010				64.54
0014 Y039402	63.71	0.016		X		17.72
0015 Y039429						
0016 YD11928	283.26	0.083		X		6.77
0017 Y000503						
0018 Y033560						
0019 Y031889	343.24			X		58.76
0020 Y041801						
0021 Y039826				0.028		
0022 Y005149	170.13	0.024				7.42
0023 Y040198				X		
0024 Y001448	956.66	0.078				93.34
0025 Y001482						
0026 Y028530	19.72	X				19.64
0027 Y044514	35.77					92.79
0028 Y042938						
0029 Y016629	168.83	0.035				22.59
0030 Y010511	37.32	0.003				23.97
0031 Y041586						
0032 Y033508	824.83					11.27
0033 Y001442	148.04					20.79
0034 Y005079						
0035 Y008813	39.86	X				24.65
0036 Y035276						
0037 Y043748	45.63	0.018		X		68.59
0038 Y030020						
0039 Y029114	3.07					94.22
0040 Y030518				X		

ELEMENTS	Cu	Cu	Cu	Cu	EC	EC
UNITS	ppm	mg/l	mg/l	mg/Kg	uS/cm	uS/cm
DETECTION LIMIT	0.5	0.01	0.01	1	10	10
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	18Ws5/	Ws5/
ANALYTICAL FINISH	MS	OE	OE	OE	MTR	MTR
SAMPLE NUMBERS						
0001 Y030071	57.6			3		319
0002 Y029247						357
0003 Y043821	19.6	X		X	224	185
0004 Y036561						234
0005 Y002032	93.8					415
0006 Y035300	40.0	X		X	265	235
0007 Y030469						429
0008 Y033094				X		474
0009 Y027826	16.7	X			270	241
0010 Y027852						132
0011 Y010311	29.7					186
0012 YD11906				X		143
0013 Y038539	61.7	X			265	228
0014 Y039402	17.5	X		X	282	220
0015 Y039429						214
0016 YD11928	7.2	X		X	167	134
0017 Y000503						137
0018 Y033560						284
0019 Y031889	55.6			X		368
0020 Y041801						244
0021 Y039826				X		219
0022 Y005149	8.3	X			124	107
0023 Y040198				X		206
0024 Y001448	94.4	X			156	127
0025 Y001482						225
0026 Y028530	21.0	X			1229	1157
0027 Y044514	94.3					297
0028 Y042938						295
0029 Y016629	23.8	X			327	304
0030 Y010511	20.9	X			122	103
0031 Y041586						194
0032 Y033508	11.7					343
0033 Y001442	23.7					115
0034 Y005079						302
0035 Y008813	28.2	X			275	257
0036 Y035276						329
0037 Y043748	69.6	X		X	282	270
0038 Y030020						452
0039 Y029114	93.3					431
0040 Y030518				X		354

ELEMENTS	F	Fe	Fe	Fe	Fe	Fe
UNITS	mg/l	%	%	mg/l	mg/l	mg/Kg
DETECTION LIMIT	0.1	0.0002	0.001	0.01	0.01	1
DIGEST	18Ws5/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	SIE	MS	MS	OE	OE	OE
SAMPLE NUMBERS						
0001 Y030071		4.3283	5.131			X
0002 Y029247						
0003 Y043821	0.4	4.7394	5.749	0.46		2
0004 Y036561						
0005 Y002032		4.3603	5.517			
0006 Y035300	0.4	4.7408	5.530	0.25		X
0007 Y030469						
0008 Y033094						X
0009 Y027826	0.3	4.9432	6.093	0.49		
0010 Y027852						
0011 Y010311		5.3783	5.767			
0012 YD11906						6
0013 Y038539	0.4	5.8719	7.020	0.15		
0014 Y039402	0.4	5.2135	5.983	0.66		7
0015 Y039429						
0016 YD11928	1.0	4.4382	5.574	1.64		X
0017 Y000503						
0018 Y033560						
0019 Y031889		4.3886	5.390			X
0020 Y041801						
0021 Y039826						4
0022 Y005149	0.9	4.0932	5.346	0.89		
0023 Y040198						X
0024 Y001448	4.0	6.7605	7.381	0.16		
0025 Y001482						
0026 Y028530	3.2	5.2618	5.808	X		
0027 Y044514		4.0685	7.789			
0028 Y042938						
0029 Y016629	1.8	1.0958	1.441	0.03		
0030 Y010511	0.4	5.6244	6.234	1.07		
0031 Y041586						
0032 Y033508		5.3745	8.336			
0033 Y001442		5.9040	6.471			
0034 Y005079						
0035 Y008813	1.6	5.0487	6.010	X		
0036 Y035276						
0037 Y043748	4.2	4.4342	8.630	X		X
0038 Y030020						
0039 Y029114		2.5103	8.624			
0040 Y030518						2

ELEMENTS	Final-pH	Final-pH	Fizz-Rate	Ga	Ga	Ga
UNITS	NONE	NONE	NONE	ppm	ppm	ug/l
DETECTION LIMIT	0.1	0.1	1	0.005	0.01	0.02
DIGEST	ANCx/	ASLP/	ANCx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MTR	MTR	QUAL	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	1.8		X	7.363	25.16	
0002 Y029247	1.8		X			
0003 Y043821	2.0		X	8.175	27.74	4.40
0004 Y036561	2.0		X			
0005 Y002032	1.9		X	9.325	31.44	
0006 Y035300	1.9		X	8.027	24.63	3.37
0007 Y030469	2.2		X			
0008 Y033094	1.9		X			
0009 Y027826	1.9		X	8.511	29.48	4.36
0010 Y027852	1.9		X			
0011 Y010311	2.0		X	9.486	28.17	
0012 YD11906	2.0		X			
0013 Y038539	2.1		X	9.502	27.48	4.79
0014 Y039402	2.0		X	10.061	28.90	6.42
0015 Y039429	1.9		X			
0016 YD11928	1.8		X	8.092	26.37	6.83
0017 Y000503	1.9		X			
0018 Y033560	2.0		X			
0019 Y031889	1.8		X	8.131	29.84	
0020 Y041801	1.8		X			
0021 Y039826	1.9		X			
0022 Y005149	1.7		X	7.435	29.33	3.72
0023 Y040198	1.8		X			
0024 Y001448	2.0		X	11.975	23.57	1.34
0025 Y001482	1.7		X			
0026 Y028530	1.8		X	8.433	25.73	0.17
0027 Y044514	1.4		2	7.555	17.15	
0028 Y042938	2.1		X			
0029 Y016629	1.8		X	3.670	27.71	4.49
0030 Y010511	2.2		X	9.609	28.47	5.53
0031 Y041586	2.2		X			
0032 Y033508	1.8		2	10.684	21.88	
0033 Y001442	1.9		X	10.233	23.55	
0034 Y005079	2.1		1			
0035 Y008813	1.9		X	8.312	26.47	1.23
0036 Y035276	2.1		X			
0037 Y043748	1.9		X	7.991	19.50	2.07
0038 Y030020	2.3		1			
0039 Y029114	2.0		X	4.513	17.31	
0040 Y030518	1.7		X			

ELEMENTS	Ga	Ga	Ge	Ge	Ge	Ge
UNITS	ug/l	mg/Kg	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.02	0.1	0.01	0.1	0.1	0.1
DIGEST	ASLP/	NAGx/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071		X	0.05	4.9		
0002 Y029247						
0003 Y043821		X	0.03	3.0	X	
0004 Y036561						
0005 Y002032			0.06	4.3		
0006 Y035300		X	0.03	3.0	X	
0007 Y030469						
0008 Y033094		X				
0009 Y027826			0.03	2.8	X	
0010 Y027852						
0011 Y010311			0.02	3.3		
0012 YD11906		X				
0013 Y038539			0.02	2.9	X	
0014 Y039402		0.2	0.02	3.4	X	
0015 Y039429						
0016 YD11928		X	0.06	4.6	0.2	
0017 Y000503						
0018 Y033560						
0019 Y031889		X	0.06	4.9		
0020 Y041801						
0021 Y039826		X				
0022 Y005149			0.03	4.2	0.1	
0023 Y040198		X				
0024 Y001448			0.17	6.6	X	
0025 Y001482						
0026 Y028530			0.02	2.8	X	
0027 Y044514			0.19	3.6		
0028 Y042938						
0029 Y016629			0.04	8.8	X	
0030 Y010511			0.02	3.0	X	
0031 Y041586						
0032 Y033508			0.23	5.3		
0033 Y001442			0.05	3.9		
0034 Y005079						
0035 Y008813			0.02	2.8	X	
0036 Y035276						
0037 Y043748		X	0.20	4.0	X	
0038 Y030020						
0039 Y029114			0.07	2.4		
0040 Y030518		X				

ELEMENTS	Ge	HCO3	Hf	Hf	Hf	Hf
UNITS	mg/Kg	mgCaCO3/L	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.1	2	0.002	0.01	0.005	0.005
DIGEST	NAGx/	18Ws5/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MS	VOL	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	X		0.623	3.50		
0002 Y029247						
0003 Y043821	X	48	0.621	3.59	0.195	
0004 Y036561						
0005 Y002032			0.491	3.67		
0006 Y035300	X	34	0.519	3.30	0.032	
0007 Y030469						
0008 Y033094	X					
0009 Y027826		39	0.500	3.36	0.260	
0010 Y027852						
0011 Y010311			0.584	3.95		
0012 YD11906	X					
0013 Y038539		62	0.494	3.95	0.031	
0014 Y039402	X	81	0.601	3.85	0.106	
0015 Y039429						
0016 YD11928	X	62	0.638	3.71	0.083	
0017 Y000503						
0018 Y033560						
0019 Y031889	X		0.887	3.31		
0020 Y041801						
0021 Y039826	X					
0022 Y005149		45	0.550	3.73	0.626	
0023 Y040198	X					
0024 Y001448		61	0.827	3.79	0.019	
0025 Y001482						
0026 Y028530		39	0.656	3.49	X	
0027 Y044514			0.146	0.74		
0028 Y042938						
0029 Y016629		68	0.329	2.19	0.008	
0030 Y010511		43	0.605	3.43	0.304	
0031 Y041586						
0032 Y033508			0.158	0.75		
0033 Y001442			0.472	4.12		
0034 Y005079						
0035 Y008813		61	0.597	4.09	X	
0036 Y035276						
0037 Y043748	X	67	0.154	0.75	X	
0038 Y030020						
0039 Y029114			0.060	0.78		
0040 Y030518	X					

ELEMENTS	Hf	Hg	Hg	Hg	Hg	In
UNITS	mg/Kg	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.01	0.002	0.1	0.1	0.01	0.002
DIGEST	NAGx/	AR005/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	X	X			X	0.026
0002 Y029247						
0003 Y043821	X	X	X		X	0.025
0004 Y036561						
0005 Y002032		X				0.029
0006 Y035300	X	X	X		X	0.019
0007 Y030469						
0008 Y033094	X				X	
0009 Y027826		X	X			0.021
0010 Y027852						
0011 Y010311		X				0.027
0012 YD11906	X				X	
0013 Y038539		X	X			0.025
0014 Y039402	X	X	X		X	0.026
0015 Y039429						
0016 YD11928	X	X	X		X	0.023
0017 Y000503						
0018 Y033560						
0019 Y031889	X	X			X	0.027
0020 Y041801						
0021 Y039826	X				X	
0022 Y005149		X	X			0.019
0023 Y040198	X				X	
0024 Y001448		X	X			0.040
0025 Y001482						
0026 Y028530		X	X			0.026
0027 Y044514		X				0.067
0028 Y042938						
0029 Y016629		X	X			0.009
0030 Y010511		X	X			0.028
0031 Y041586						
0032 Y033508		X				0.097
0033 Y001442		X				0.031
0034 Y005079						
0035 Y008813		0.015	X			0.019
0036 Y035276						
0037 Y043748	X	X	X		X	0.078
0038 Y030020						
0039 Y029114		X				0.022
0040 Y030518	X				X	

ELEMENTS	In	K	K	K	K	K
UNITS	ppm	%	ppm	mg/l	mg/l	mg/Kg
DETECTION LIMIT	0.01	0.0005	10	0.1	0.1	10
DIGEST	4A/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	MS	MS	MS	OE	OE	OE
SAMPLE NUMBERS						
0001 Y030071	0.07	1.2607	3.82%			1793
0002 Y029247						
0003 Y043821	0.08	0.4616	3.29%	23.9		747
0004 Y036561						
0005 Y002032	0.13	1.2187	3.96%			
0006 Y035300	0.08	0.3737	2.61%	25.9		790
0007 Y030469						
0008 Y033094						1030
0009 Y027826	0.10	0.7353	3.72%	30.0		
0010 Y027852						
0011 Y010311	0.09	0.4049	3.10%			
0012 YD11906						1817
0013 Y038539	0.08	0.3776	3.07%	40.3		
0014 Y039402	0.07	0.4034	3.00%	37.7		1011
0015 Y039429						
0016 YD11928	0.09	0.6796	3.26%	30.1		877
0017 Y000503						
0018 Y033560						
0019 Y031889	0.11	1.3029	4.50%			1492
0020 Y041801						
0021 Y039826						1494
0022 Y005149	0.09	0.2301	3.30%	14.6		
0023 Y040198						776
0024 Y001448	0.07	1.9826	3.51%	24.8		
0025 Y001482						
0026 Y028530	0.07	0.3170	3.02%	26.0		
0027 Y044514	0.14	0.3323	4839			
0028 Y042938						
0029 Y016629	0.05	0.3686	1.54%	18.3		
0030 Y010511	0.08	0.3177	2.86%	14.3		
0031 Y041586						
0032 Y033508	0.34	1.9161	2.06%			
0033 Y001442	0.08	0.3569	2.01%			
0034 Y005079						
0035 Y008813	0.10	0.1893	2.80%	15.0		
0036 Y035276						
0037 Y043748	0.15	0.4479	6287	24.2		608
0038 Y030020						
0039 Y029114	0.08	0.0607	1790			
0040 Y030518						151

ELEMENTS	La	La	La	La	La	Li
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.002	0.01	0.002	0.002	0.01	0.02
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	24.904	46.17			0.19	597.85
0002 Y029247						
0003 Y043821	52.634	58.44	2.610		X	132.78
0004 Y036561						
0005 Y002032	28.875	55.47				345.11
0006 Y035300	47.521	52.48	0.893		X	189.89
0007 Y030469						
0008 Y033094					X	
0009 Y027826	32.653	60.29	0.094			103.45
0010 Y027852						
0011 Y010311	54.807	59.26				103.46
0012 YD11906					0.03	
0013 Y038539	50.896	54.14	0.486			157.82
0014 Y039402	59.698	63.51	1.572		0.02	195.75
0015 Y039429						
0016 YD11928	53.563	60.43	3.775		X	304.36
0017 Y000503						
0018 Y033560						
0019 Y031889	52.481	55.39			X	363.37
0020 Y041801						
0021 Y039826					0.01	
0022 Y005149	53.289	59.58	9.658			152.88
0023 Y040198					X	
0024 Y001448	45.146	46.97	0.302			732.67
0025 Y001482						
0026 Y028530	34.095	47.77	0.007			94.85
0027 Y044514	5.335	5.79				53.29
0028 Y042938						
0029 Y016629	8.675	9.67	0.008			121.68
0030 Y010511	57.815	59.36	3.957			119.57
0031 Y041586						
0032 Y033508	5.314	7.59				765.20
0033 Y001442	50.674	51.06				263.31
0034 Y005079						
0035 Y008813	48.213	51.11	0.017			102.77
0036 Y035276						
0037 Y043748	5.424	5.92	0.003		X	74.90
0038 Y030020						
0039 Y029114	5.322	5.64				22.33
0040 Y030518					X	

ELEMENTS	Li	Li	Li	Li	Li	Mg
UNITS	ppm	ug/l	ug/l	mg/l	mg/Kg	%
DETECTION LIMIT	0.1	0.05	0.05	0.1	0.1	0.0005
DIGEST	4A/	18Ws5/	ASLP/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	OE	MS	MS
SAMPLE NUMBERS						
0001 Y030071	922.3				55.9	0.9704
0002 Y029247						
0003 Y043821	201.7	26.45			0.1	1.1476
0004 Y036561						
0005 Y002032	514.4					1.0858
0006 Y035300	324.0	108.90			0.6	1.0373
0007 Y030469						
0008 Y033094					0.1	
0009 Y027826	158.0	23.77				1.1210
0010 Y027852						
0011 Y010311	156.9					1.1554
0012 YD11906					9.7	
0013 Y038539	273.8	125.96				1.2118
0014 Y039402	271.9	78.90			0.2	1.2385
0015 Y039429						
0016 YD11928	521.9	217.98			2.0	1.0617
0017 Y000503						
0018 Y033560						
0019 Y031889	608.1				4.1	1.0812
0020 Y041801						
0021 Y039826					3.8	
0022 Y005149	307.3	40.72				1.0861
0023 Y040198					0.2	
0024 Y001448	904.0	1107.17				1.4553
0025 Y001482						
0026 Y028530	124.3	42.02				1.2056
0027 Y044514	68.3					2.0805
0028 Y042938						
0029 Y016629	255.3	290.55				0.2136
0030 Y010511	168.2	8.18				1.2593
0031 Y041586						
0032 Y033508	857.5					2.8672
0033 Y001442	365.1					1.4483
0034 Y005079						
0035 Y008813	149.0	13.93				1.2417
0036 Y035276						
0037 Y043748	97.3	285.70			5.5	2.0103
0038 Y030020						
0039 Y029114	67.9					1.3464
0040 Y030518					1.3	

ELEMENTS	Mg	Mg	Mg	Mg	Mn	Mn
UNITS	ppm	mg/l	mg/l	mg/Kg	ppm	ppm
DETECTION LIMIT	10	0.01	0.01	10	0.2	0.5
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	OE	OE	OE	MS	MS
SAMPLE NUMBERS						
0001 Y030071	1.14%			471	391.8	537.4
0002 Y029247						
0003 Y043821	1.33%	0.62		180	393.1	563.7
0004 Y036561						
0005 Y002032	1.36%				490.8	735.6
0006 Y035300	1.15%	0.52		250	322.7	451.8
0007 Y030469						
0008 Y033094				257		
0009 Y027826	1.26%	0.45			348.9	510.8
0010 Y027852						
0011 Y010311	1.25%				453.0	570.5
0012 YD11906				167		
0013 Y038539	1.37%	0.79			455.8	810.7
0014 Y039402	1.38%	0.79		105	549.5	795.5
0015 Y039429						
0016 YD11928	1.28%	0.66		200	327.9	516.3
0017 Y000503						
0018 Y033560						
0019 Y031889	1.37%			291	450.4	732.1
0020 Y041801						
0021 Y039826				126		
0022 Y005149	1.35%	0.43			422.0	662.7
0023 Y040198				201		
0024 Y001448	1.60%	0.49			970.1	1980.3
0025 Y001482						
0026 Y028530	1.39%	9.65			424.2	481.4
0027 Y044514	4.26%				696.6	1489.0
0028 Y042938						
0029 Y016629	3221	0.48			131.2	203.2
0030 Y010511	1.35%	0.38			495.8	678.2
0031 Y041586						
0032 Y033508	3.70%				839.4	1519.7
0033 Y001442	1.53%				553.0	798.4
0034 Y005079						
0035 Y008813	1.37%	1.41			552.3	676.5
0036 Y035276						
0037 Y043748	3.91%	3.49		437	725.2	1572.5
0038 Y030020						
0039 Y029114	5.02%				436.2	1740.7
0040 Y030518				258		

ELEMENTS	Mn	Mn	Mn	Mo	Mo	Mo
UNITS	mg/l	mg/l	mg/Kg	ppm	ppm	ug/l
DETECTION LIMIT	0.001	0.001	1	0.01	0.05	0.05
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	OE	OE	OE	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071			60	6.70	4.68	
0002 Y029247						
0003 Y043821	0.004		X	0.70	0.67	2.70
0004 Y036561						
0005 Y002032				1.54	1.64	
0006 Y035300	0.002		X	1.12	1.26	5.01
0007 Y030469						
0008 Y033094			X			
0009 Y027826	0.004			0.70	0.79	4.23
0010 Y027852						
0011 Y010311				1.17	1.04	
0012 YD11906			X			
0013 Y038539	0.002			0.78	0.71	2.29
0014 Y039402	0.007		X	0.65	0.73	4.75
0015 Y039429						
0016 YD11928	0.012		X	0.12	0.18	0.25
0017 Y000503						
0018 Y033560						
0019 Y031889			12	2.40	1.85	
0020 Y041801						
0021 Y039826			X			
0022 Y005149	0.009			0.78	0.75	1.85
0023 Y040198			X			
0024 Y001448	0.003			2.23	2.45	7.02
0025 Y001482						
0026 Y028530	0.014			0.58	0.56	9.99
0027 Y044514				2.90	3.17	
0028 Y042938						
0029 Y016629	X			2.93	3.00	14.74
0030 Y010511	0.008			1.01	0.95	2.73
0031 Y041586						
0032 Y033508				0.87	0.88	
0033 Y001442				2.32	2.47	
0034 Y005079						
0035 Y008813	X			0.46	0.50	4.53
0036 Y035276						
0037 Y043748	0.001		X	2.80	2.98	34.74
0038 Y030020						
0039 Y029114				0.96	1.16	
0040 Y030518			X			

ELEMENTS	Mo	Mo	MPA	Na	Na	Na
UNITS	ug/l	mg/Kg	kgH2SO4/t	%	ppm	mg/l
DETECTION LIMIT	0.05	0.1	1	0.0005	10	0.1
DIGEST	ASLP/	NAGx/		AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MS	MS	/CALC	MS	MS	OE
SAMPLE NUMBERS						
0001 Y030071		6.4	7	0.0924	1.04%	
0002 Y029247			X			
0003 Y043821		0.3	X	0.0621	7648	27.2
0004 Y036561			44			
0005 Y002032			10	0.0691	6157	
0006 Y035300		0.2	2	0.0648	7061	34.0
0007 Y030469			2			
0008 Y033094		0.2	2			
0009 Y027826			X	0.0733	8637	32.4
0010 Y027852			X			
0011 Y010311			1	0.0561	6732	
0012 YD11906		X	X			
0013 Y038539			5	0.0599	7213	25.1
0014 Y039402		0.2	X	0.0790	8217	32.0
0015 Y039429			X			
0016 YD11928		X	X	0.0524	1.27%	12.9
0017 Y000503			X			
0018 Y033560			2			
0019 Y031889		0.9	3	0.0897	5984	
0020 Y041801			2			
0021 Y039826		2.0	X			
0022 Y005149			X	0.0395	7525	16.5
0023 Y040198		0.4	X			
0024 Y001448			X	0.0710	5996	14.3
0025 Y001482			2			
0026 Y028530			1	0.1303	6334	156.2
0027 Y044514			X	0.3244	1.51%	
0028 Y042938			3			
0029 Y016629			X	0.1037	3.87%	55.0
0030 Y010511			X	0.0546	9445	16.3
0031 Y041586			1			
0032 Y033508			X	0.2608	8434	
0033 Y001442			X	0.0325	8686	
0034 Y005079			X			
0035 Y008813			X	0.0556	9858	43.7
0036 Y035276			X			
0037 Y043748		2.0	2	0.3817	1.77%	30.4
0038 Y030020			2			
0039 Y029114			3	0.3303	1.51%	
0040 Y030518		0.3	1			

ELEMENTS	Na	Na	NAG	NAGpH	NAG(4.5)	NAPP
UNITS	mg/l	mg/Kg	kgH2SO4/t	NONE	kgH2SO4/t	kgH2SO4/t
DETECTION LIMIT	0.1	10	1	0.1	1	1
DIGEST	ASLP/	NAGx/	NAGx/	NAGx/	NAGx/	
ANALYTICAL FINISH	OE	OE	VOL	MTR	VOL	/CALC
SAMPLE NUMBERS						
0001 Y030071		523	1	4.4	0	-7
0002 Y029247			0	7.4	0	-13
0003 Y043821		314	0	7.7	0	-13
0004 Y036561			21	2.7	15	13
0005 Y002032			3	4.2	0	-7
0006 Y035300		399	0	7.1	0	-10
0007 Y030469			0	9.2	0	-17
0008 Y033094		562	0	7.3	0	-14
0009 Y027826			0	7.5	0	-11
0010 Y027852			0	7.4	0	-14
0011 Y010311			0	7.8	0	-13
0012 YD11906		182	0	7.6	0	-17
0013 Y038539			0	6.4	0	-9
0014 Y039402		429	0	8.0	0	-14
0015 Y039429			0	7.9	0	-13
0016 YD11928		213	0	7.3	0	-11
0017 Y000503			0	8.3	0	-22
0018 Y033560			0	7.5	0	-12
0019 Y031889		432	0	5.9	0	-11
0020 Y041801			0	7.0	0	-10
0021 Y039826		316	0	7.5	0	-14
0022 Y005149			0	7.3	0	-11
0023 Y040198		310	0	7.7	0	-12
0024 Y001448			0	7.5	0	-15
0025 Y001482			1	5.7	0	-9
0026 Y028530			0	8.3	0	-19
0027 Y044514			0	10.4	0	-69
0028 Y042938			0	8.3	0	-27
0029 Y016629			0	7.2	0	-14
0030 Y010511			0	7.7	0	-12
0031 Y041586			0	7.8	0	-21
0032 Y033508			0	9.3	0	-36
0033 Y001442			0	7.0	0	-11
0034 Y005079			0	7.6	0	-33
0035 Y008813			0	8.5	0	-14
0036 Y035276			0	8.5	0	-31
0037 Y043748		372	0	7.5	0	-22
0038 Y030020			0	9.3	0	-38
0039 Y029114			0	7.7	0	-19
0040 Y030518		409	0	7.8	0	-18

ELEMENTS	Nb	Nb	Nb	Nb	Nb	Ni
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.002	0.01	0.05	0.05	0.05	0.04
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	0.505	26.40			X	35.16
0002 Y029247						
0003 Y043821	0.411	16.34	0.11		X	40.08
0004 Y036561						
0005 Y002032	0.980	38.38				35.53
0006 Y035300	0.390	14.39	X		X	40.15
0007 Y030469						
0008 Y033094					0.21	
0009 Y027826	0.466	16.18	0.14			42.27
0010 Y027852						
0011 Y010311	0.284	15.06				43.21
0012 YD11906					0.16	
0013 Y038539	0.336	18.27	X			55.86
0014 Y039402	0.234	15.28	0.10		0.13	43.13
0015 Y039429						
0016 YD11928	0.370	16.24	0.30		X	39.52
0017 Y000503						
0018 Y033560						
0019 Y031889	0.794	24.40			X	37.60
0020 Y041801						
0021 Y039826					0.07	
0022 Y005149	0.304	18.00	0.20			35.80
0023 Y040198					X	
0024 Y001448	0.581	17.19	X			39.44
0025 Y001482						
0026 Y028530	0.041	13.38	X			39.22
0027 Y044514	0.094	6.39				41.89
0028 Y042938						
0029 Y016629	1.024	94.85	0.05			9.36
0030 Y010511	0.273	15.38	0.21			42.75
0031 Y041586						
0032 Y033508	0.153	7.63				33.20
0033 Y001442	0.433	17.57				45.90
0034 Y005079						
0035 Y008813	0.106	17.45	X			55.40
0036 Y035276						
0037 Y043748	0.155	3.95	X		0.11	28.95
0038 Y030020						
0039 Y029114	0.078	2.86				34.30
0040 Y030518					0.11	

ELEMENTS	Ni	Ni	Ni	Ni	OH	P
UNITS	ppm	mg/l	mg/l	mg/Kg	mgCaCO3/L	ppm
DETECTION LIMIT	0.5	0.01	0.01	1	1	2
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	18Ws5/	AR005/
ANALYTICAL FINISH	MS	OE	OE	OE	VOL	MS
SAMPLE NUMBERS						
0001 Y030071	35.2			5		545
0002 Y029247						
0003 Y043821	44.0	X		X	X	264
0004 Y036561						
0005 Y002032	40.3					672
0006 Y035300	42.0	X		X	X	254
0007 Y030469						
0008 Y033094				X		
0009 Y027826	45.3	X			X	221
0010 Y027852						
0011 Y010311	42.8					240
0012 YD11906				X		
0013 Y038539	57.5	X			X	445
0014 Y039402	45.9	X		X	X	298
0015 Y039429						
0016 YD11928	44.7	X		X	X	305
0017 Y000503						
0018 Y033560						
0019 Y031889	41.8			X		755
0020 Y041801						
0021 Y039826				X		
0022 Y005149	41.3	X			X	431
0023 Y040198				X		
0024 Y001448	41.3	X			X	451
0025 Y001482						
0026 Y028530	41.2	X			X	253
0027 Y044514	74.7					656
0028 Y042938						
0029 Y016629	10.3	X			X	2709
0030 Y010511	45.7	X			X	247
0031 Y041586						
0032 Y033508	42.0					668
0033 Y001442	47.1					391
0034 Y005079						
0035 Y008813	60.4	X			X	484
0036 Y035276						
0037 Y043748	49.0	X		X	X	629
0038 Y030020						
0039 Y029114	82.5					374
0040 Y030518				X		

ELEMENTS	P	P	P	P	Pb	Pb
UNITS	ppm	mg/l	mg/l	mg/Kg	ppm	ppm
DETECTION LIMIT	50	0.05	0.05	10	0.005	0.5
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	OE	OE	OE	MS	MS
SAMPLE NUMBERS						
0001 Y030071	649			X	5.123	13.6
0002 Y029247						
0003 Y043821	282	X		X	2.541	16.1
0004 Y036561						
0005 Y002032	747				4.864	17.0
0006 Y035300	268	X		X	2.721	13.0
0007 Y030469						
0008 Y033094				X		
0009 Y027826	275	X			3.151	18.2
0010 Y027852						
0011 Y010311	258				3.241	16.2
0012 YD11906				X		
0013 Y038539	455	X			2.351	10.3
0014 Y039402	320	X		X	3.271	14.3
0015 Y039429						
0016 YD11928	337	X		X	3.051	19.7
0017 Y000503						
0018 Y033560						
0019 Y031889	753			X	4.804	17.0
0020 Y041801						
0021 Y039826				X		
0022 Y005149	439	X			2.827	20.7
0023 Y040198				X		
0024 Y001448	456	0.06			6.211	17.7
0025 Y001482						
0026 Y028530	265	X			2.403	11.3
0027 Y044514	630				5.831	14.8
0028 Y042938						
0029 Y016629	2796	0.16			6.594	12.6
0030 Y010511	275	X			3.770	31.4
0031 Y041586						
0032 Y033508	649				6.171	14.9
0033 Y001442	383				3.103	18.1
0034 Y005079						
0035 Y008813	511	X			3.148	30.7
0036 Y035276						
0037 Y043748	607	0.10		X	3.580	13.4
0038 Y030020						
0039 Y029114	366				2.755	10.0
0040 Y030518				X		

ELEMENTS	Pb	Pb	Pb	Pd	pH	pH
UNITS	ug/l	ug/l	mg/Kg	ppb	NONE	NONE
DETECTION LIMIT	0.5	0.5	2	1	0.1	0.1
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	18Ws5/	Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MTR	MTR
SAMPLE NUMBERS						
0001 Y030071			X	2		7.8
0002 Y029247						8.9
0003 Y043821	1.7		X	2	8.1	8.1
0004 Y036561						9.2
0005 Y002032				2		8.9
0006 Y035300	X		X	2	7.9	7.8
0007 Y030469						9.4
0008 Y033094			X			7.8
0009 Y027826	X			2	8.2	8.4
0010 Y027852						9.1
0011 Y010311				2		9.3
0012 YD11906			X			9.6
0013 Y038539	X			2	8.4	8.7
0014 Y039402	X		X	3	8.6	8.8
0015 Y039429						8.7
0016 YD11928	1.0		X	2	9.1	9.4
0017 Y000503						9.3
0018 Y033560						8.4
0019 Y031889			X	2		7.7
0020 Y041801						8.3
0021 Y039826			X			8.4
0022 Y005149	1.0			2	8.4	8.1
0023 Y040198			X			7.7
0024 Y001448	X			2	7.8	7.7
0025 Y001482						7.4
0026 Y028530	X			2	7.7	7.9
0027 Y044514				1		8.3
0028 Y042938						9.5
0029 Y016629	X			1	8.5	9.0
0030 Y010511	0.9			2	8.3	8.4
0031 Y041586						9.1
0032 Y033508				X		9.5
0033 Y001442				3		7.2
0034 Y005079						8.7
0035 Y008813	X			2	8.2	7.9
0036 Y035276						8.5
0037 Y043748	X		X	X	8.8	8.6
0038 Y030020						8.5
0039 Y029114				X		8.6
0040 Y030518			X			8.7

ELEMENTS	pH Drop	Pt	Rb	Rb	Rb	Rb
UNITS	NONE	ppb	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.1	2	0.005	0.05	0.02	0.02
DIGEST	ANCx/	AR005/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MTR	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	3.3	X	478.736	892.74		
0002 Y029247	3.5					
0003 Y043821	3.7	X	71.478	260.09	92.71	
0004 Y036561	3.3					
0005 Y002032	3.3	X	445.915	845.86		
0006 Y035300	3.5	X	67.726	259.71	121.50	
0007 Y030469	3.4					
0008 Y033094	3.5					
0009 Y027826	3.4	X	118.728	285.87	101.87	
0010 Y027852	3.4					
0011 Y010311	3.8	X	32.063	203.99		
0012 YD11906	4.3					
0013 Y038539	3.8	X	34.635	250.12	152.29	
0014 Y039402	4.1	X	46.612	313.88	191.90	
0015 Y039429	4.0					
0016 YD11928	3.7	X	164.055	381.96	211.54	
0017 Y000503	3.8					
0018 Y033560	3.6					
0019 Y031889	3.6	X	455.783	989.36		
0020 Y041801	3.8					
0021 Y039826	3.5					
0022 Y005149	3.8	X	42.473	494.76	118.91	
0023 Y040198	3.8					
0024 Y001448	3.6	X	>1000.000	1818.43	491.78	
0025 Y001482	3.7					
0026 Y028530	3.6	X	31.616	245.55	41.53	
0027 Y044514	3.5	X	99.190	112.62		
0028 Y042938	3.5					
0029 Y016629		X	181.640	469.60	270.18	
0030 Y010511	3.9	X	23.097	184.95	44.25	
0031 Y041586	4.1					
0032 Y033508	3.5	X	963.240	988.96		
0033 Y001442	3.9	2	196.953	449.38		
0034 Y005079	3.7					
0035 Y008813	3.9	X	14.032	168.96	21.50	
0036 Y035276	3.9					
0037 Y043748	3.8	X	133.458	140.70	319.03	
0038 Y030020	3.6					
0039 Y029114	3.7	X	5.204	8.46		
0040 Y030518	3.9					

ELEMENTS	Rb	Rb-Rp1	Re	Re	S	S
UNITS	mg/Kg	ppm	ppm	ppm	%	ppm
DETECTION LIMIT	0.05	0.5	0.0002	0.002	0.01	2
DIGEST	NAGx/	4AH/	AR005/	4A/		AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	/CSA	MS
SAMPLE NUMBERS						
0001 Y030071	36.69		0.0013	X	0.24	2651
0002 Y029247					0.03	
0003 Y043821	4.11		X	X	X	57
0004 Y036561					1.43	
0005 Y002032			0.0003	X	0.33	3405
0006 Y035300	5.34		X	X	0.06	620
0007 Y030469					0.06	
0008 Y033094	6.42				0.05	
0009 Y027826			X	X	0.02	319
0010 Y027852					0.03	
0011 Y010311			0.0002	X	0.04	457
0012 YD11906	34.43				0.01	
0013 Y038539			0.0003	X	0.16	1653
0014 Y039402	6.68		X	X	X	91
0015 Y039429					X	
0016 YD11928	8.78		X	X	0.02	259
0017 Y000503					0.03	
0018 Y033560					0.06	
0019 Y031889	23.64		0.0002	X	0.11	1230
0020 Y041801					0.08	
0021 Y039826	38.23				X	
0022 Y005149			X	X	X	28
0023 Y040198	4.09				X	
0024 Y001448			0.0007	X	0.01	214
0025 Y001482					0.08	
0026 Y028530			0.0002	X	0.05	533
0027 Y044514			0.0004	X	X	84
0028 Y042938					0.11	
0029 Y016629			0.0003	X	0.02	246
0030 Y010511			0.0002	X	X	103
0031 Y041586					0.05	
0032 Y033508			X	X	X	46
0033 Y001442			0.0014	X	0.01	170
0034 Y005079					X	
0035 Y008813			X	X	X	60
0036 Y035276					0.01	
0037 Y043748	11.50		0.0006	X	0.07	783
0038 Y030020					0.05	
0039 Y029114			0.0005	X	0.09	961
0040 Y030518	2.12				0.03	

ELEMENTS	S	S	S	S	Sb	Sb
UNITS	%	mg/l	mg/l	mg/Kg	ppm	ppm
DETECTION LIMIT	0.001	0.1	0.1	10	0.005	0.002
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	OE	OE	OE	MS	MS
SAMPLE NUMBERS						
0001 Y030071	0.239			2252	0.022	0.030
0002 Y029247						
0003 Y043821	0.006	2.0		63	0.021	0.014
0004 Y036561						
0005 Y002032	0.340				0.025	0.060
0006 Y035300	0.055	4.4		604	0.015	0.024
0007 Y030469						
0008 Y033094				624		
0009 Y027826	0.033	4.5			0.010	0.020
0010 Y027852						
0011 Y010311	0.039				0.017	0.041
0012 YD11906				177		
0013 Y038539	0.152	3.7			0.024	0.047
0014 Y039402	0.008	1.7		84	0.014	0.037
0015 Y039429						
0016 YD11928	0.029	0.6		275	0.011	0.037
0017 Y000503						
0018 Y033560						
0019 Y031889	0.122			1228	0.044	0.057
0020 Y041801						
0021 Y039826				114		
0022 Y005149	0.003	0.9			0.019	0.039
0023 Y040198				149		
0024 Y001448	0.020	1.3			0.036	0.041
0025 Y001482						
0026 Y028530	0.052	98.8			0.041	0.060
0027 Y044514	0.009				0.049	0.114
0028 Y042938						
0029 Y016629	0.027	5.3			0.048	0.061
0030 Y010511	0.011	0.9			0.020	0.034
0031 Y041586						
0032 Y033508	0.005				0.071	0.150
0033 Y001442	0.017				0.031	0.036
0034 Y005079						
0035 Y008813	0.006	6.8			0.046	0.099
0036 Y035276						
0037 Y043748	0.074	7.3		840	0.046	0.071
0038 Y030020						
0039 Y029114	0.092				0.014	0.043
0040 Y030518				423		

ELEMENTS	Sb	Sb	Sb	Sc	Sc	Sc
UNITS	ug/l	ug/l	mg/Kg	ppm	ppm	mg/l
DETECTION LIMIT	0.01	0.01	0.05	0.005	0.05	0.01
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	OE
SAMPLE NUMBERS						
0001 Y030071			X	4.537	17.54	
0002 Y029247						
0003 Y043821	0.03		X	4.148	21.46	X
0004 Y036561						
0005 Y002032				4.719	19.69	
0006 Y035300	0.01		X	4.008	18.56	X
0007 Y030469						
0008 Y033094			X			
0009 Y027826	0.03			4.147	22.08	X
0010 Y027852						
0011 Y010311				4.414	20.71	
0012 YD11906			X			
0013 Y038539	0.11			4.526	21.65	X
0014 Y039402	0.07		X	5.397	22.51	X
0015 Y039429						
0016 YD11928	0.15		X	4.960	21.49	X
0017 Y000503						
0018 Y033560						
0019 Y031889			X	4.002	19.74	
0020 Y041801						
0021 Y039826			X			
0022 Y005149	0.16			3.091	21.80	X
0023 Y040198			X			
0024 Y001448	0.46			6.677	16.29	X
0025 Y001482						
0026 Y028530	0.01			3.715	19.00	X
0027 Y044514				18.242	43.32	
0028 Y042938						
0029 Y016629	0.39			1.246	4.37	X
0030 Y010511	0.07			4.472	20.98	X
0031 Y041586						
0032 Y033508				16.595	49.04	
0033 Y001442				4.669	17.01	
0034 Y005079						
0035 Y008813	0.03			3.711	21.40	X
0036 Y035276						
0037 Y043748	0.53		X	22.445	50.48	X
0038 Y030020						
0039 Y029114				12.306	48.90	
0040 Y030518			X			

ELEMENTS	Sc	Sc	Se	Se	Se	Se
UNITS	mg/l	mg/Kg	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.01	1	0.01	0.05	0.5	0.5
DIGEST	ASLP/	NAGx/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	OE	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071		X	0.12	0.07		
0002 Y029247						
0003 Y043821		X	0.02	0.09	1.9	
0004 Y036561						
0005 Y002032			0.11	0.11		
0006 Y035300		X	0.07	X	X	
0007 Y030469						
0008 Y033094		X				
0009 Y027826			0.02	0.05	X	
0010 Y027852						
0011 Y010311			0.05	0.07		
0012 YD11906		X				
0013 Y038539			0.09	0.10	X	
0014 Y039402		X	0.02	X	X	
0015 Y039429						
0016 YD11928		X	0.01	X	X	
0017 Y000503						
0018 Y033560						
0019 Y031889		X	0.06	0.09		
0020 Y041801						
0021 Y039826		X				
0022 Y005149			X	X	X	
0023 Y040198		X				
0024 Y001448			0.15	0.28	3.3	
0025 Y001482						
0026 Y028530			0.05	0.15	X	
0027 Y044514			0.05	0.08		
0028 Y042938						
0029 Y016629			0.07	X	2.5	
0030 Y010511			0.05	0.08	2.2	
0031 Y041586						
0032 Y033508			0.01	X		
0033 Y001442			0.06	0.15		
0034 Y005079						
0035 Y008813			X	0.08	X	
0036 Y035276						
0037 Y043748		X	0.17	0.19	1.9	
0038 Y030020						
0039 Y029114			0.17	0.21		
0040 Y030518		X				

ELEMENTS	Se	Sn	Sn	Sn	Sn	Sn
UNITS	mg/Kg	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	2	0.02	0.1	0.1	0.1	0.1
DIGEST	NAGx/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	X	1.61	7.4			X
0002 Y029247						
0003 Y043821	X	1.01	7.5	X		X
0004 Y036561						
0005 Y002032		13.66	52.4			
0006 Y035300	X	0.68	4.7	X		X
0007 Y030469						
0008 Y033094	X					X
0009 Y027826		1.21	6.5	0.1		
0010 Y027852						
0011 Y010311		0.60	5.1			
0012 YD11906	X					X
0013 Y038539		0.63	4.8	X		
0014 Y039402	X	0.63	5.3	0.1		X
0015 Y039429						
0016 YD11928	X	1.24	6.8	0.4		X
0017 Y000503						
0018 Y033560						
0019 Y031889	X	16.53	72.1			X
0020 Y041801						
0021 Y039826	X					X
0022 Y005149		0.52	7.5	0.3		
0023 Y040198	X					X
0024 Y001448		4.21	9.1	X		
0025 Y001482						
0026 Y028530		0.47	4.6	X		
0027 Y044514		4.88	13.0			
0028 Y042938						
0029 Y016629		1.54	8.5	X		
0030 Y010511		0.52	4.7	0.2		
0031 Y041586						
0032 Y033508		8.48	24.5			
0033 Y001442		0.75	5.0			
0034 Y005079						
0035 Y008813		0.34	4.3	X		
0036 Y035276						
0037 Y043748	X	5.89	13.2	0.2		X
0038 Y030020						
0039 Y029114		0.83	2.8			
0040 Y030518	X					X

ELEMENTS	Sr	Sr	Sr	Sr	Sr	Ta
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.01	0.1	0.02	0.02	0.05	0.005
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	6.27	35.4			1.95	0.013
0002 Y029247						
0003 Y043821	5.91	70.3	2.52		0.25	0.013
0004 Y036561						
0005 Y002032	3.98	34.7				0.039
0006 Y035300	6.78	67.8	2.16		0.41	0.008
0007 Y030469						
0008 Y033094					0.41	
0009 Y027826	5.37	76.7	3.09			0.012
0010 Y027852						
0011 Y010311	6.72	62.0				0.005
0012 YD11906					0.18	
0013 Y038539	4.59	43.3	3.11			0.010
0014 Y039402	9.57	84.7	4.64		0.18	X
0015 Y039429						
0016 YD11928	5.81	105.2	4.41		0.40	0.007
0017 Y000503						
0018 Y033560						
0019 Y031889	6.16	48.7			0.96	0.048
0020 Y041801						
0021 Y039826					0.14	
0022 Y005149	4.83	72.0	2.53			0.016
0023 Y040198					0.19	
0024 Y001448	8.53	35.8	1.22			X
0025 Y001482						
0026 Y028530	11.52	57.2	186.23			X
0027 Y044514	28.34	100.5				0.007
0028 Y042938						
0029 Y016629	7.88	50.3	5.45			0.039
0030 Y010511	7.29	99.4	2.05			0.010
0031 Y041586						
0032 Y033508	21.80	72.2				X
0033 Y001442	3.52	53.1				0.009
0034 Y005079						
0035 Y008813	6.47	52.0	11.28			X
0036 Y035276						
0037 Y043748	13.73	117.9	10.64		0.59	0.010
0038 Y030020						
0039 Y029114	24.19	109.1				X
0040 Y030518					1.14	

ELEMENTS	Ta	Ta	Ta	Ta	Te	Te
UNITS	ppm	ug/l	ug/l	mg/Kg	ppm	ppm
DETECTION LIMIT	0.01	0.001	0.001	0.01	0.002	0.005
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	7.19			X	0.034	0.042
0002 Y029247						
0003 Y043821	1.60	0.015		0.01	0.033	0.048
0004 Y036561						
0005 Y002032	14.46				0.036	0.048
0006 Y035300	1.72	0.003		X	0.024	0.027
0007 Y030469						
0008 Y033094				0.15		
0009 Y027826	1.50	0.012			0.007	0.008
0010 Y027852						
0011 Y010311	1.39				0.023	0.033
0012 YD11906				0.23		
0013 Y038539	1.70	0.004			0.030	0.036
0014 Y039402	1.39	0.008		0.01	0.040	0.050
0015 Y039429						
0016 YD11928	1.34	0.021		X	0.012	0.008
0017 Y000503						
0018 Y033560						
0019 Y031889	12.05			0.01	0.023	0.027
0020 Y041801						
0021 Y039826				0.04		
0022 Y005149	16.07	0.062			0.015	0.015
0023 Y040198				X		
0024 Y001448	3.66	0.004			0.035	0.057
0025 Y001482						
0026 Y028530	1.20	0.001			0.039	0.052
0027 Y044514	1.74				0.250	0.289
0028 Y042938						
0029 Y016629	62.03	0.026			0.043	0.048
0030 Y010511	1.50	0.014			0.010	0.017
0031 Y041586						
0032 Y033508	4.65				0.007	0.005
0033 Y001442	2.12				0.046	0.106
0034 Y005079						
0035 Y008813	1.34	0.001			0.003	0.010
0036 Y035276						
0037 Y043748	1.88	0.001		0.19	0.035	0.043
0038 Y030020						
0039 Y029114	0.27				0.021	0.025
0040 Y030518				0.01		

ELEMENTS	Te	Te	Te	Th	Th	Th
UNITS	ug/l	ug/l	mg/Kg	ppm	ppm	ug/l
DETECTION LIMIT	0.1	0.1	0.1	0.001	0.01	0.005
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071			X	11.375	17.36	
0002 Y029247						
0003 Y043821	X		X	18.566	22.15	1.369
0004 Y036561						
0005 Y002032				12.006	21.47	
0006 Y035300	X		X	17.080	19.70	0.441
0007 Y030469						
0008 Y033094			X			
0009 Y027826	X			14.079	21.68	0.171
0010 Y027852						
0011 Y010311				19.200	23.13	
0012 YD11906			X			
0013 Y038539	X			18.233	20.02	0.438
0014 Y039402	X		X	20.802	24.27	0.786
0015 Y039429						
0016 YD11928	X		X	20.465	23.09	5.174
0017 Y000503						
0018 Y033560						
0019 Y031889			X	19.488	21.44	
0020 Y041801						
0021 Y039826			X			
0022 Y005149	X			19.662	22.40	4.657
0023 Y040198			X			
0024 Y001448	X			17.930	19.09	0.170
0025 Y001482						
0026 Y028530	X			16.871	21.11	0.007
0027 Y044514				1.632	1.90	
0028 Y042938						
0029 Y016629	X			3.674	4.28	0.014
0030 Y010511	X			17.462	22.75	2.190
0031 Y041586						
0032 Y033508				1.754	2.52	
0033 Y001442				18.392	20.04	
0034 Y005079						
0035 Y008813	X			13.719	19.86	0.015
0036 Y035276						
0037 Y043748	X		X	1.623	1.85	0.009
0038 Y030020						
0039 Y029114				1.632	1.76	
0040 Y030518			X			

ELEMENTS	Th	Th	Ti	Ti	Ti	Ti
UNITS	ug/l	mg/Kg	ppm	ppm	mg/l	mg/l
DETECTION LIMIT	0.005	0.01	1	1	0.01	0.01
DIGEST	ASLP/	NAGx/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MS	MS	MS	MS	OE	OE
SAMPLE NUMBERS						
0001 Y030071		X	1144	4018		
0002 Y029247						
0003 Y043821		X	802	4876	X	
0004 Y036561						
0005 Y002032			1221	4409		
0006 Y035300		X	601	4181	X	
0007 Y030469						
0008 Y033094		X				
0009 Y027826			922	4880	0.01	
0010 Y027852						
0011 Y010311			515	4607		
0012 YD11906		0.01				
0013 Y038539			725	6455	X	
0014 Y039402		0.01	442	4564	X	
0015 Y039429						
0016 YD11928		X	714	4791	0.02	
0017 Y000503						
0018 Y033560						
0019 Y031889		X	1118	4519		
0020 Y041801						
0021 Y039826		X				
0022 Y005149			458	4813	X	
0023 Y040198		X				
0024 Y001448			1694	5016	X	
0025 Y001482						
0026 Y028530			56	4149	X	
0027 Y044514			1932	5867		
0028 Y042938						
0029 Y016629			221	1013	X	
0030 Y010511			463	4742	X	
0031 Y041586						
0032 Y033508			2832	6160		
0033 Y001442			637	5274		
0034 Y005079						
0035 Y008813			314	6453	X	
0036 Y035276						
0037 Y043748		X	2958	7695	X	
0038 Y030020						
0039 Y029114			1189	6801		
0040 Y030518		X				

ELEMENTS	Ti	Tl	Tl	Tl	Tl	Tl
UNITS	mg/Kg	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	1	0.005	0.01	0.01	0.01	0.02
DIGEST	NAGx/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	OE	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	X	3.169	4.79			0.10
0002 Y029247						
0003 Y043821	X	0.440	1.01	0.05		X
0004 Y036561						
0005 Y002032		2.331	3.45			
0006 Y035300	X	0.478	1.21	0.06		X
0007 Y030469						
0008 Y033094	X					X
0009 Y027826		0.732	1.30	0.06		
0010 Y027852						
0011 Y010311		0.157	0.82			
0012 YD11906	1					0.03
0013 Y038539		0.137	0.88	0.06		
0014 Y039402	2	0.224	1.29	0.12		X
0015 Y039429						
0016 YD11928	X	1.056	1.80	0.18		X
0017 Y000503						
0018 Y033560						
0019 Y031889	X	2.989	4.81			0.04
0020 Y041801						
0021 Y039826	X					0.04
0022 Y005149		0.287	2.65	0.16		
0023 Y040198	X					X
0024 Y001448		8.276	9.25	0.25		
0025 Y001482						
0026 Y028530		0.169	1.09	0.05		
0027 Y044514		0.608	0.65			
0028 Y042938						
0029 Y016629		0.943	1.79	0.15		
0030 Y010511		0.115	0.70	0.03		
0031 Y041586						
0032 Y033508		5.719	5.84			
0033 Y001442		1.281	2.10			
0034 Y005079						
0035 Y008813		0.075	0.65	0.02		
0036 Y035276						
0037 Y043748	6	0.688	0.73	0.14		X
0038 Y030020						
0039 Y029114		0.039	0.07			
0040 Y030518	2					X

ELEMENTS	TotAlk	U	U	U	U	U
UNITS	mgCaCO3/L	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	5	0.001	0.005	0.005	0.005	0.01
DIGEST		AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	/CALC	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071		2.595	3.565			0.05
0002 Y029247						
0003 Y043821	50	2.954	4.026	0.203		0.12
0004 Y036561						
0005 Y002032		2.592	4.680			
0006 Y035300	34	1.716	2.713	0.039		0.03
0007 Y030469						
0008 Y033094						0.43
0009 Y027826	39	1.845	3.271	0.147		
0010 Y027852						
0011 Y010311		2.677	3.621			
0012 YD11906						0.41
0013 Y038539	62	2.059	3.037	0.119		
0014 Y039402	84	2.379	3.701	0.302		0.18
0015 Y039429						
0016 YD11928	76	2.145	3.128	0.754		0.06
0017 Y000503						
0018 Y033560						
0019 Y031889		2.191	3.404			0.02
0020 Y041801						
0021 Y039826						0.21
0022 Y005149	45	2.025	3.367	0.648		
0023 Y040198						0.11
0024 Y001448	61	1.987	2.801	0.082		
0025 Y001482						
0026 Y028530	39	1.195	2.617	0.547		
0027 Y044514		0.507	0.722			
0028 Y042938						
0029 Y016629	68	5.739	6.388	2.739		
0030 Y010511	43	2.466	3.603	0.392		
0031 Y041586						
0032 Y033508		0.519	0.986			
0033 Y001442		3.649	4.871			
0034 Y005079						
0035 Y008813	61	2.332	3.515	0.040		
0036 Y035276						
0037 Y043748	85	0.309	0.515	0.117		0.03
0038 Y030020						
0039 Y029114		0.266	0.359			
0040 Y030518						0.02

ELEMENTS	V	V	V	V	V	W
UNITS	ppm	ppm	mg/l	mg/l	mg/Kg	ppm
DETECTION LIMIT	0.02	0.05	0.01	0.01	1	0.01
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	OE	OE	OE	MS
SAMPLE NUMBERS						
0001 Y030071	32.09	81.38			2	1.19
0002 Y029247						
0003 Y043821	26.56	98.11	X		2	0.49
0004 Y036561						
0005 Y002032	31.27	87.36				1.28
0006 Y035300	24.99	82.14	X		3	0.65
0007 Y030469						
0008 Y033094					2	
0009 Y027826	33.90	99.69	X			0.64
0010 Y027852						
0011 Y010311	26.77	96.98				0.34
0012 YD11906					3	
0013 Y038539	53.19	113.45	X			1.01
0014 Y039402	28.83	98.73	X		4	0.55
0015 Y039429						
0016 YD11928	27.96	93.45	X		2	0.66
0017 Y000503						
0018 Y033560						
0019 Y031889	36.62	89.11			2	0.99
0020 Y041801						
0021 Y039826					3	
0022 Y005149	19.99	93.31	X			0.60
0023 Y040198					3	
0024 Y001448	54.81	92.57	X			0.57
0025 Y001482						
0026 Y028530	29.92	92.85	X			0.60
0027 Y044514	100.14	216.73				16.69
0028 Y042938						
0029 Y016629	7.96	19.81	X			6.30
0030 Y010511	26.66	95.07	X			0.21
0031 Y041586						
0032 Y033508	125.43	232.82				20.83
0033 Y001442	38.45	98.99				0.28
0034 Y005079						
0035 Y008813	35.78	111.50	X			0.26
0036 Y035276						
0037 Y043748	130.26	281.07	0.03		5	49.84
0038 Y030020						
0039 Y029114	64.79	241.75				1.53
0040 Y030518					3	

ELEMENTS	W	W	W	W	Y	Y
UNITS	ppm	ug/l	ug/l	mg/Kg	ppm	ppm
DETECTION LIMIT	0.05	0.02	0.02	0.1	0.001	0.01
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0001 Y030071	7.89			0.9	3.206	6.76
0002 Y029247						
0003 Y043821	8.85	10.43		0.7	5.356	9.91
0004 Y036561						
0005 Y002032	12.40				6.174	10.80
0006 Y035300	4.61	1.80		0.4	4.231	7.35
0007 Y030469						
0008 Y033094				0.9		
0009 Y027826	6.49	7.65			3.682	7.88
0010 Y027852						
0011 Y010311	5.14				5.374	9.93
0012 YD11906				0.3		
0013 Y038539	7.59	3.86			9.595	13.12
0014 Y039402	5.53	4.02		0.6	5.897	10.44
0015 Y039429						
0016 YD11928	8.93	3.63		0.2	10.874	14.79
0017 Y000503						
0018 Y033560						
0019 Y031889	9.32			0.5	9.135	12.32
0020 Y041801						
0021 Y039826				0.6		
0022 Y005149	9.74	3.04			6.738	12.69
0023 Y040198				0.5		
0024 Y001448	5.24	2.79			9.577	25.49
0025 Y001482						
0026 Y028530	5.89	2.56			4.950	11.62
0027 Y044514	28.59				10.983	21.54
0028 Y042938						
0029 Y016629	12.38	55.41			3.094	4.30
0030 Y010511	3.40	2.69			4.385	8.93
0031 Y041586						
0032 Y033508	37.20				9.211	24.09
0033 Y001442	4.59				9.695	17.23
0034 Y005079						
0035 Y008813	5.85	2.11			8.615	14.75
0036 Y035276						
0037 Y043748	82.89	502.64		14.6	11.682	23.64
0038 Y030020						
0039 Y029114	2.58				7.681	23.56
0040 Y030518				1.5		

ELEMENTS	Y	Y	Y	Zn	Zn	Zn
UNITS	ug/l	ug/l	mg/Kg	ppm	ppm	mg/l
DETECTION LIMIT	0.005	0.005	0.05	0.2	1	0.01
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	OE
SAMPLE NUMBERS						
0001 Y030071			0.16	34.9	55	
0002 Y029247						
0003 Y043821	0.683		X	74.8	86	X
0004 Y036561						
0005 Y002032				59.9	70	
0006 Y035300	0.100		X	27.8	40	X
0007 Y030469						
0008 Y033094			X			
0009 Y027826	0.137			68.2	78	X
0010 Y027852						
0011 Y010311				76.5	80	
0012 YD11906			X			
0013 Y038539	0.154			53.7	61	X
0014 Y039402	0.273		X	90.9	97	X
0015 Y039429						
0016 YD11928	1.591		X	58.6	68	0.02
0017 Y000503						
0018 Y033560						
0019 Y031889			X	77.1	88	
0020 Y041801						
0021 Y039826			X			
0022 Y005149	1.945			84.4	99	X
0023 Y040198			X			
0024 Y001448	0.050			137.6	153	X
0025 Y001482						
0026 Y028530	0.009			64.1	72	X
0027 Y044514				60.2	104	
0028 Y042938						
0029 Y016629	X			17.0	20	X
0030 Y010511	0.852			93.1	100	X
0031 Y041586						
0032 Y033508				98.0	132	
0033 Y001442				118.5	127	
0034 Y005079						
0035 Y008813	0.006			85.0	95	X
0036 Y035276						
0037 Y043748	X		X	72.2	121	X
0038 Y030020						
0039 Y029114				31.3	105	
0040 Y030518			X			

ELEMENTS	Zn	Zr	Zr
UNITS	mg/Kg	ppm	ppm
DETECTION LIMIT	1	0.01	0.05
DIGEST	NAGx/	AR005/	4A/
ANALYTICAL FINISH	OE	MS	MS
SAMPLE NUMBERS			
0001 Y030071	1	22.10	111.79
0002 Y029247			
0003 Y043821	X	24.61	125.75
0004 Y036561			
0005 Y002032		17.37	122.76
0006 Y035300	X	20.18	109.17
0007 Y030469			
0008 Y033094	X		
0009 Y027826		18.31	116.27
0010 Y027852			
0011 Y010311		23.38	127.99
0012 YD11906	X		
0013 Y038539		20.10	140.78
0014 Y039402	X	24.14	129.97
0015 Y039429			
0016 YD11928	X	23.46	129.44
0017 Y000503			
0018 Y033560			
0019 Y031889	X	32.26	111.54
0020 Y041801			
0021 Y039826	X		
0022 Y005149		21.34	124.20
0023 Y040198	X		
0024 Y001448		28.00	129.29
0025 Y001482			
0026 Y028530		23.12	119.03
0027 Y044514		4.59	22.09
0028 Y042938			
0029 Y016629		7.04	33.95
0030 Y010511		24.47	119.53
0031 Y041586			
0032 Y033508		4.80	31.71
0033 Y001442		15.95	138.19
0034 Y005079			
0035 Y008813		24.19	143.33
0036 Y035276			
0037 Y043748	X	4.52	21.62
0038 Y030020			
0039 Y029114		1.80	25.24
0040 Y030518	X		

ELEMENTS	Au	Ag	Ag	Ag	Ag	Ag
UNITS	ppb	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	0.1	0.01	0.05	0.01	0.01	0.1
DIGEST	AR005/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	2.0	0.20	0.20	X		
0043 Y037982						X
0044 Y013172						
0045 Y033417	1.0	0.03	X			
0046 Y033021	0.4	X	X	X		X
0047 Y021618						
0048 Y008673	X	0.04	X	X		
0049 Y018894						X
0050 YD02056	0.2	0.07	0.06	X		
0051 YD09141	0.5	0.22	0.20			
0052 YD01567						X
0053 YD11036	X	X	X	X		
0054 YD05863						
0055 Y016092						X
0056 YD00614	2.2	16.77	12.22	0.02		
0057 YD11151	2.8	0.04	X			
0058 Y032798	0.7	0.04	X	X		
0059 Y005908	0.5	0.02	X			
0060 YD12010	1.7	2.26	2.13	X		
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	1.6	0.02	X	X		
0064 MW-Comp1	0.2	0.01	X			
0065 MW-Comp2	1.2	0.03	X	X		
0066 MW-Comp3						
0067 MW-Comp4	0.7	0.03	X	X		
0068 Y038539 pH 2.9					X	
0069 YD11928 pH 2.9					X	
0070 Y001448 pH 2.9					0.01	
0071 Y016629 pH 2.9					X	
0072 Y010511 pH 2.9					0.04	
0073 Y043748 pH 2.9					0.12	
0074 Y036166 pH 2.9					0.03	
0075 YD02056 pH 2.9					X	
0076 YD11036 pH 2.9					X	
0077 YD00614 pH 2.9					3.68	
0078 YD12010 pH 2.9					1.16	
0079 LG-Comp3 pH 2.9					0.04	
0080 MW-Comp4 pH 2.9					0.02	

ELEMENTS	Al	Al	Al	Al	Al	ANC
UNITS	%	ppm	mg/l	mg/l	mg/Kg	kgH2SO4/t
DETECTION LIMIT	0.0001	10	0.01	0.01	1	1
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	ANCx/
ANALYTICAL FINISH	MS	MS	OE	OE	OE	VOL
SAMPLE NUMBERS						
0041 Y029720						37
0042 Y036166	2.8562	7.76%	0.55			28
0043 Y037982					24	
0044 Y013172						23
0045 Y033417	4.0732	8.42%				30
0046 Y033021	2.3673	9.31%	3.60		3	15
0047 Y021618						28
0048 Y008673	3.2470	8.13%	0.67			31
0049 Y018894					28	
0050 YD02056	1.3928	7.61%	0.03			16
0051 YD09141	4.6138	8.72%				33
0052 YD01567					314	
0053 YD11036	0.1225	2593	0.08			3
0054 YD05863						11
0055 Y016092					2	11
0056 YD00614	1.9958	6.72%	0.18			
0057 YD11151	3.0131	9.13%				
0058 Y032798	3.7021	7.39%	0.02			
0059 Y005908	2.9002	6.74%				
0060 YD12010	2.8146	9.31%	0.04			
0061 LG-Comp1						19
0062 LG-Comp2						18
0063 LG-Comp3	2.1117	7.87%	0.72			21
0064 MW-Comp1	1.6072	8.96%				17
0065 MW-Comp2	4.3755	8.38%	1.41			19
0066 MW-Comp3						10
0067 MW-Comp4	1.2198	7.02%	0.18			11
0068 Y038539 pH 2.9				78.42		
0069 YD11928 pH 2.9				60.11		
0070 Y001448 pH 2.9				51.24		
0071 Y016629 pH 2.9				33.16		
0072 Y010511 pH 2.9				76.18		
0073 Y043748 pH 2.9				40.65		
0074 Y036166 pH 2.9				50.51		
0075 YD02056 pH 2.9				53.71		
0076 YD11036 pH 2.9				9.31		
0077 YD00614 pH 2.9				29.33		
0078 YD12010 pH 2.9				50.45		
0079 LG-Comp3 pH 2.9				42.26		
0080 MW-Comp4 pH 2.9				27.22		

ELEMENTS	As	As	As	As	As	B
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.03	0.2	0.1	0.1	1	0.5
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	3.23	4.3	10.8			0.8
0043 Y037982					X	
0044 Y013172						
0045 Y033417	1.92	2.5				4.2
0046 Y033021	0.67	0.9	3.6		X	18.1
0047 Y021618						
0048 Y008673	1.38	2.3	1.0			1.3
0049 Y018894					X	
0050 YD02056	2.21	2.1	0.8			24.8
0051 YD09141	18.51	20.3				3.3
0052 YD01567					X	
0053 YD11036	0.44	0.6	0.9			0.5
0054 YD05863						
0055 Y016092					X	
0056 YD00614	1.04	1.5	0.4			3.9
0057 YD11151	0.72	1.6				4.4
0058 Y032798	4.82	5.2	3.0			19.8
0059 Y005908	3.41	4.3				24.6
0060 YD12010	1.38	2.1	0.7			12.6
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	17.63	13.6	40.6			4.3
0064 MW-Comp1	0.42	0.5				22.7
0065 MW-Comp2	5.43	5.5	6.4			2.7
0066 MW-Comp3						
0067 MW-Comp4	1.01	1.3	2.6			4.8
0068 Y038539 pH 2.9				0.3		
0069 YD11928 pH 2.9				2.0		
0070 Y001448 pH 2.9				0.3		
0071 Y016629 pH 2.9				0.4		
0072 Y010511 pH 2.9				0.4		
0073 Y043748 pH 2.9				0.8		
0074 Y036166 pH 2.9				3.6		
0075 YD02056 pH 2.9				3.2		
0076 YD11036 pH 2.9				1.9		
0077 YD00614 pH 2.9				1.2		
0078 YD12010 pH 2.9				0.2		
0079 LG-Comp3 pH 2.9				4.1		
0080 MW-Comp4 pH 2.9				0.7		

ELEMENTS	B	B	B	Ba	Ba	Ba
UNITS	mg/l	mg/l	mg/Kg	ppm	ppm	ug/l
DETECTION LIMIT	0.01	0.01	1	0.05	0.1	0.05
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	OE	OE	OE	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	X			182.50	199.1	4.34
0043 Y037982			1			
0044 Y013172						
0045 Y033417				212.83	213.8	
0046 Y033021	0.10		9	151.36	533.8	29.50
0047 Y021618						
0048 Y008673	0.01			65.82	102.7	0.49
0049 Y018894			2			
0050 YD02056	0.30			58.37	329.3	3.31
0051 YD09141				316.00	398.5	
0052 YD01567			1			
0053 YD11036	0.01			9.90	26.8	3.96
0054 YD05863						
0055 Y016092			2			
0056 YD00614	0.04			108.87	362.7	39.27
0057 YD11151				78.10	277.0	
0058 Y032798	0.54			287.45	518.5	38.18
0059 Y005908				44.33	54.9	
0060 YD12010	0.36			184.53	542.9	8.24
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	0.03			10.41	23.9	0.15
0064 MW-Comp1				69.57	186.1	
0065 MW-Comp2	0.01			267.00	426.2	3.47
0066 MW-Comp3						
0067 MW-Comp4	0.06			43.40	159.3	0.43
0068 Y038539 pH 2.9		0.04				
0069 YD11928 pH 2.9		0.04				
0070 Y001448 pH 2.9		0.03				
0071 Y016629 pH 2.9		0.02				
0072 Y010511 pH 2.9		0.02				
0073 Y043748 pH 2.9		0.02				
0074 Y036166 pH 2.9		0.01				
0075 YD02056 pH 2.9		0.70				
0076 YD11036 pH 2.9		X				
0077 YD00614 pH 2.9		0.06				
0078 YD12010 pH 2.9		0.26				
0079 LG-Comp3 pH 2.9		0.07				
0080 MW-Comp4 pH 2.9		0.08				

ELEMENTS	Ba	Ba	Be	Be	Be	Be
UNITS	ug/l	mg/Kg	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.05	0.1	0.005	0.05	0.1	0.1
DIGEST	ASLP/	NAGx/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166			2.657	8.35	X	
0043 Y037982		X				
0044 Y013172						
0045 Y033417			4.350	8.73		
0046 Y033021		0.2	2.861	19.89	0.3	
0047 Y021618						
0048 Y008673			2.531	12.90	X	
0049 Y018894		X				
0050 YD02056			0.947	4.41	X	
0051 YD09141			9.696	54.23		
0052 YD01567		16.2				
0053 YD11036			0.051	0.10	X	
0054 YD05863						
0055 Y016092		X				
0056 YD00614			0.739	3.30	X	
0057 YD11151			2.399	9.56		
0058 Y032798			6.055	49.47	X	
0059 Y005908			5.503	21.78		
0060 YD12010			3.454	28.63	X	
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3			12.396	40.61	X	
0064 MW-Comp1			12.395	118.77		
0065 MW-Comp2			5.301	43.56	X	
0066 MW-Comp3						
0067 MW-Comp4			1.791	20.25	X	
0068 Y038539 pH 2.9	659.25					7.5
0069 YD11928 pH 2.9	351.33					10.5
0070 Y001448 pH 2.9	306.94					11.6
0071 Y016629 pH 2.9	780.82					12.7
0072 Y010511 pH 2.9	429.39					4.8
0073 Y043748 pH 2.9	708.66					5.5
0074 Y036166 pH 2.9	1075.88					6.1
0075 YD02056 pH 2.9	539.67					8.2
0076 YD11036 pH 2.9	137.94					0.5
0077 YD00614 pH 2.9	186.37					3.2
0078 YD12010 pH 2.9	377.80					18.8
0079 LG-Comp3 pH 2.9	33.95					60.7
0080 MW-Comp4 pH 2.9	135.46					15.0

ELEMENTS	Be	Bi	Bi	Bi	Bi	Bi
UNITS	mg/Kg	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	0.1	0.005	0.01	0.005	0.005	0.01
DIGEST	NAGx/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166		5.914	6.97	0.011		
0043 Y037982	X					X
0044 Y013172						
0045 Y033417		0.289	0.88			
0046 Y033021	X	0.280	0.32	0.056		X
0047 Y021618						
0048 Y008673		0.919	1.05	X		
0049 Y018894	X					X
0050 YD02056		0.251	0.29	X		
0051 YD09141		0.853	0.85			
0052 YD01567	0.2					X
0053 YD11036		0.026	0.04	0.006		
0054 YD05863						
0055 Y016092	X					X
0056 YD00614		0.359	0.50	X		
0057 YD11151		0.444	0.58			
0058 Y032798		2.822	3.65	X		
0059 Y005908		9.342	10.85			
0060 YD12010		0.467	0.53	X		
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3		1.034	1.24	X		
0064 MW-Comp1		7.080	6.26			
0065 MW-Comp2		1.784	1.95	0.056		
0066 MW-Comp3						
0067 MW-Comp4		1.724	1.76	X		
0068 Y038539 pH 2.9					0.188	
0069 YD11928 pH 2.9					0.102	
0070 Y001448 pH 2.9					0.375	
0071 Y016629 pH 2.9					13.647	
0072 Y010511 pH 2.9					0.070	
0073 Y043748 pH 2.9					0.245	
0074 Y036166 pH 2.9					0.949	
0075 YD02056 pH 2.9					0.183	
0076 YD11036 pH 2.9					0.022	
0077 YD00614 pH 2.9					0.019	
0078 YD12010 pH 2.9					X	
0079 LG-Comp3 pH 2.9					0.098	
0080 MW-Comp4 pH 2.9					0.314	

ELEMENTS	C	CO3	Ca	Ca	Ca	Ca
UNITS	%	mgCaCO3/L	%	ppm	mg/l	mg/l
DETECTION LIMIT	0.01	1	0.0001	20	0.01	0.01
DIGEST		18Ws5/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	/CSA	VOL	MS	MS	OE	OE
SAMPLE NUMBERS						
0041 Y029720	0.19					
0042 Y036166	0.04	43	2.6117	6.98%	4.48	
0043 Y037982						
0044 Y013172	0.05					
0045 Y033417	0.10		1.9030	5.46%		
0046 Y033021	X	X	0.1638	2387	0.10	
0047 Y021618	0.08					
0048 Y008673	0.07	48	1.0433	4.22%	2.53	
0049 Y018894						
0050 YD02056	0.01	X	0.3892	4839	1.73	
0051 YD09141	0.03		0.5699	2.07%		
0052 YD01567						
0053 YD11036	X	X	0.0898	1207	3.61	
0054 YD05863	X					
0055 Y016092	0.03					
0056 YD00614		X	2.7206	3.12%	625.78	
0057 YD11151			0.6331	1.30%		
0058 Y032798		X	1.0763	1.42%	49.46	
0059 Y005908			1.2519	3.63%		
0060 YD12010		X	0.5209	7089	24.51	
0061 LG-Comp1	0.03					
0062 LG-Comp2	0.02					
0063 LG-Comp3	0.02	6	1.8634	5.36%	4.23	
0064 MW-Comp1	0.03		0.7313	8438		
0065 MW-Comp2	0.01	6	0.3676	7448	0.07	
0066 MW-Comp3	0.01					
0067 MW-Comp4	X	X	0.2324	2390	0.71	
0068 Y038539 pH 2.9						13.06
0069 YD11928 pH 2.9						17.93
0070 Y001448 pH 2.9						8.26
0071 Y016629 pH 2.9						26.68
0072 Y010511 pH 2.9						5.22
0073 Y043748 pH 2.9						66.24
0074 Y036166 pH 2.9						89.24
0075 YD02056 pH 2.9						13.68
0076 YD11036 pH 2.9						10.96
0077 YD00614 pH 2.9						1230.09
0078 YD12010 pH 2.9						204.75
0079 LG-Comp3 pH 2.9						62.13
0080 MW-Comp4 pH 2.9						26.78

ELEMENTS	Ca	Cd	Cd	Cd	Cd	Cd
UNITS	mg/Kg	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	1	0.002	0.01	0.02	0.02	0.1
DIGEST	NAGx/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	OE	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166		0.097	0.16	X		
0043 Y037982	1091					X
0044 Y013172						
0045 Y033417		0.053	0.11			
0046 Y033021	47	0.006	X	X		X
0047 Y021618						
0048 Y008673		0.065	0.17	X		
0049 Y018894	804					X
0050 YD02056		0.030	0.04	X		
0051 YD09141		0.548	0.57			
0052 YD01567	3138					0.5
0053 YD11036		0.003	X	X		
0054 YD05863						
0055 Y016092	133					X
0056 YD00614		0.029	0.04	X		
0057 YD11151		0.010	0.02			
0058 Y032798		0.007	0.01	X		
0059 Y005908		0.039	0.12			
0060 YD12010		0.018	0.04	X		
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3		0.084	0.23	X		
0064 MW-Comp1		0.045	0.05			
0065 MW-Comp2		0.028	0.03	X		
0066 MW-Comp3						
0067 MW-Comp4		0.092	0.11	X		
0068 Y038539 pH 2.9					0.06	
0069 YD11928 pH 2.9					0.04	
0070 Y001448 pH 2.9					0.06	
0071 Y016629 pH 2.9					0.13	
0072 Y010511 pH 2.9					0.04	
0073 Y043748 pH 2.9					0.38	
0074 Y036166 pH 2.9					0.65	
0075 YD02056 pH 2.9					0.24	
0076 YD11036 pH 2.9					0.07	
0077 YD00614 pH 2.9					0.91	
0078 YD12010 pH 2.9					0.11	
0079 LG-Comp3 pH 2.9					0.44	
0080 MW-Comp4 pH 2.9					1.16	

ELEMENTS	Ce	Ce	Ce	Ce	Ce	Cl
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	mg/l
DETECTION LIMIT	0.002	0.01	0.002	0.002	0.01	2
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	18Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	COL
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	14.370	19.18	0.002			29
0043 Y037982					X	
0044 Y013172						
0045 Y033417	12.947	17.67				
0046 Y033021	87.420	109.38	9.251		X	40
0047 Y021618						
0048 Y008673	13.596	14.66	0.019			29
0049 Y018894					X	
0050 YD02056	96.649	116.64	0.041			3
0051 YD09141	11.167	12.50				
0052 YD01567					1.65	
0053 YD11036	2.403	3.15	0.747			3
0054 YD05863						
0055 Y016092					X	
0056 YD00614	61.446	75.38	0.043			4
0057 YD11151	98.944	108.08				
0058 Y032798	13.003	16.31	0.009			295
0059 Y005908	11.719	17.38				
0060 YD12010	102.346	109.86	0.008			172
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	8.443	11.56	X			35
0064 MW-Comp1	36.292	41.09				
0065 MW-Comp2	38.903	62.29	0.296			16
0066 MW-Comp3						
0067 MW-Comp4	33.987	29.81	X			79
0068 Y038539 pH 2.9				2307.177		
0069 YD11928 pH 2.9				2008.141		
0070 Y001448 pH 2.9				552.207		
0071 Y016629 pH 2.9				62.873		
0072 Y010511 pH 2.9				1738.495		
0073 Y043748 pH 2.9				137.204		
0074 Y036166 pH 2.9				144.248		
0075 YD02056 pH 2.9				1519.557		
0076 YD11036 pH 2.9				14.060		
0077 YD00614 pH 2.9				165.260		
0078 YD12010 pH 2.9				47.001		
0079 LG-Comp3 pH 2.9				58.541		
0080 MW-Comp4 pH 2.9				12.379		

ELEMENTS	Co	Co	Co	Co	Co	ColourChange
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	NONE
DETECTION LIMIT	0.01	0.1	0.1	0.1	0.1	0
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	ANCx/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	QUAL
SAMPLE NUMBERS						
0041 Y029720						Yes
0042 Y036166	27.08	43.8	X			Yes
0043 Y037982					0.0	
0044 Y013172						Yes
0045 Y033417	33.52	43.4				Yes
0046 Y033021	11.84	18.4	0.7		0.0	Yes
0047 Y021618						Yes
0048 Y008673	30.34	44.0	X			Yes
0049 Y018894					0.0	
0050 YD02056	15.20	24.6	X			Yes
0051 YD09141	40.90	42.5				
0052 YD01567					7.2	
0053 YD11036	0.71	0.9	0.1			Yes
0054 YD05863						Yes
0055 Y016092					0.0	Yes
0056 YD00614	16.09	19.8	0.2			
0057 YD11151	21.27	26.4				
0058 Y032798	18.68	22.2	0.3			
0059 Y005908	26.47	42.5				
0060 YD12010	24.24	27.7	0.2			
0061 LG-Comp1						Yes
0062 LG-Comp2						Yes
0063 LG-Comp3	19.08	35.3	X			Yes
0064 MW-Comp1	2.16	7.8				Yes
0065 MW-Comp2	21.95	24.1	0.2			
0066 MW-Comp3						Yes
0067 MW-Comp4	4.31	7.5	X			Yes
0068 Y038539 pH 2.9				31.3		
0069 YD11928 pH 2.9				26.4		
0070 Y001448 pH 2.9				165.0		
0071 Y016629 pH 2.9				10.4		
0072 Y010511 pH 2.9				30.1		
0073 Y043748 pH 2.9				45.9		
0074 Y036166 pH 2.9				51.2		
0075 YD02056 pH 2.9				21.5		
0076 YD11036 pH 2.9				6.5		
0077 YD00614 pH 2.9				81.1		
0078 YD12010 pH 2.9				302.7		
0079 LG-Comp3 pH 2.9				27.4		
0080 MW-Comp4 pH 2.9				16.3		

ELEMENTS	Cr	Cr	Cr	Cr	Cr	Cs
UNITS	ppm	ppm	mg/l	mg/l	mg/Kg	ppm
DETECTION LIMIT	0.1	0.2	0.01	0.01	1	0.01
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	OE	OE	OE	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	116.6	175.6	X			153.67
0043 Y037982					8	
0044 Y013172						
0045 Y033417	145.2	214.4				750.65
0046 Y033021	38.4	92.1	X		2	363.50
0047 Y021618						
0048 Y008673	153.0	250.3	X			989.39
0049 Y018894					6	
0050 YD02056	16.9	74.6	X			54.53
0051 YD09141	379.7	334.5				>1000.00
0052 YD01567					X	
0053 YD11036	8.5	13.3	X			1.25
0054 YD05863						
0055 Y016092					2	
0056 YD00614	38.2	69.1	X			13.27
0057 YD11151	60.1	100.4				540.79
0058 Y032798	158.2	182.9	X			230.54
0059 Y005908	178.0	295.7				715.79
0060 YD12010	51.0	106.2	X			241.05
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	81.9	196.9	X			133.73
0064 MW-Comp1	18.1	44.4				142.41
0065 MW-Comp2	115.3	136.8	X			>1000.00
0066 MW-Comp3						
0067 MW-Comp4	16.8	43.5	X			205.67
0068 Y038539 pH 2.9				0.08		
0069 YD11928 pH 2.9				0.06		
0070 Y001448 pH 2.9				0.09		
0071 Y016629 pH 2.9				0.03		
0072 Y010511 pH 2.9				0.08		
0073 Y043748 pH 2.9				0.10		
0074 Y036166 pH 2.9				0.10		
0075 YD02056 pH 2.9				0.05		
0076 YD11036 pH 2.9				0.08		
0077 YD00614 pH 2.9				0.05		
0078 YD12010 pH 2.9				0.06		
0079 LG-Comp3 pH 2.9				0.07		
0080 MW-Comp4 pH 2.9				0.03		

ELEMENTS	Cs	Cs	Cs	Cs	Cs-Rp1	Cu
UNITS	ppm	ug/l	ug/l	mg/Kg	ppm	ppm
DETECTION LIMIT	0.05	0.001	0.001	0.005	0.05	0.05
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	4AH/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	162.26	0.106				231.37
0043 Y037982				0.014		
0044 Y013172						
0045 Y033417	798.56					101.65
0046 Y033021	498.44	0.198		0.011		14.68
0047 Y021618						
0048 Y008673	1010.86	0.490				4.06
0049 Y018894				X		
0050 YD02056	111.77	X				128.95
0051 YD09141	>2000.00				3375.97	311.96
0052 YD01567				0.006		
0053 YD11036	1.19	X				2.94
0054 YD05863						
0055 Y016092				X		
0056 YD00614	22.53	X				84.01
0057 YD11151	597.07					186.42
0058 Y032798	281.10	0.005				86.07
0059 Y005908	788.92					49.76
0060 YD12010	317.80	X				84.34
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	162.73	0.094				27.65
0064 MW-Comp1	343.51					5.28
0065 MW-Comp2	>2000.00	0.407			2006.47	44.22
0066 MW-Comp3						
0067 MW-Comp4	308.12	0.012				19.70
0068 Y038539 pH 2.9			0.015			
0069 YD11928 pH 2.9			0.162			
0070 Y001448 pH 2.9			0.442			
0071 Y016629 pH 2.9			0.111			
0072 Y010511 pH 2.9			0.008			
0073 Y043748 pH 2.9			0.019			
0074 Y036166 pH 2.9			0.166			
0075 YD02056 pH 2.9			0.034			
0076 YD11036 pH 2.9			0.007			
0077 YD00614 pH 2.9			X			
0078 YD12010 pH 2.9			X			
0079 LG-Comp3 pH 2.9			0.414			
0080 MW-Comp4 pH 2.9			0.048			

ELEMENTS	Cu	Cu	Cu	Cu	EC	EC
UNITS	ppm	mg/l	mg/l	mg/Kg	uS/cm	uS/cm
DETECTION LIMIT	0.5	0.01	0.01	1	10	10
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	18Ws5/	Ws5/
ANALYTICAL FINISH	MS	OE	OE	OE	MTR	MTR
SAMPLE NUMBERS						
0041 Y029720						312
0042 Y036166	232.0	X			323	303
0043 Y037982				X		
0044 Y013172						269
0045 Y033417	107.3					488
0046 Y033021	15.2	X		X	288	253
0047 Y021618						727
0048 Y008673	5.0	X			311	296
0049 Y018894				X		
0050 YD02056	130.6	X			59	60
0051 YD09141	313.1					350
0052 YD01567				27		
0053 YD11036	4.5	X			62	44
0054 YD05863						49
0055 Y016092				X		136
0056 YD00614	84.4	X			2056	
0057 YD11151	193.0					
0058 Y032798	92.7	X			2372	
0059 Y005908	53.5					
0060 YD12010	85.1	X			936	
0061 LG-Comp1						354
0062 LG-Comp2						215
0063 LG-Comp3	30.3	X			321	324
0064 MW-Comp1	5.3					236
0065 MW-Comp2	46.5	X			241	201
0066 MW-Comp3						284
0067 MW-Comp4	14.7	X			393	378
0068 Y038539 pH 2.9			0.15			
0069 YD11928 pH 2.9			X			
0070 Y001448 pH 2.9			0.65			
0071 Y016629 pH 2.9			0.09			
0072 Y010511 pH 2.9			0.09			
0073 Y043748 pH 2.9			0.12			
0074 Y036166 pH 2.9			0.53			
0075 YD02056 pH 2.9			0.48			
0076 YD11036 pH 2.9			0.03			
0077 YD00614 pH 2.9			0.80			
0078 YD12010 pH 2.9			0.18			
0079 LG-Comp3 pH 2.9			0.07			
0080 MW-Comp4 pH 2.9			0.09			

ELEMENTS	F	Fe	Fe	Fe	Fe	Fe
UNITS	mg/l	%	%	mg/l	mg/l	mg/Kg
DETECTION LIMIT	0.1	0.0002	0.001	0.01	0.01	1
DIGEST	18Ws5/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	SIE	MS	MS	OE	OE	OE
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	3.9	4.8425	8.983	X		
0043 Y037982						1
0044 Y013172						
0045 Y033417		5.8515	8.461			
0046 Y033021	2.3	3.4440	5.048	1.56		X
0047 Y021618						
0048 Y008673	3.6	4.7915	7.460	X		
0049 Y018894						X
0050 YD02056	0.5	2.3975	4.756	X		
0051 YD09141		7.3719	7.881			
0052 YD01567						15
0053 YD11036	0.3	0.6601	0.709	0.05		
0054 YD05863						
0055 Y016092						X
0056 YD00614	1.0	4.0681	4.823	X		
0057 YD11151		5.8696	6.561			
0058 Y032798	10.2	5.5798	6.222	X		
0059 Y005908		5.3722	7.885			
0060 YD12010	11.9	4.4688	5.243	X		
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	11.5	2.1030	5.907	X		
0064 MW-Comp1		0.9747	2.094			
0065 MW-Comp2	8.6	6.0542	6.516	0.45		
0066 MW-Comp3						
0067 MW-Comp4	3.5	1.3702	2.042	X		
0068 Y038539 pH 2.9					54.70	
0069 YD11928 pH 2.9					49.17	
0070 Y001448 pH 2.9					95.39	
0071 Y016629 pH 2.9					19.41	
0072 Y010511 pH 2.9					54.24	
0073 Y043748 pH 2.9					51.16	
0074 Y036166 pH 2.9					51.78	
0075 YD02056 pH 2.9					43.03	
0076 YD11036 pH 2.9					58.84	
0077 YD00614 pH 2.9					42.84	
0078 YD12010 pH 2.9					15.29	
0079 LG-Comp3 pH 2.9					21.43	
0080 MW-Comp4 pH 2.9					30.71	

ELEMENTS	Final-pH	Final-pH	Fizz-Rate	Ga	Ga	Ga
UNITS	NONE	NONE	NONE	ppm	ppm	ug/l
DETECTION LIMIT	0.1	0.1	1	0.005	0.01	0.02
DIGEST	ANCx/	ASLP/	ANCx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MTR	MTR	QUAL	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720	2.1		X			
0042 Y036166	2.0		X	8.640	19.54	2.44
0043 Y037982						
0044 Y013172	1.8		X			
0045 Y033417	2.1		X	10.659	20.51	
0046 Y033021	2.0		X	8.133	27.42	6.54
0047 Y021618	2.2		X			
0048 Y008673	2.5		X	10.024	19.09	2.80
0049 Y018894						
0050 YD02056	2.1		X	4.960	22.19	0.57
0051 YD09141	2.3		X	18.245	25.05	
0052 YD01567						
0053 YD11036	2.2		X	0.456	0.88	0.69
0054 YD05863	2.1		X			
0055 Y016092	2.1		X			
0056 YD00614				6.174	18.82	0.21
0057 YD11151				10.122	24.02	
0058 Y032798				10.783	17.38	0.02
0059 Y005908				8.122	17.91	
0060 YD12010				8.630	25.95	0.23
0061 LG-Comp1	2.3		X			
0062 LG-Comp2	2.1		X			
0063 LG-Comp3	2.1		X	5.169	20.24	4.35
0064 MW-Comp1	2.0		X	6.834	32.70	
0065 MW-Comp2	2.0		X	15.016	26.69	5.30
0066 MW-Comp3	2.2		X			
0067 MW-Comp4	2.1		X	3.396	20.55	1.86
0068 Y038539 pH 2.9		3.8				
0069 YD11928 pH 2.9		3.7				
0070 Y001448 pH 2.9		3.8				
0071 Y016629 pH 2.9		3.5				
0072 Y010511 pH 2.9		3.7				
0073 Y043748 pH 2.9		3.8				
0074 Y036166 pH 2.9		3.9				
0075 YD02056 pH 2.9		3.6				
0076 YD11036 pH 2.9		3.3				
0077 YD00614 pH 2.9		4.4				
0078 YD12010 pH 2.9		4.0				
0079 LG-Comp3 pH 2.9		3.7				
0080 MW-Comp4 pH 2.9		3.6				

ELEMENTS	Ga	Ga	Ge	Ge	Ge	Ge
UNITS	ug/l	mg/Kg	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.02	0.1	0.01	0.1	0.1	0.1
DIGEST	ASLP/	NAGx/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166			0.23	4.1	X	
0043 Y037982		0.2				
0044 Y013172						
0045 Y033417			0.20	3.8		
0046 Y033021		X	0.08	5.9	0.3	
0047 Y021618						
0048 Y008673			0.19	3.7	X	
0049 Y018894		X				
0050 YD02056			0.04	5.0	X	
0051 YD09141			0.37	5.3		
0052 YD01567		X				
0053 YD11036			0.02	0.5	X	
0054 YD05863						
0055 Y016092		X				
0056 YD00614			0.05	2.4	X	
0057 YD11151			0.10	4.5		
0058 Y032798			0.15	2.8	X	
0059 Y005908			0.35	5.7		
0060 YD12010			0.08	5.9	X	
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3			0.14	6.9	0.2	
0064 MW-Comp1			0.12	9.9		
0065 MW-Comp2			0.51	9.1	X	
0066 MW-Comp3						
0067 MW-Comp4			0.11	8.8	X	
0068 Y038539 pH 2.9	4.73					0.4
0069 YD11928 pH 2.9	4.07					0.5
0070 Y001448 pH 2.9	1.26					0.5
0071 Y016629 pH 2.9	0.49					0.8
0072 Y010511 pH 2.9	3.63					0.2
0073 Y043748 pH 2.9	0.55					1.0
0074 Y036166 pH 2.9	0.59					0.9
0075 YD02056 pH 2.9	3.30					1.0
0076 YD11036 pH 2.9	0.44					0.7
0077 YD00614 pH 2.9	0.53					0.2
0078 YD12010 pH 2.9	0.15					0.2
0079 LG-Comp3 pH 2.9	0.38					1.9
0080 MW-Comp4 pH 2.9	0.18					1.0

ELEMENTS	Ge	HCO3	Hf	Hf	Hf	Hf
UNITS	mg/Kg	mgCaCO3/L	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.1	2	0.002	0.01	0.005	0.005
DIGEST	NAGx/	18Ws5/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MS	VOL	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166		44	0.171	0.97	X	
0043 Y037982	X					
0044 Y013172						
0045 Y033417			0.171	0.80		
0046 Y033021	X	60	0.653	2.79	0.108	
0047 Y021618						
0048 Y008673		48	0.152	0.77	X	
0049 Y018894	X					
0050 YD02056		10	0.264	3.49	X	
0051 YD09141			0.107	0.59		
0052 YD01567	X					
0053 YD11036		25	0.024	0.10	0.010	
0054 YD05863						
0055 Y016092	X					
0056 YD00614		40	0.646	2.88	X	
0057 YD11151			0.606	3.80		
0058 Y032798		122	0.370	1.68	X	
0059 Y005908			0.234	0.91		
0060 YD12010		72	0.859	3.57	X	
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3		65	0.144	1.05	X	
0064 MW-Comp1			0.711	2.33		
0065 MW-Comp2		67	0.776	2.75	0.045	
0066 MW-Comp3						
0067 MW-Comp4		43	0.409	1.47	X	
0068 Y038539 pH 2.9						0.035
0069 YD11928 pH 2.9						0.032
0070 Y001448 pH 2.9						0.055
0071 Y016629 pH 2.9						0.095
0072 Y010511 pH 2.9						0.033
0073 Y043748 pH 2.9						0.061
0074 Y036166 pH 2.9						0.038
0075 YD02056 pH 2.9						0.101
0076 YD11036 pH 2.9						0.005
0077 YD00614 pH 2.9						0.105
0078 YD12010 pH 2.9						0.039
0079 LG-Comp3 pH 2.9						0.037
0080 MW-Comp4 pH 2.9						0.013

ELEMENTS	Hf	Hg	Hg	Hg	Hg	In
UNITS	mg/Kg	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.01	0.002	0.1	0.1	0.01	0.002
DIGEST	NAGx/	AR005/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166		X	X			0.099
0043 Y037982	X				X	
0044 Y013172						
0045 Y033417		X				0.034
0046 Y033021	X	X	X		X	0.028
0047 Y021618						
0048 Y008673		X	X			0.035
0049 Y018894	X				X	
0050 YD02056		X	X			0.024
0051 YD09141		X				0.063
0052 YD01567	X				X	
0053 YD11036		0.003	X			X
0054 YD05863						
0055 Y016092	X				X	
0056 YD00614		X	0.1			0.020
0057 YD11151		X				0.033
0058 Y032798		0.002	X			0.052
0059 Y005908		X				0.038
0060 YD12010		X	X			0.035
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3		X	X			0.024
0064 MW-Comp1		X				0.014
0065 MW-Comp2		X	X			0.064
0066 MW-Comp3						
0067 MW-Comp4		X	X			0.009
0068 Y038539 pH 2.9				X		
0069 YD11928 pH 2.9				X		
0070 Y001448 pH 2.9				X		
0071 Y016629 pH 2.9				X		
0072 Y010511 pH 2.9				X		
0073 Y043748 pH 2.9				X		
0074 Y036166 pH 2.9				X		
0075 YD02056 pH 2.9				X		
0076 YD11036 pH 2.9				X		
0077 YD00614 pH 2.9				X		
0078 YD12010 pH 2.9				X		
0079 LG-Comp3 pH 2.9				X		
0080 MW-Comp4 pH 2.9				X		

ELEMENTS	In	K	K	K	K	K
UNITS	ppm	%	ppm	mg/l	mg/l	mg/Kg
DETECTION LIMIT	0.01	0.0005	10	0.1	0.1	10
DIGEST	4A/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	MS	MS	MS	OE	OE	OE
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	0.23	0.7045	8491	41.8		
0043 Y037982						880
0044 Y013172						
0045 Y033417	0.08	1.4692	1.64%			
0046 Y033021	0.07	1.1009	3.35%	45.2		1841
0047 Y021618						
0048 Y008673	0.08	0.9932	1.20%	39.6		
0049 Y018894						74
0050 YD02056	0.08	0.3484	1.67%	6.2		
0051 YD09141	0.08	3.1895	3.66%			
0052 YD01567						1866
0053 YD11036	X	0.0152	600	2.1		
0054 YD05863						
0055 Y016092						484
0056 YD00614	0.06	0.3038	2.03%	8.0		
0057 YD11151	0.07	1.0560	2.77%			
0058 Y032798	0.07	0.4493	3.41%	7.8		
0059 Y005908	0.06	0.4111	5311			
0060 YD12010	0.10	0.7795	3.10%	0.8		
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	0.08	0.2698	7566	13.2		
0064 MW-Comp1	0.03	0.7333	2.41%			
0065 MW-Comp2	0.08	2.8168	3.93%	42.4		
0066 MW-Comp3						
0067 MW-Comp4	0.03	0.6027	2.90%	16.7		
0068 Y038539 pH 2.9					59.9	
0069 YD11928 pH 2.9					47.8	
0070 Y001448 pH 2.9					66.3	
0071 Y016629 pH 2.9					26.4	
0072 Y010511 pH 2.9					51.4	
0073 Y043748 pH 2.9					23.5	
0074 Y036166 pH 2.9					45.3	
0075 YD02056 pH 2.9					39.2	
0076 YD11036 pH 2.9					2.7	
0077 YD00614 pH 2.9					17.9	
0078 YD12010 pH 2.9					4.5	
0079 LG-Comp3 pH 2.9					21.0	
0080 MW-Comp4 pH 2.9					32.2	

ELEMENTS	La	La	La	La	La	Li
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.002	0.01	0.002	0.002	0.01	0.02
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	6.700	8.21	X			226.88
0043 Y037982					X	
0044 Y013172						
0045 Y033417	5.495	7.23				687.38
0046 Y033021	45.194	53.76	4.845		X	375.62
0047 Y021618						
0048 Y008673	6.729	6.79	0.011			507.94
0049 Y018894					X	
0050 YD02056	49.625	57.24	0.027			135.05
0051 YD09141	4.717	5.16				1308.72
0052 YD01567					1.19	
0053 YD11036	1.306	1.68	0.356			3.53
0054 YD05863						
0055 Y016092					X	
0056 YD00614	33.100	37.78	0.089			71.58
0057 YD11151	51.955	53.17				202.46
0058 Y032798	6.402	7.62	0.004			288.64
0059 Y005908	5.287	7.55				295.36
0060 YD12010	60.813	61.50	0.010			354.93
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	3.872	4.90	X			555.89
0064 MW-Comp1	19.295	20.69				683.55
0065 MW-Comp2	19.647	29.97	0.143			1289.27
0066 MW-Comp3						
0067 MW-Comp4	17.595	13.25	X			377.57
0068 Y038539 pH 2.9				1064.230		
0069 YD11928 pH 2.9				966.161		
0070 Y001448 pH 2.9				264.124		
0071 Y016629 pH 2.9				32.514		
0072 Y010511 pH 2.9				842.111		
0073 Y043748 pH 2.9				61.372		
0074 Y036166 pH 2.9				67.366		
0075 YD02056 pH 2.9				729.888		
0076 YD11036 pH 2.9				7.502		
0077 YD00614 pH 2.9				167.248		
0078 YD12010 pH 2.9				23.243		
0079 LG-Comp3 pH 2.9				28.003		
0080 MW-Comp4 pH 2.9				6.068		

ELEMENTS	Li	Li	Li	Li	Li	Mg
UNITS	ppm	ug/l	ug/l	mg/l	mg/Kg	%
DETECTION LIMIT	0.1	0.05	0.05	0.1	0.1	0.0005
DIGEST	4A/	18Ws5/	ASLP/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	OE	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	302.6	1486.63				2.2260
0043 Y037982					11.7	
0044 Y013172						
0045 Y033417	808.4					2.4955
0046 Y033021	638.4	1034.13			4.3	0.6442
0047 Y021618						
0048 Y008673	662.5	1405.75				3.3320
0049 Y018894					4.3	
0050 YD02056	289.6	8.14				0.4449
0051 YD09141	1345.3					4.4237
0052 YD01567					31.8	
0053 YD11036	4.1	32.56				0.0710
0054 YD05863						
0055 Y016092					0.3	
0056 YD00614	105.6	39.47				0.8672
0057 YD11151	272.1					1.6518
0058 Y032798	840.4	382.95				1.9225
0059 Y005908	425.7					1.5078
0060 YD12010	650.2	1178.57				1.1164
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	1933.8	4445.37				0.9686
0064 MW-Comp1	1811.1					0.1388
0065 MW-Comp2	1532.9	3152.84				2.3361
0066 MW-Comp3						
0067 MW-Comp4	1640.0	1367.15				0.1669
0068 Y038539 pH 2.9			729.94	0.6		
0069 YD11928 pH 2.9			902.78	0.7		
0070 Y001448 pH 2.9			2066.75	1.6		
0071 Y016629 pH 2.9			357.50	0.4		
0072 Y010511 pH 2.9			299.72	0.3		
0073 Y043748 pH 2.9			302.47	0.3		
0074 Y036166 pH 2.9			1596.93	1.2		
0075 YD02056 pH 2.9			681.40	0.5		
0076 YD11036 pH 2.9			27.90	X		
0077 YD00614 pH 2.9			128.64	0.1		
0078 YD12010 pH 2.9			1371.87	1.1		
0079 LG-Comp3 pH 2.9			3451.84	2.7		
0080 MW-Comp4 pH 2.9			2069.41	1.6		

ELEMENTS	Mg	Mg	Mg	Mg	Mn	Mn
UNITS	ppm	mg/l	mg/l	mg/Kg	ppm	ppm
DETECTION LIMIT	10	0.01	0.01	10	0.2	0.5
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	OE	OE	OE	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	3.98%	1.48			854.9	1805.1
0043 Y037982				187		
0044 Y013172						
0045 Y033417	3.35%				847.5	1433.3
0046 Y033021	1.07%	0.67		217	184.5	319.0
0047 Y021618						
0048 Y008673	4.90%	1.09			900.4	1829.2
0049 Y018894				518		
0050 YD02056	1.04%	1.26			287.3	582.1
0051 YD09141	4.47%				847.9	1230.2
0052 YD01567				551		
0053 YD11036	932	2.76			62.7	75.5
0054 YD05863						
0055 Y016092				224		
0056 YD00614	9930	4.96			338.3	508.5
0057 YD11151	1.76%				406.1	502.3
0058 Y032798	2.31%	9.22			524.0	680.2
0059 Y005908	2.98%				723.7	1219.9
0060 YD12010	1.33%	5.70			588.3	866.2
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	3.00%	1.14			496.2	1354.5
0064 MW-Comp1	4704				324.8	618.3
0065 MW-Comp2	2.41%	0.37			699.2	876.2
0066 MW-Comp3						
0067 MW-Comp4	2806	0.60			537.7	694.1
0068 Y038539 pH 2.9			27.89			
0069 YD11928 pH 2.9			15.94			
0070 Y001448 pH 2.9			22.75			
0071 Y016629 pH 2.9			5.58			
0072 Y010511 pH 2.9			21.95			
0073 Y043748 pH 2.9			42.14			
0074 Y036166 pH 2.9			56.87			
0075 YD02056 pH 2.9			12.18			
0076 YD11036 pH 2.9			6.42			
0077 YD00614 pH 2.9			29.95			
0078 YD12010 pH 2.9			39.78			
0079 LG-Comp3 pH 2.9			21.44			
0080 MW-Comp4 pH 2.9			8.49			

ELEMENTS	Mn	Mn	Mn	Mo	Mo	Mo
UNITS	mg/l	mg/l	mg/Kg	ppm	ppm	ug/l
DETECTION LIMIT	0.001	0.001	1	0.01	0.05	0.05
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	OE	OE	OE	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	X			1.22	1.30	3.87
0043 Y037982			X			
0044 Y013172						
0045 Y033417				0.67	0.77	
0046 Y033021	0.009		X	0.67	0.74	2.13
0047 Y021618						
0048 Y008673	X			0.97	1.05	4.16
0049 Y018894			X			
0050 YD02056	0.014			0.45	0.63	12.41
0051 YD09141				0.09	0.06	
0052 YD01567			100			
0053 YD11036	0.015			0.94	1.17	1.63
0054 YD05863						
0055 Y016092			X			
0056 YD00614	0.046			1.31	1.86	7.26
0057 YD11151				0.49	0.47	
0058 Y032798	0.139			1.09	1.31	20.64
0059 Y005908				1.79	2.01	
0060 YD12010	0.006			0.69	0.75	11.82
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	0.001			0.81	0.96	3.58
0064 MW-Comp1				1.69	1.72	
0065 MW-Comp2	0.005			2.29	2.43	7.87
0066 MW-Comp3						
0067 MW-Comp4	0.041			1.40	1.44	11.97
0068 Y038539 pH 2.9		1.290				
0069 YD11928 pH 2.9		0.938				
0070 Y001448 pH 2.9		7.577				
0071 Y016629 pH 2.9		0.499				
0072 Y010511 pH 2.9		0.954				
0073 Y043748 pH 2.9		1.726				
0074 Y036166 pH 2.9		2.249				
0075 YD02056 pH 2.9		0.933				
0076 YD11036 pH 2.9		0.735				
0077 YD00614 pH 2.9		1.928				
0078 YD12010 pH 2.9		7.796				
0079 LG-Comp3 pH 2.9		1.648				
0080 MW-Comp4 pH 2.9		12.383				

ELEMENTS	Mo	Mo	MPA	Na	Na	Na
UNITS	ug/l	mg/Kg	kgH2SO4/t	%	ppm	mg/l
DETECTION LIMIT	0.05	0.1	1	0.0005	10	0.1
DIGEST	ASLP/	NAGx/		AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MS	MS	/CALC	MS	MS	OE
SAMPLE NUMBERS						
0041 Y029720			X			
0042 Y036166			5	0.3611	1.74%	30.6
0043 Y037982		0.1				
0044 Y013172			4			
0045 Y033417			X	0.3895	1.28%	
0046 Y033021		0.1	2	0.1030	6482	27.4
0047 Y021618			X			
0048 Y008673			X	0.1747	2.08%	31.7
0049 Y018894		0.6				
0050 YD02056			11	0.0389	5268	3.2
0051 YD09141			21	0.0979	1.62%	
0052 YD01567		X				
0053 YD11036			X	0.0118	190	2.2
0054 YD05863			X			
0055 Y016092		0.3	X			
0056 YD00614				0.0375	5902	7.1
0057 YD11151				0.1372	1.41%	
0058 Y032798				0.6012	8069	475.1
0059 Y005908				0.4323	1.23%	
0060 YD12010				0.2197	1.00%	162.5
0061 LG-Comp1			X			
0062 LG-Comp2			X			
0063 LG-Comp3			1	0.2958	2.42%	41.2
0064 MW-Comp1			X	0.1062	2.71%	
0065 MW-Comp2			X	0.1193	9748	17.7
0066 MW-Comp3			X			
0067 MW-Comp4			X	0.1222	2.90%	64.2
0068 Y038539 pH 2.9	0.06					
0069 YD11928 pH 2.9	0.08					
0070 Y001448 pH 2.9	0.14					
0071 Y016629 pH 2.9	0.50					
0072 Y010511 pH 2.9	0.07					
0073 Y043748 pH 2.9	0.82					
0074 Y036166 pH 2.9	0.17					
0075 YD02056 pH 2.9	0.33					
0076 YD11036 pH 2.9	4.40					
0077 YD00614 pH 2.9	1.74					
0078 YD12010 pH 2.9	0.08					
0079 LG-Comp3 pH 2.9	0.16					
0080 MW-Comp4 pH 2.9	0.33					

ELEMENTS	Na	Na	NAG	NAGpH	NAG(4.5)	NAPP
UNITS	mg/l	mg/Kg	kgH2SO4/t	NONE	kgH2SO4/t	kgH2SO4/t
DETECTION LIMIT	0.1	10	1	0.1	1	1
DIGEST	ASLP/	NAGx/	NAGx/	NAGx/	NAGx/	
ANALYTICAL FINISH	OE	OE	VOL	MTR	VOL	/CALC
SAMPLE NUMBERS						
0041 Y029720			0	9.7	0	-36
0042 Y036166			0	7.7	0	-23
0043 Y037982		377				
0044 Y013172			0	7.2	0	-19
0045 Y033417			0	8.2	0	-30
0046 Y033021		513	0	7.2	0	-13
0047 Y021618			0	8.1	0	-27
0048 Y008673			0	8.7	0	-31
0049 Y018894		329				
0050 YD02056			5	3.6	2	-5
0051 YD09141			1	5.2	0	-12
0052 YD01567		197				
0053 YD11036			4	5.9	0	-3
0054 YD05863			5	6.6	0	-11
0055 Y016092		285	0	7.5	0	-11
0056 YD00614						
0057 YD11151						
0058 Y032798						
0059 Y005908						
0060 YD12010						
0061 LG-Comp1			0	7.3	0	-19
0062 LG-Comp2			0	7.7	0	-18
0063 LG-Comp3			0	7.4	0	-20
0064 MW-Comp1			6	6.1	0	-17
0065 MW-Comp2			0	7.8	0	-19
0066 MW-Comp3			0	7.1	0	-10
0067 MW-Comp4			0	7.4	0	-11
0068 Y038539 pH 2.9	14.9					
0069 YD11928 pH 2.9	8.7					
0070 Y001448 pH 2.9	9.4					
0071 Y016629 pH 2.9	25.0					
0072 Y010511 pH 2.9	13.7					
0073 Y043748 pH 2.9	15.0					
0074 Y036166 pH 2.9	16.3					
0075 YD02056 pH 2.9	7.1					
0076 YD11036 pH 2.9	1.2					
0077 YD00614 pH 2.9	6.3					
0078 YD12010 pH 2.9	66.7					
0079 LG-Comp3 pH 2.9	23.4					
0080 MW-Comp4 pH 2.9	32.8					

ELEMENTS	Nb	Nb	Nb	Nb	Nb	Ni
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.002	0.01	0.05	0.05	0.05	0.04
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	0.123	4.15	X			32.02
0043 Y037982					X	
0044 Y013172						
0045 Y033417	0.114	4.82				29.31
0046 Y033021	0.802	22.27	0.62		0.05	23.16
0047 Y021618						
0048 Y008673	0.070	4.07	X			31.89
0049 Y018894					0.06	
0050 YD02056	0.621	16.41	X			14.09
0051 YD09141	2.161	38.24				68.10
0052 YD01567					X	
0053 YD11036	0.212	0.70	X			1.82
0054 YD05863						
0055 Y016092					X	
0056 YD00614	0.782	12.00	X			33.69
0057 YD11151	0.265	16.18				35.45
0058 Y032798	0.307	33.13	X			45.96
0059 Y005908	0.223	19.59				41.33
0060 YD12010	0.383	16.40	X			34.87
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	0.537	18.15	0.05			17.92
0064 MW-Comp1	2.015	42.56				4.14
0065 MW-Comp2	1.198	33.57	0.11			42.76
0066 MW-Comp3						
0067 MW-Comp4	0.736	37.76	X			9.22
0068 Y038539 pH 2.9				X		
0069 YD11928 pH 2.9				X		
0070 Y001448 pH 2.9				X		
0071 Y016629 pH 2.9				X		
0072 Y010511 pH 2.9				X		
0073 Y043748 pH 2.9				X		
0074 Y036166 pH 2.9				X		
0075 YD02056 pH 2.9				X		
0076 YD11036 pH 2.9				X		
0077 YD00614 pH 2.9				X		
0078 YD12010 pH 2.9				X		
0079 LG-Comp3 pH 2.9				X		
0080 MW-Comp4 pH 2.9				X		

ELEMENTS	Ni	Ni	Ni	Ni	OH	P
UNITS	ppm	mg/l	mg/l	mg/Kg	mgCaCO3/L	ppm
DETECTION LIMIT	0.5	0.01	0.01	1	1	2
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	18Ws5/	AR005/
ANALYTICAL FINISH	MS	OE	OE	OE	VOL	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	48.2	X			X	661
0043 Y037982				X		
0044 Y013172						
0045 Y033417	38.3					591
0046 Y033021	35.4	X		X	X	653
0047 Y021618						
0048 Y008673	42.9	X			X	187
0049 Y018894				X		
0050 YD02056	28.3	X			X	1808
0051 YD09141	71.3					1683
0052 YD01567				16		
0053 YD11036	2.3	X			X	144
0054 YD05863						
0055 Y016092				X		
0056 YD00614	38.6	X			X	327
0057 YD11151	38.1					254
0058 Y032798	54.6	X			X	1272
0059 Y005908	69.7					747
0060 YD12010	37.0	X			X	119
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	47.3	X			X	1689
0064 MW-Comp1	14.4					2482
0065 MW-Comp2	45.2	X			X	1399
0066 MW-Comp3						
0067 MW-Comp4	14.6	X			X	1187
0068 Y038539 pH 2.9			0.10			
0069 YD11928 pH 2.9			0.04			
0070 Y001448 pH 2.9			0.13			
0071 Y016629 pH 2.9			0.04			
0072 Y010511 pH 2.9			0.06			
0073 Y043748 pH 2.9			0.06			
0074 Y036166 pH 2.9			0.08			
0075 YD02056 pH 2.9			0.03			
0076 YD11036 pH 2.9			0.01			
0077 YD00614 pH 2.9			0.09			
0078 YD12010 pH 2.9			0.07			
0079 LG-Comp3 pH 2.9			0.03			
0080 MW-Comp4 pH 2.9			0.03			

ELEMENTS	P	P	P	P	Pb	Pb
UNITS	ppm	mg/l	mg/l	mg/Kg	ppm	ppm
DETECTION LIMIT	50	0.05	0.05	10	0.005	0.5
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	OE	OE	OE	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	642	X			5.482	20.2
0043 Y037982				X		
0044 Y013172						
0045 Y033417	574				7.303	20.3
0046 Y033021	669	0.12		X	3.771	12.2
0047 Y021618						
0048 Y008673	198	X			23.500	56.2
0049 Y018894				X		
0050 YD02056	1763	X			8.027	15.6
0051 YD09141	1637				126.480	168.7
0052 YD01567				X		
0053 YD11036	137	0.19			1.685	1.9
0054 YD05863						
0055 Y016092				X		
0056 YD00614	339	X			5.127	14.4
0057 YD11151	268				3.268	15.5
0058 Y032798	1233	0.10			30.615	33.8
0059 Y005908	771				63.319	78.6
0060 YD12010	132	X			6.868	19.8
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	2003	1.02			9.952	21.5
0064 MW-Comp1	2420				8.631	16.0
0065 MW-Comp2	1368	0.22			8.619	27.4
0066 MW-Comp3						
0067 MW-Comp4	1233	0.81			6.514	12.9
0068 Y038539 pH 2.9			X			
0069 YD11928 pH 2.9			X			
0070 Y001448 pH 2.9			X			
0071 Y016629 pH 2.9			0.41			
0072 Y010511 pH 2.9			X			
0073 Y043748 pH 2.9			0.07			
0074 Y036166 pH 2.9			0.05			
0075 YD02056 pH 2.9			0.28			
0076 YD11036 pH 2.9			0.19			
0077 YD00614 pH 2.9			X			
0078 YD12010 pH 2.9			X			
0079 LG-Comp3 pH 2.9			0.32			
0080 MW-Comp4 pH 2.9			0.80			

ELEMENTS	Pb	Pb	Pb	Pd	pH	pH
UNITS	ug/l	ug/l	mg/Kg	ppb	NONE	NONE
DETECTION LIMIT	0.5	0.5	2	1	0.1	0.1
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	18Ws5/	Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MTR	MTR
SAMPLE NUMBERS						
0041 Y029720						9.1
0042 Y036166	X			X	9.4	9.4
0043 Y037982			X			
0044 Y013172						8.8
0045 Y033417				X		9.1
0046 Y033021	0.9		X	2	8.4	8.4
0047 Y021618						8.6
0048 Y008673	X			X	9.5	9.7
0049 Y018894			X			
0050 YD02056	X			X	7.0	6.7
0051 YD09141				X		9.8
0052 YD01567			10			
0053 YD11036	0.7			X	7.6	7.6
0054 YD05863						9.1
0055 Y016092			X			7.6
0056 YD00614	X			2	7.3	
0057 YD11151				1		
0058 Y032798	X			1	7.7	
0059 Y005908				X		
0060 YD12010	X			2	8.0	
0061 LG-Comp1						7.7
0062 LG-Comp2						9.4
0063 LG-Comp3	X			X	8.8	9.2
0064 MW-Comp1				1		9.0
0065 MW-Comp2	X			2	8.4	8.0
0066 MW-Comp3						9.1
0067 MW-Comp4	X			1	7.9	8.0
0068 Y038539 pH 2.9		5.6				
0069 YD11928 pH 2.9		9.1				
0070 Y001448 pH 2.9		3.5				
0071 Y016629 pH 2.9		7.1				
0072 Y010511 pH 2.9		4.8				
0073 Y043748 pH 2.9		1.2				
0074 Y036166 pH 2.9		3.2				
0075 YD02056 pH 2.9		21.0				
0076 YD11036 pH 2.9		4.0				
0077 YD00614 pH 2.9		5.6				
0078 YD12010 pH 2.9		2.3				
0079 LG-Comp3 pH 2.9		2.2				
0080 MW-Comp4 pH 2.9		6.5				

ELEMENTS	pH Drop	Pt	Rb	Rb	Rb	Rb
UNITS	NONE	ppb	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.1	2	0.005	0.05	0.02	0.02
DIGEST	ANCx/	AR005/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MTR	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720	3.8					
0042 Y036166	3.7	X	136.849	143.21	315.55	
0043 Y037982						
0044 Y013172	3.6					
0045 Y033417	3.7	X	>1000.000	1468.32		
0046 Y033021	3.8	X	409.828	864.77	585.83	
0047 Y021618	3.8					
0048 Y008673	3.6	X	705.432	759.01	1002.53	
0049 Y018894						
0050 YD02056	3.7	X	98.194	272.43	15.11	
0051 YD09141		X	>1000.000	2887.49		
0052 YD01567						
0053 YD11036	3.5	X	1.890	3.63	6.68	
0054 YD05863	3.8					
0055 Y016092	3.8					
0056 YD00614		X	53.996	196.77	14.07	
0057 YD11151		X	302.407	444.85		
0058 Y032798		X	347.350	576.07	55.93	
0059 Y005908		X	552.440	609.42		
0060 YD12010		X	469.031	1009.77	3.23	
0061 LG-Comp1	3.6					
0062 LG-Comp2	3.8					
0063 LG-Comp3	4.1	X	287.842	685.42	684.94	
0064 MW-Comp1	4.1	X	605.051	1768.96		
0065 MW-Comp2		X	>1000.000	2299.75	1007.34	
0066 MW-Comp3	4.1					
0067 MW-Comp4	3.8	X	533.626	1142.01	326.25	
0068 Y038539 pH 2.9						312.40
0069 YD11928 pH 2.9						429.44
0070 Y001448 pH 2.9						2126.96
0071 Y016629 pH 2.9						573.34
0072 Y010511 pH 2.9						186.76
0073 Y043748 pH 2.9						410.54
0074 Y036166 pH 2.9						471.84
0075 YD02056 pH 2.9						406.12
0076 YD11036 pH 2.9						21.39
0077 YD00614 pH 2.9						49.92
0078 YD12010 pH 2.9						20.81
0079 LG-Comp3 pH 2.9						1597.80
0080 MW-Comp4 pH 2.9						1004.85

ELEMENTS	Rb	Rb-Rp1	Re	Re	S	S
UNITS	mg/Kg	ppm	ppm	ppm	%	ppm
DETECTION LIMIT	0.05	0.5	0.0002	0.002	0.01	2
DIGEST	NAGx/	4AH/	AR005/	4A/		AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	/CSA	MS
SAMPLE NUMBERS						
0041 Y029720					0.02	
0042 Y036166			0.0004	X	0.15	1560
0043 Y037982	11.76					
0044 Y013172					0.14	
0045 Y033417			0.0003	X	X	89
0046 Y033021	33.53		X	X	0.07	802
0047 Y021618					0.02	
0048 Y008673			0.0003	X	X	110
0049 Y018894	1.44					
0050 YD02056			X	X	0.36	3673
0051 YD09141		2812.9	0.0002	X	0.67	6842
0052 YD01567	43.13					
0053 YD11036			X	X	X	48
0054 YD05863					X	
0055 Y016092	2.45				X	
0056 YD00614			0.0003	X		4841
0057 YD11151			X	X		44
0058 Y032798			X	X		1113
0059 Y005908			0.0003	X		61
0060 YD12010			0.0002	X		239
0061 LG-Comp1					0.01	
0062 LG-Comp2					X	
0063 LG-Comp3			0.0007	X	0.04	353
0064 MW-Comp1			0.0002	X	X	93
0065 MW-Comp2		2243.7	0.0010	X	X	96
0066 MW-Comp3					X	
0067 MW-Comp4			X	X	X	78
0068 Y038539 pH 2.9						
0069 YD11928 pH 2.9						
0070 Y001448 pH 2.9						
0071 Y016629 pH 2.9						
0072 Y010511 pH 2.9						
0073 Y043748 pH 2.9						
0074 Y036166 pH 2.9						
0075 YD02056 pH 2.9						
0076 YD11036 pH 2.9						
0077 YD00614 pH 2.9						
0078 YD12010 pH 2.9						
0079 LG-Comp3 pH 2.9						
0080 MW-Comp4 pH 2.9						

ELEMENTS	S	S	S	S	Sb	Sb
UNITS	%	mg/l	mg/l	mg/Kg	ppm	ppm
DETECTION LIMIT	0.001	0.1	0.1	10	0.005	0.002
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	OE	OE	OE	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	0.150	10.9			0.141	0.303
0043 Y037982				1308		
0044 Y013172						
0045 Y033417	0.009				0.075	0.265
0046 Y033021	0.078	4.6		786	0.022	0.030
0047 Y021618						
0048 Y008673	0.011	1.3			0.064	0.160
0049 Y018894				873		
0050 YD02056	0.344	4.6			0.036	0.055
0051 YD09141	0.661				0.233	0.281
0052 YD01567				5743		
0053 YD11036	0.005	0.7			0.058	0.122
0054 YD05863						
0055 Y016092				19		
0056 YD00614	0.460	514.5			0.060	0.086
0057 YD11151	0.004				0.025	0.051
0058 Y032798	0.107	206.6			0.076	0.128
0059 Y005908	0.007				0.120	0.352
0060 YD12010	0.022	38.4			0.064	0.094
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	0.039	3.9			0.183	0.532
0064 MW-Comp1	0.008				0.026	0.069
0065 MW-Comp2	0.010	1.5			0.037	0.061
0066 MW-Comp3						
0067 MW-Comp4	0.008	7.2			0.030	0.030
0068 Y038539 pH 2.9			1.0			
0069 YD11928 pH 2.9			0.1			
0070 Y001448 pH 2.9			0.2			
0071 Y016629 pH 2.9			1.1			
0072 Y010511 pH 2.9			0.5			
0073 Y043748 pH 2.9			1.2			
0074 Y036166 pH 2.9			2.1			
0075 YD02056 pH 2.9			2.5			
0076 YD11036 pH 2.9			0.2			
0077 YD00614 pH 2.9			255.5			
0078 YD12010 pH 2.9			9.6			
0079 LG-Comp3 pH 2.9			1.2			
0080 MW-Comp4 pH 2.9			1.8			

ELEMENTS	Sb	Sb	Sb	Sc	Sc	Sc
UNITS	ug/l	ug/l	mg/Kg	ppm	ppm	mg/l
DETECTION LIMIT	0.01	0.01	0.05	0.005	0.05	0.01
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	OE
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	0.55			21.945	49.00	X
0043 Y037982			X			
0044 Y013172						
0045 Y033417				19.592	43.96	
0046 Y033021	0.18		X	5.039	18.75	X
0047 Y021618						
0048 Y008673	0.22			14.656	44.46	X
0049 Y018894			0.06			
0050 YD02056	0.39			3.904	19.80	X
0051 YD09141				37.144	45.54	
0052 YD01567			X			
0053 YD11036	0.30			0.402	0.69	X
0054 YD05863						
0055 Y016092			X			
0056 YD00614	0.20			3.124	13.76	X
0057 YD11151				7.852	18.28	
0058 Y032798	0.11			21.395	27.92	X
0059 Y005908				24.835	39.82	
0060 YD12010	0.10			5.982	20.00	X
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	1.03			9.509	31.02	X
0064 MW-Comp1				2.609	7.43	
0065 MW-Comp2	0.08			16.319	22.27	X
0066 MW-Comp3						
0067 MW-Comp4	0.09			1.337	6.38	X
0068 Y038539 pH 2.9		0.01				
0069 YD11928 pH 2.9		X				
0070 Y001448 pH 2.9		0.06				
0071 Y016629 pH 2.9		0.08				
0072 Y010511 pH 2.9		X				
0073 Y043748 pH 2.9		0.06				
0074 Y036166 pH 2.9		0.07				
0075 YD02056 pH 2.9		0.05				
0076 YD11036 pH 2.9		0.16				
0077 YD00614 pH 2.9		0.22				
0078 YD12010 pH 2.9		0.02				
0079 LG-Comp3 pH 2.9		0.27				
0080 MW-Comp4 pH 2.9		0.02				

ELEMENTS	Sc	Sc	Se	Se	Se	Se
UNITS	mg/l	mg/Kg	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.01	1	0.01	0.05	0.5	0.5
DIGEST	ASLP/	NAGx/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	OE	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166			0.19	0.25	2.2	
0043 Y037982		X				
0044 Y013172						
0045 Y033417			0.07	0.08		
0046 Y033021		X	0.04	0.10	1.8	
0047 Y021618						
0048 Y008673			0.01	X	X	
0049 Y018894		X				
0050 YD02056			0.20	0.24	X	
0051 YD09141			0.81	0.91		
0052 YD01567		X				
0053 YD11036			0.01	X	X	
0054 YD05863						
0055 Y016092		X				
0056 YD00614			1.41	2.02	X	
0057 YD11151			X	X		
0058 Y032798			0.57	0.62	4.3	
0059 Y005908			0.28	0.34		
0060 YD12010			0.26	0.35	1.7	
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3			0.06	0.09	X	
0064 MW-Comp1			X	X		
0065 MW-Comp2			0.05	0.08	1.7	
0066 MW-Comp3						
0067 MW-Comp4			0.06	0.10	1.9	
0068 Y038539 pH 2.9	0.02					X
0069 YD11928 pH 2.9	0.02					X
0070 Y001448 pH 2.9	X					X
0071 Y016629 pH 2.9	X					X
0072 Y010511 pH 2.9	0.02					X
0073 Y043748 pH 2.9	0.02					X
0074 Y036166 pH 2.9	0.02					X
0075 YD02056 pH 2.9	0.01					X
0076 YD11036 pH 2.9	X					X
0077 YD00614 pH 2.9	X					3.0
0078 YD12010 pH 2.9	X					0.7
0079 LG-Comp3 pH 2.9	X					X
0080 MW-Comp4 pH 2.9	X					X

ELEMENTS	Se	Sn	Sn	Sn	Sn	Sn
UNITS	mg/Kg	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	2	0.02	0.1	0.1	0.1	0.1
DIGEST	NAGx/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166		5.82	13.7	X		
0043 Y037982	X					X
0044 Y013172						
0045 Y033417		3.25	7.5			
0046 Y033021	X	8.15	30.3	1.7		X
0047 Y021618						
0048 Y008673		1.47	4.1	X		
0049 Y018894	X					X
0050 YD02056		4.30	25.7	X		
0051 YD09141		10.66	14.9			
0052 YD01567	X					X
0053 YD11036		0.16	0.3	X		
0054 YD05863						
0055 Y016092	X					X
0056 YD00614		0.90	5.0	X		
0057 YD11151		2.77	7.6			
0058 Y032798		4.70	7.6	X		
0059 Y005908		5.12	9.4			
0060 YD12010		5.72	15.6	X		
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3		2.32	8.5	X		
0064 MW-Comp1		9.78	32.8			
0065 MW-Comp2		17.00	22.3	0.1		
0066 MW-Comp3						
0067 MW-Comp4		4.09	21.1	X		
0068 Y038539 pH 2.9					X	
0069 YD11928 pH 2.9					X	
0070 Y001448 pH 2.9					X	
0071 Y016629 pH 2.9					X	
0072 Y010511 pH 2.9					X	
0073 Y043748 pH 2.9					X	
0074 Y036166 pH 2.9					X	
0075 YD02056 pH 2.9					0.2	
0076 YD11036 pH 2.9					0.1	
0077 YD00614 pH 2.9					X	
0078 YD12010 pH 2.9					X	
0079 LG-Comp3 pH 2.9					X	
0080 MW-Comp4 pH 2.9					X	

ELEMENTS	Sr	Sr	Sr	Sr	Sr	Ta
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.01	0.1	0.02	0.02	0.05	0.005
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	15.58	121.5	7.50			0.007
0043 Y037982					0.82	
0044 Y013172						
0045 Y033417	33.65	124.9				X
0046 Y033021	7.77	51.9	2.54		0.43	0.051
0047 Y021618						
0048 Y008673	4.60	103.1	1.79			0.007
0049 Y018894					0.53	
0050 YD02056	5.49	48.8	5.99			0.014
0051 YD09141	5.34	95.8				0.181
0052 YD01567					1.94	
0053 YD11036	2.74	3.6	9.67			X
0054 YD05863						
0055 Y016092					0.55	
0056 YD00614	26.94	72.8	632.61			0.006
0057 YD11151	20.98	111.0				X
0058 Y032798	70.11	90.0	339.76			0.011
0059 Y005908	36.88	95.2				0.009
0060 YD12010	30.00	79.2	105.88			X
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	36.15	90.0	4.39			0.032
0064 MW-Comp1	25.77	47.6				0.031
0065 MW-Comp2	8.28	47.0	0.57			0.055
0066 MW-Comp3						
0067 MW-Comp4	16.26	36.7	3.45			0.008
0068 Y038539 pH 2.9				92.69		
0069 YD11928 pH 2.9				102.98		
0070 Y001448 pH 2.9				193.32		
0071 Y016629 pH 2.9				88.82		
0072 Y010511 pH 2.9				150.04		
0073 Y043748 pH 2.9				78.96		
0074 Y036166 pH 2.9				133.39		
0075 YD02056 pH 2.9				69.25		
0076 YD11036 pH 2.9				28.00		
0077 YD00614 pH 2.9				1011.88		
0078 YD12010 pH 2.9				876.57		
0079 LG-Comp3 pH 2.9				94.81		
0080 MW-Comp4 pH 2.9				185.30		

ELEMENTS	Ta	Ta	Ta	Ta	Te	Te
UNITS	ppm	ug/l	ug/l	mg/Kg	ppm	ppm
DETECTION LIMIT	0.01	0.001	0.001	0.01	0.002	0.005
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	0.45	X			0.077	0.075
0043 Y037982				X		
0044 Y013172						
0045 Y033417	1.17				0.019	0.026
0046 Y033021	11.48	0.270		0.07	0.016	0.021
0047 Y021618						
0048 Y008673	1.79	X			0.004	0.005
0049 Y018894				0.01		
0050 YD02056	1.41	X			0.054	0.067
0051 YD09141	45.33				0.040	0.037
0052 YD01567				X		
0053 YD11036	0.04	0.004			0.004	X
0054 YD05863						
0055 Y016092				X		
0056 YD00614	1.63	X			0.045	0.046
0057 YD11151	1.41				0.020	0.031
0058 Y032798	44.29	0.002			0.034	0.036
0059 Y005908	21.92				0.112	0.150
0060 YD12010	3.70	0.001			0.032	0.038
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	14.14	0.001			0.005	X
0064 MW-Comp1	25.24				0.003	X
0065 MW-Comp2	51.09	0.045			0.058	0.069
0066 MW-Comp3						
0067 MW-Comp4	11.76	X			0.004	0.007
0068 Y038539 pH 2.9			0.010			
0069 YD11928 pH 2.9			0.003			
0070 Y001448 pH 2.9			0.025			
0071 Y016629 pH 2.9			0.629			
0072 Y010511 pH 2.9			0.004			
0073 Y043748 pH 2.9			0.056			
0074 Y036166 pH 2.9			0.006			
0075 YD02056 pH 2.9			0.013			
0076 YD11036 pH 2.9			X			
0077 YD00614 pH 2.9			0.029			
0078 YD12010 pH 2.9			0.006			
0079 LG-Comp3 pH 2.9			0.400			
0080 MW-Comp4 pH 2.9			0.129			

ELEMENTS	Te	Te	Te	Th	Th	Th
UNITS	ug/l	ug/l	mg/Kg	ppm	ppm	ug/l
DETECTION LIMIT	0.1	0.1	0.1	0.001	0.01	0.005
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	X			2.169	2.71	0.005
0043 Y037982			X			
0044 Y013172						
0045 Y033417				1.855	2.51	
0046 Y033021	X		X	18.267	19.97	1.977
0047 Y021618						
0048 Y008673	X			2.547	3.07	0.009
0049 Y018894			X			
0050 YD02056	X			18.869	21.30	0.008
0051 YD09141				1.767	2.07	
0052 YD01567			X			
0053 YD11036	X			0.352	0.54	0.121
0054 YD05863						
0055 Y016092			X			
0056 YD00614	X			10.366	15.29	0.006
0057 YD11151				16.118	21.35	
0058 Y032798	X			2.891	3.72	0.006
0059 Y005908				2.069	2.83	
0060 YD12010	X			18.256	20.34	X
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	X			1.633	1.85	X
0064 MW-Comp1				7.151	7.90	
0065 MW-Comp2	X			7.919	12.03	0.065
0066 MW-Comp3						
0067 MW-Comp4	X			7.121	6.72	X
0068 Y038539 pH 2.9		X				
0069 YD11928 pH 2.9		X				
0070 Y001448 pH 2.9		X				
0071 Y016629 pH 2.9		X				
0072 Y010511 pH 2.9		X				
0073 Y043748 pH 2.9		X				
0074 Y036166 pH 2.9		0.2				
0075 YD02056 pH 2.9		0.1				
0076 YD11036 pH 2.9		X				
0077 YD00614 pH 2.9		X				
0078 YD12010 pH 2.9		X				
0079 LG-Comp3 pH 2.9		X				
0080 MW-Comp4 pH 2.9		X				

ELEMENTS	Th	Th	Ti	Ti	Ti	Ti
UNITS	ug/l	mg/Kg	ppm	ppm	mg/l	mg/l
DETECTION LIMIT	0.005	0.01	1	1	0.01	0.01
DIGEST	ASLP/	NAGx/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MS	MS	MS	MS	OE	OE
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166			2799	7468	X	
0043 Y037982		X				
0044 Y013172						
0045 Y033417			3338	7524		
0046 Y033021		X	884	4262	0.06	
0047 Y021618						
0048 Y008673			1564	4000	X	
0049 Y018894		X				
0050 YD02056			459	4175	X	
0051 YD09141			2410	6593		
0052 YD01567		X				
0053 YD11036			42	156	X	
0054 YD05863						
0055 Y016092		X				
0056 YD00614			344	3583	X	
0057 YD11151			1114	4795		
0058 Y032798			1058	4668	X	
0059 Y005908			1903	6801		
0060 YD12010			912	4653	X	
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3			1172	4876	X	
0064 MW-Comp1			273	1538		
0065 MW-Comp2			1779	4827	0.02	
0066 MW-Comp3						
0067 MW-Comp4			205	1704	X	
0068 Y038539 pH 2.9	76.985					X
0069 YD11928 pH 2.9	92.507					0.01
0070 Y001448 pH 2.9	24.400					0.01
0071 Y016629 pH 2.9	0.948					X
0072 Y010511 pH 2.9	97.374					X
0073 Y043748 pH 2.9	2.543					0.02
0074 Y036166 pH 2.9	2.723					0.03
0075 YD02056 pH 2.9	39.140					X
0076 YD11036 pH 2.9	0.524					0.01
0077 YD00614 pH 2.9	2.790					X
0078 YD12010 pH 2.9	2.472					X
0079 LG-Comp3 pH 2.9	1.212					0.01
0080 MW-Comp4 pH 2.9	0.038					X

ELEMENTS	Ti	Tl	Tl	Tl	Tl	Tl
UNITS	mg/Kg	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	1	0.005	0.01	0.01	0.01	0.02
DIGEST	NAGx/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	OE	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166		0.982	1.04	0.16		
0043 Y037982	X					X
0044 Y013172						
0045 Y033417		7.942	8.15			
0046 Y033021	X	2.300	4.00	0.52		0.03
0047 Y021618						
0048 Y008673		5.108	5.37	0.54		
0049 Y018894	7					X
0050 YD02056		0.639	1.30	0.03		
0051 YD09141		19.398	20.07			
0052 YD01567	X					0.17
0053 YD11036		0.013	0.04	X		
0054 YD05863						
0055 Y016092	X					X
0056 YD00614		0.325	0.78	0.03		
0057 YD11151		2.405	3.04			
0058 Y032798		2.229	3.64	0.18		
0059 Y005908		4.192	4.51			
0060 YD12010		3.198	5.10	X		
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3		1.276	2.40	0.28		
0064 MW-Comp1		2.357	6.76			
0065 MW-Comp2		11.843	12.74	0.62		
0066 MW-Comp3						
0067 MW-Comp4		2.680	6.79	0.23		
0068 Y038539 pH 2.9					0.67	
0069 YD11928 pH 2.9					1.15	
0070 Y001448 pH 2.9					4.61	
0071 Y016629 pH 2.9					1.57	
0072 Y010511 pH 2.9					0.40	
0073 Y043748 pH 2.9					1.17	
0074 Y036166 pH 2.9					1.77	
0075 YD02056 pH 2.9					1.28	
0076 YD11036 pH 2.9					0.12	
0077 YD00614 pH 2.9					0.16	
0078 YD12010 pH 2.9					0.09	
0079 LG-Comp3 pH 2.9					4.53	
0080 MW-Comp4 pH 2.9					2.85	

ELEMENTS	TotAlk	U	U	U	U	U
UNITS	mgCaCO3/L	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	5	0.001	0.005	0.005	0.005	0.01
DIGEST		AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	/CALC	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	87	0.315	0.549	0.010		
0043 Y037982						X
0044 Y013172						
0045 Y033417		0.565	0.906			
0046 Y033021	60	2.515	3.261	0.390		0.12
0047 Y021618						
0048 Y008673	96	0.954	1.163	0.010		
0049 Y018894						0.03
0050 YD02056	10	1.942	3.074	0.063		
0051 YD09141		0.758	1.425			
0052 YD01567						0.49
0053 YD11036	25	0.173	0.248	0.294		
0054 YD05863						
0055 Y016092						0.03
0056 YD00614	40	2.150	3.333	3.959		
0057 YD11151		2.680	4.045			
0058 Y032798	122	8.449	11.173	59.728		
0059 Y005908		3.478	4.515			
0060 YD12010	72	2.475	3.388	1.319		
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	71	2.855	3.201	1.066		
0064 MW-Comp1		4.260	4.828			
0065 MW-Comp2	73	2.340	4.661	0.064		
0066 MW-Comp3						
0067 MW-Comp4	43	3.989	3.960	0.326		
0068 Y038539 pH 2.9					18.703	
0069 YD11928 pH 2.9					17.347	
0070 Y001448 pH 2.9					13.247	
0071 Y016629 pH 2.9					31.962	
0072 Y010511 pH 2.9					26.253	
0073 Y043748 pH 2.9					4.167	
0074 Y036166 pH 2.9					3.466	
0075 YD02056 pH 2.9					17.671	
0076 YD11036 pH 2.9					2.080	
0077 YD00614 pH 2.9					18.078	
0078 YD12010 pH 2.9					23.216	
0079 LG-Comp3 pH 2.9					51.742	
0080 MW-Comp4 pH 2.9					28.510	

ELEMENTS	V	V	V	V	V	W
UNITS	ppm	ppm	mg/l	mg/l	mg/Kg	ppm
DETECTION LIMIT	0.02	0.05	0.01	0.01	1	0.01
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	OE	OE	OE	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	125.28	245.98	0.03			2.40
0043 Y037982					8	
0044 Y013172						
0045 Y033417	155.85	245.37				0.54
0046 Y033021	30.61	79.91	X		3	2.03
0047 Y021618						
0048 Y008673	114.93	237.70	0.02			2.75
0049 Y018894					4	
0050 YD02056	13.00	72.96	X			1.05
0051 YD09141	160.49	178.32				0.49
0052 YD01567					2	
0053 YD11036	2.62	4.42	X			0.08
0054 YD05863						
0055 Y016092					2	
0056 YD00614	30.56	72.25	X			43.93
0057 YD11151	45.91	87.25				0.38
0058 Y032798	122.15	145.54	X			1.02
0059 Y005908	129.33	218.28				1.42
0060 YD12010	53.02	103.97	X			4.34
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	54.19	157.47	0.02			3.75
0064 MW-Comp1	11.13	29.71				6.61
0065 MW-Comp2	101.72	124.53	0.01			1.19
0066 MW-Comp3						
0067 MW-Comp4	8.34	32.44	X			2.10
0068 Y038539 pH 2.9				X		
0069 YD11928 pH 2.9				X		
0070 Y001448 pH 2.9				X		
0071 Y016629 pH 2.9				X		
0072 Y010511 pH 2.9				X		
0073 Y043748 pH 2.9				X		
0074 Y036166 pH 2.9				X		
0075 YD02056 pH 2.9				X		
0076 YD11036 pH 2.9				X		
0077 YD00614 pH 2.9				X		
0078 YD12010 pH 2.9				X		
0079 LG-Comp3 pH 2.9				X		
0080 MW-Comp4 pH 2.9				X		

ELEMENTS	W	W	W	W	Y	Y
UNITS	ppm	ug/l	ug/l	mg/Kg	ppm	ppm
DETECTION LIMIT	0.05	0.02	0.02	0.1	0.001	0.01
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	4.91	38.59			13.492	28.02
0043 Y037982				3.0		
0044 Y013172						
0045 Y033417	1.38				10.319	24.84
0046 Y033021	11.57	14.62		1.1	8.470	13.55
0047 Y021618						
0048 Y008673	5.89	44.57			4.518	11.36
0049 Y018894				3.5		
0050 YD02056	7.64	1.79			13.164	17.75
0051 YD09141	2.11				12.182	15.50
0052 YD01567				X		
0053 YD11036	0.19	0.61			0.659	0.94
0054 YD05863						
0055 Y016092				0.8		
0056 YD00614	66.33	2901.73			6.702	12.53
0057 YD11151	4.69				7.529	14.97
0058 Y032798	7.39	13.40			13.064	18.04
0059 Y005908	8.36				9.202	21.06
0060 YD12010	13.94	157.69			12.141	18.16
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	8.98	28.08			5.572	16.91
0064 MW-Comp1	13.12				5.042	6.86
0065 MW-Comp2	5.62	7.73			8.390	10.98
0066 MW-Comp3						
0067 MW-Comp4	10.17	11.34			3.336	3.53
0068 Y038539 pH 2.9			X			
0069 YD11928 pH 2.9			X			
0070 Y001448 pH 2.9			X			
0071 Y016629 pH 2.9			0.06			
0072 Y010511 pH 2.9			0.14			
0073 Y043748 pH 2.9			2.24			
0074 Y036166 pH 2.9			0.07			
0075 YD02056 pH 2.9			0.07			
0076 YD11036 pH 2.9			0.03			
0077 YD00614 pH 2.9			6.85			
0078 YD12010 pH 2.9			0.13			
0079 LG-Comp3 pH 2.9			0.14			
0080 MW-Comp4 pH 2.9			0.06			

ELEMENTS	Y	Y	Y	Zn	Zn	Zn
UNITS	ug/l	ug/l	mg/Kg	ppm	ppm	mg/l
DETECTION LIMIT	0.005	0.005	0.05	0.2	1	0.01
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	OE
SAMPLE NUMBERS						
0041 Y029720						
0042 Y036166	X			73.0	126	X
0043 Y037982			X			
0044 Y013172						
0045 Y033417				119.0	161	
0046 Y033021	0.847		X	34.7	58	X
0047 Y021618						
0048 Y008673	X			131.5	187	X
0049 Y018894			X			
0050 YD02056	0.009			38.4	72	X
0051 YD09141				456.3	483	
0052 YD01567			1.13			
0053 YD11036	0.188			2.6	3	X
0054 YD05863						
0055 Y016092			X			
0056 YD00614	0.027			83.3	96	X
0057 YD11151				78.7	87	
0058 Y032798	0.018			133.5	156	X
0059 Y005908				47.5	85	
0060 YD12010	0.032			51.7	63	X
0061 LG-Comp1						
0062 LG-Comp2						
0063 LG-Comp3	X			36.2	107	X
0064 MW-Comp1				18.2	66	
0065 MW-Comp2	0.080			92.2	108	X
0066 MW-Comp3						
0067 MW-Comp4	X			25.9	51	X
0068 Y038539 pH 2.9		124.903				
0069 YD11928 pH 2.9		156.970				
0070 Y001448 pH 2.9		23.996				
0071 Y016629 pH 2.9		9.129				
0072 Y010511 pH 2.9		40.928				
0073 Y043748 pH 2.9		15.627				
0074 Y036166 pH 2.9		24.180				
0075 YD02056 pH 2.9		114.944				
0076 YD11036 pH 2.9		5.290				
0077 YD00614 pH 2.9		38.025				
0078 YD12010 pH 2.9		12.975				
0079 LG-Comp3 pH 2.9		8.823				
0080 MW-Comp4 pH 2.9		5.613				

ELEMENTS	Zn	Zr	Zr
UNITS	mg/Kg	ppm	ppm
DETECTION LIMIT	1	0.01	0.05
DIGEST	NAGx/	AR005/	4A/
ANALYTICAL FINISH	OE	MS	MS
SAMPLE NUMBERS			
0041 Y029720			
0042 Y036166		5.67	27.84
0043 Y037982	X		
0044 Y013172			
0045 Y033417		5.53	28.59
0046 Y033021	X	22.88	83.71
0047 Y021618			
0048 Y008673		4.61	26.17
0049 Y018894	X		
0050 YD02056		12.38	119.12
0051 YD09141		2.94	19.74
0052 YD01567	98		
0053 YD11036		0.92	3.55
0054 YD05863			
0055 Y016092	X		
0056 YD00614		21.77	89.98
0057 YD11151		21.72	133.67
0058 Y032798		6.51	36.58
0059 Y005908		5.36	25.24
0060 YD12010		30.05	117.34
0061 LG-Comp1			
0062 LG-Comp2			
0063 LG-Comp3		3.14	24.73
0064 MW-Comp1		15.10	47.45
0065 MW-Comp2		26.36	88.45
0066 MW-Comp3			
0067 MW-Comp4		11.69	40.24
0068 Y038539 pH 2.9			
0069 YD11928 pH 2.9			
0070 Y001448 pH 2.9			
0071 Y016629 pH 2.9			
0072 Y010511 pH 2.9			
0073 Y043748 pH 2.9			
0074 Y036166 pH 2.9			
0075 YD02056 pH 2.9			
0076 YD11036 pH 2.9			
0077 YD00614 pH 2.9			
0078 YD12010 pH 2.9			
0079 LG-Comp3 pH 2.9			
0080 MW-Comp4 pH 2.9			

ELEMENTS	Au	Ag	Ag	Ag	Ag	Ag
UNITS	ppb	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	0.1	0.01	0.05	0.01	0.01	0.1
DIGEST	AR005/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300						X
0002 Y036166						
0003 Y008673	X	0.04	X			
0004 Y043821				X		
0005 MW-Comp4 pH 2.9					X	
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3						0.4
0007 NAG Std 3						0.4
0008 NAG Std 3						0.4
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423			3.40			
0017 OREAS 921			0.16			
0018 OREAS 920	0.6	0.10				
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank						X
0002 Control Blank						X
0003 Control Blank						X
0004 Control Blank	X	X	X			
0005 Control Blank	X	X	X			
0006 Control Blank				X		
0007 Control Blank					X	

ELEMENTS	Al	Al	Al	Al	Al	ANC
UNITS	%	ppm	mg/l	mg/l	mg/Kg	kgH2SO4/t
DETECTION LIMIT	0.0001	10	0.01	0.01	1	1
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	ANCx/
ANALYTICAL FINISH	MS	MS	OE	OE	OE	VOL
CHECKS						
0001 Y035300					3	11
0002 Y036166						27
0003 Y008673	3.2081	8.10%				
0004 Y043821			0.97			
0005 MW-Comp4 pH 2.9				27.45		
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						100
0004 ANC-6						97
0005 ANC-6						97
0006 NAG Std 3					119	
0007 NAG Std 3					123	
0008 NAG Std 3					123	
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423		2429				
0017 OREAS 921		7.67%				
0018 OREAS 920	2.2556					
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank					X	0
0002 Control Blank					X	1
0003 Control Blank					X	0
0004 Control Blank	X	X				
0005 Control Blank	0.0003	23				
0006 Control Blank			X			
0007 Control Blank				X		

ELEMENTS	As	As	As	As	As	B
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.03	0.2	0.1	0.1	1	0.5
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300					X	
0002 Y036166						
0003 Y008673	1.28	1.9				1.3
0004 Y043821			0.1			
0005 MW-Comp4 pH 2.9				0.7		
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3					X	
0007 NAG Std 3					X	
0008 NAG Std 3					X	
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423		575.7				
0017 OREAS 921		5.0				
0018 OREAS 920	4.48					2.3
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank					X	
0002 Control Blank					X	
0003 Control Blank					X	
0004 Control Blank	X	X				X
0005 Control Blank	X	X				X
0006 Control Blank			X			
0007 Control Blank				X		

ELEMENTS	B	B	B	Ba	Ba	Ba
UNITS	mg/l	mg/l	mg/Kg	ppm	ppm	ug/l
DETECTION LIMIT	0.01	0.01	1	0.05	0.1	0.05
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	OE	OE	OE	MS	MS	MS
CHECKS						
0001 Y035300			1			
0002 Y036166						
0003 Y008673				65.41	102.9	
0004 Y043821	0.01					1.72
0005 MW-Comp4 pH 2.9		0.08				
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3			3			
0007 NAG Std 3			3			
0008 NAG Std 3			3			
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423					499.0	
0017 OREAS 921					540.9	
0018 OREAS 920				86.23		
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank			3			
0002 Control Blank			7			
0003 Control Blank			6			
0004 Control Blank				X	X	
0005 Control Blank				X	0.3	
0006 Control Blank	X					X
0007 Control Blank		X				

ELEMENTS	Ba	Ba	Be	Be	Be	Be
UNITS	ug/l	mg/Kg	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.05	0.1	0.005	0.05	0.1	0.1
DIGEST	ASLP/	NAGx/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300		X				
0002 Y036166						
0003 Y008673			2.475	12.90		
0004 Y043821					X	
0005 MW-Comp4 pH 2.9	136.13					14.9
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3		1.4				
0007 NAG Std 3		1.5				
0008 NAG Std 3		1.4				
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423				0.29		
0017 OREAS 921				2.72		
0018 OREAS 920			0.731			
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank		X				
0002 Control Blank		X				
0003 Control Blank		X				
0004 Control Blank			X	X		
0005 Control Blank			X	X		
0006 Control Blank					X	
0007 Control Blank	X					X

ELEMENTS	Be	Bi	Bi	Bi	Bi	Bi
UNITS	mg/Kg	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	0.1	0.005	0.01	0.005	0.005	0.01
DIGEST	NAGx/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300	X					X
0002 Y036166						
0003 Y008673		0.918	1.04			
0004 Y043821				0.013		
0005 MW-Comp4 pH 2.9					0.307	
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3	0.3					X
0007 NAG Std 3	0.3					X
0008 NAG Std 3	0.2					X
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423			6.75			
0017 OREAS 921			1.46			
0018 OREAS 920		0.663				
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank	X					X
0002 Control Blank	X					X
0003 Control Blank	X					X
0004 Control Blank		X	X			
0005 Control Blank		X	X			
0006 Control Blank				X		
0007 Control Blank					X	

ELEMENTS	C	CO3	Ca	Ca	Ca	Ca
UNITS	%	mgCaCO3/L	%	ppm	mg/l	mg/l
DETECTION LIMIT	0.01	1	0.0001	20	0.01	0.01
DIGEST		18Ws5/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	/CSA	VOL	MS	MS	OE	OE
CHECKS						
0001 Y035300	X					
0002 Y036166	0.04					
0003 Y008673			1.0203	4.24%		
0004 Y043821		1			0.34	
0005 MW-Comp4 pH 2.9						27.02
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3						
0007 NAG Std 3						
0008 NAG Std 3						
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278	1.39					
0014 OREAS 45d	1.00					
0015 OREAS 45h	0.46					
0016 AMIS0423				22.34%		
0017 OREAS 921				5023		
0018 OREAS 920			0.3215			
0019 GWS-6		X				
0020 GWS-6						
BLANKS						
0001 Control Blank	X					
0002 Control Blank	X					
0003 Control Blank	X					
0004 Control Blank			X	X		
0005 Control Blank			0.0002	X		
0006 Control Blank		X			X	
0007 Control Blank						X

ELEMENTS	Ca	Cd	Cd	Cd	Cd	Cd
UNITS	mg/Kg	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	1	0.002	0.01	0.02	0.02	0.1
DIGEST	NAGx/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	OE	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300	35					X
0002 Y036166						
0003 Y008673		0.058	0.17			
0004 Y043821				X		
0005 MW-Comp4 pH 2.9					1.19	
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3	5011					1.4
0007 NAG Std 3	5198					1.4
0008 NAG Std 3	5163					1.4
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423			0.59			
0017 OREAS 921			0.08			
0018 OREAS 920		0.061				
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank	X					X
0002 Control Blank	X					X
0003 Control Blank	X					X
0004 Control Blank		X	X			
0005 Control Blank		X	X			
0006 Control Blank				X		
0007 Control Blank					X	

ELEMENTS	Ce	Ce	Ce	Ce	Ce	Cl
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	mg/l
DETECTION LIMIT	0.002	0.01	0.002	0.002	0.01	2
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	18Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	COL
CHECKS						
0001 Y035300					X	
0002 Y036166						
0003 Y008673	13.598	14.84				
0004 Y043821			1.666			38
0005 MW-Comp4 pH 2.9				12.506		
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3					0.50	
0007 NAG Std 3					0.50	
0008 NAG Std 3					0.48	
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423		558.64				
0017 OREAS 921		96.93				
0018 OREAS 920	73.385					
0019 GWS-6						39
0020 GWS-6						
BLANKS						
0001 Control Blank					X	
0002 Control Blank					X	
0003 Control Blank					X	
0004 Control Blank	X	0.01				
0005 Control Blank	0.010	0.03				
0006 Control Blank			X			X
0007 Control Blank				0.002		

ELEMENTS	Co	Co	Co	Co	Co	ColourChange
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	NONE
DETECTION LIMIT	0.01	0.1	0.1	0.1	0.1	0
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	ANCx/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	QUAL
CHECKS						
0001 Y035300					0.0	Yes
0002 Y036166						Yes
0003 Y008673	29.75	44.1				
0004 Y043821			X			
0005 MW-Comp4 pH 2.9				16.2		
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						Yes
0006 NAG Std 3					3.7	
0007 NAG Std 3					3.7	
0008 NAG Std 3					3.6	
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423		81.0				
0017 OREAS 921		16.1				
0018 OREAS 920	13.60					
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank					0.0	
0002 Control Blank					0.0	Yes
0003 Control Blank					0.0	Yes
0004 Control Blank	X	X				
0005 Control Blank	X	X				
0006 Control Blank			X			
0007 Control Blank				X		

ELEMENTS	Cr	Cr	Cr	Cr	Cr	Cs
UNITS	ppm	ppm	mg/l	mg/l	mg/Kg	ppm
DETECTION LIMIT	0.1	0.2	0.01	0.01	1	0.01
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	OE	OE	OE	MS
CHECKS						
0001 Y035300					4	
0002 Y036166						
0003 Y008673	153.0	204.9				993.03
0004 Y043821			X			
0005 MW-Comp4 pH 2.9				0.03		
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3					X	
0007 NAG Std 3					X	
0008 NAG Std 3					X	
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423		68.6				
0017 OREAS 921		92.8				
0018 OREAS 920	43.7					2.67
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank					X	
0002 Control Blank					X	
0003 Control Blank					X	
0004 Control Blank	X	X				X
0005 Control Blank	X	3.3				0.28
0006 Control Blank			X			
0007 Control Blank				X		

ELEMENTS	Cs	Cs	Cs	Cs	Cs-Rp1	Cu
UNITS	ppm	ug/l	ug/l	mg/Kg	ppm	ppm
DETECTION LIMIT	0.05	0.001	0.001	0.005	0.05	0.05
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	4AH/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300				X		
0002 Y036166						
0003 Y008673	1023.79					4.08
0004 Y043821		0.002				
0005 MW-Comp4 pH 2.9			0.048			
STANDARDS						
0001 OREAS 935						
0002 AMIS0297					0.50	
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3				X		
0007 NAG Std 3				X		
0008 NAG Std 3				X		
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423	0.49					
0017 OREAS 921	8.98					
0018 OREAS 920						110.28
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank				X		
0002 Control Blank				X		
0003 Control Blank				X		
0004 Control Blank	X					0.06
0005 Control Blank	0.56					X
0006 Control Blank		X				
0007 Control Blank			X			

ELEMENTS	Cu	Cu	Cu	Cu	EC	EC
UNITS	ppm	mg/l	mg/l	mg/Kg	uS/cm	uS/cm
DETECTION LIMIT	0.5	0.01	0.01	1	10	10
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	18Ws5/	Ws5/
ANALYTICAL FINISH	MS	OE	OE	OE	MTR	MTR
CHECKS						
0001 Y035300				X		244
0002 Y036166						304
0003 Y008673	4.2					
0004 Y043821		X			222	
0005 MW-Comp4 pH 2.9			0.09			
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3				4		
0007 NAG Std 3				5		
0008 NAG Std 3				5		
0009 GWS-6						319
0010 GWS-6						319
0011 GWS-6						316
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423	7837.3					
0017 OREAS 921	291.1					
0018 OREAS 920						
0019 GWS-6					323	
0020 GWS-6						
BLANKS						
0001 Control Blank				X		X
0002 Control Blank				X		X
0003 Control Blank				X		X
0004 Control Blank	X					
0005 Control Blank	X					
0006 Control Blank		X			X	
0007 Control Blank			X			

ELEMENTS	F	Fe	Fe	Fe	Fe	Fe
UNITS	mg/l	%	%	mg/l	mg/l	mg/Kg
DETECTION LIMIT	0.1	0.0002	0.001	0.01	0.01	1
DIGEST	18Ws5/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	SIE	MS	MS	OE	OE	OE
CHECKS						
0001 Y035300						X
0002 Y036166						
0003 Y008673		4.7337	7.559			
0004 Y043821	0.4			0.20		
0005 MW-Comp4 pH 2.9					30.94	
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3						2125
0007 NAG Std 3						2204
0008 NAG Std 3						2188
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423			16.405			
0017 OREAS 921			4.363			
0018 OREAS 920		3.5664				
0019 GWS-6	0.6					
0020 GWS-6						
BLANKS						
0001 Control Blank						X
0002 Control Blank						X
0003 Control Blank						X
0004 Control Blank		X	X			
0005 Control Blank		0.0004	0.002			
0006 Control Blank	X			X		
0007 Control Blank					X	

ELEMENTS	Final-pH	Final-pH	Fizz-Rate	Ga	Ga	Ga
UNITS	NONE	NONE	NONE	ppm	ppm	ug/l
DETECTION LIMIT	0.1	0.1	1	0.005	0.01	0.02
DIGEST	ANCx/	ASLP/	ANCx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MTR	MTR	QUAL	MS	MS	MS
CHECKS						
0001 Y035300	1.9		X			
0002 Y036166	2.2		X			
0003 Y008673				9.869	19.20	
0004 Y043821						3.93
0005 MW-Comp4 pH 2.9		3.6				
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6	1.8					
0004 ANC-6	1.7					
0005 ANC-6	1.8					
0006 NAG Std 3						
0007 NAG Std 3						
0008 NAG Std 3						
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423					6.90	
0017 OREAS 921					21.19	
0018 OREAS 920				6.595		
0019 GWS-6						
0020 GWS-6		9.4				
BLANKS						
0001 Control Blank	1.5					
0002 Control Blank	2.3					
0003 Control Blank	2.3					
0004 Control Blank				X	X	
0005 Control Blank				X	0.02	
0006 Control Blank						X
0007 Control Blank		2.9				

ELEMENTS	Ga	Ga	Ge	Ge	Ge	Ge
UNITS	ug/l	mg/Kg	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.02	0.1	0.01	0.1	0.1	0.1
DIGEST	ASLP/	NAGx/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300		X				
0002 Y036166						
0003 Y008673			0.18	3.4		
0004 Y043821					X	
0005 MW-Comp4 pH 2.9	0.18					1.0
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3		X				
0007 NAG Std 3		X				
0008 NAG Std 3		X				
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423				0.7		
0017 OREAS 921				1.9		
0018 OREAS 920			0.02			
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank		X				
0002 Control Blank		X				
0003 Control Blank		X				
0004 Control Blank			X	X		
0005 Control Blank			X	X		
0006 Control Blank					X	
0007 Control Blank	X					X

ELEMENTS	Ge	HCO3	Hf	Hf	Hf	Hf
UNITS	mg/Kg	mgCaCO3/L	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.1	2	0.002	0.01	0.005	0.005
DIGEST	NAGx/	18Ws5/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MS	VOL	MS	MS	MS	MS
CHECKS						
0001 Y035300	X					
0002 Y036166						
0003 Y008673			0.140	0.78		
0004 Y043821		49			0.035	
0005 MW-Comp4 pH 2.9						0.013
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3	X					
0007 NAG Std 3	X					
0008 NAG Std 3	X					
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423				15.95		
0017 OREAS 921				4.44		
0018 OREAS 920			0.548			
0019 GWS-6		100				
0020 GWS-6						
BLANKS						
0001 Control Blank	X					
0002 Control Blank	X					
0003 Control Blank	X					
0004 Control Blank			X	X		
0005 Control Blank			X	X		
0006 Control Blank		2			X	
0007 Control Blank						X

ELEMENTS	Hf	Hg	Hg	Hg	Hg	In
UNITS	mg/Kg	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.01	0.002	0.1	0.1	0.01	0.002
DIGEST	NAGx/	AR005/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300	X				X	
0002 Y036166						
0003 Y008673		X				0.032
0004 Y043821			X			
0005 MW-Comp4 pH 2.9				X		
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3	X				X	
0007 NAG Std 3	X				X	
0008 NAG Std 3	X				X	
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423						
0017 OREAS 921						
0018 OREAS 920		0.003				0.031
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank	X				X	
0002 Control Blank	X				X	
0003 Control Blank	X				X	
0004 Control Blank		X				X
0005 Control Blank		X				X
0006 Control Blank			X			
0007 Control Blank				X		

ELEMENTS	In	K	K	K	K	K
UNITS	ppm	%	ppm	mg/l	mg/l	mg/Kg
DETECTION LIMIT	0.01	0.0005	10	0.1	0.1	10
DIGEST	4A/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	MS	MS	MS	OE	OE	OE
CHECKS						
0001 Y035300						788
0002 Y036166						
0003 Y008673	0.09	0.9961	1.21%			
0004 Y043821				24.9		
0005 MW-Comp4 pH 2.9					32.4	
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3						1568
0007 NAG Std 3						1621
0008 NAG Std 3						1598
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423	0.30		1890			
0017 OREAS 921	0.10		2.89%			
0018 OREAS 920		0.4396				
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank						X
0002 Control Blank						X
0003 Control Blank						X
0004 Control Blank	X	X	X			
0005 Control Blank	X	0.0012	23			
0006 Control Blank				X		
0007 Control Blank					X	

ELEMENTS	La	La	La	La	La	Li
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.002	0.01	0.002	0.002	0.01	0.02
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300					X	
0002 Y036166						
0003 Y008673	6.640	6.90				508.28
0004 Y043821			0.882			
0005 MW-Comp4 pH 2.9				6.131		
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3					0.32	
0007 NAG Std 3					0.32	
0008 NAG Std 3					0.31	
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423		235.72				
0017 OREAS 921		47.82				
0018 OREAS 920	37.863					19.47
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank					X	
0002 Control Blank					X	
0003 Control Blank					X	
0004 Control Blank	X	X				X
0005 Control Blank	0.006	0.01				0.75
0006 Control Blank			X			
0007 Control Blank				X		

ELEMENTS	Li	Li	Li	Li	Li	Mg
UNITS	ppm	ug/l	ug/l	mg/l	mg/Kg	%
DETECTION LIMIT	0.1	0.05	0.05	0.1	0.1	0.0005
DIGEST	4A/	18Ws5/	ASLP/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	OE	MS	MS
CHECKS						
0001 Y035300					0.7	
0002 Y036166						
0003 Y008673	673.0					3.3187
0004 Y043821		27.20				
0005 MW-Comp4 pH 2.9			2101.21	1.6		
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3					0.6	
0007 NAG Std 3					0.5	
0008 NAG Std 3					0.6	
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423	2.7					
0017 OREAS 921	28.6					
0018 OREAS 920						1.0520
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank					X	
0002 Control Blank					X	
0003 Control Blank					X	
0004 Control Blank	X					X
0005 Control Blank	0.8					X
0006 Control Blank		X				
0007 Control Blank			X	X		

ELEMENTS	Mg	Mg	Mg	Mg	Mn	Mn
UNITS	ppm	mg/l	mg/l	mg/Kg	ppm	ppm
DETECTION LIMIT	10	0.01	0.01	10	0.2	0.5
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	OE	OE	OE	MS	MS
CHECKS						
0001 Y035300				272		
0002 Y036166						
0003 Y008673	4.92%				885.9	1828.5
0004 Y043821		0.59				
0005 MW-Comp4 pH 2.9			8.54			
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3				2631		
0007 NAG Std 3				2731		
0008 NAG Std 3				2720		
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423	4.74%					1151.5
0017 OREAS 921	1.38%					653.4
0018 OREAS 920					487.1	
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank				X		
0002 Control Blank				X		
0003 Control Blank				X		
0004 Control Blank	X				X	X
0005 Control Blank	11				X	0.5
0006 Control Blank		X				
0007 Control Blank			X			

ELEMENTS	Mn	Mn	Mn	Mo	Mo	Mo
UNITS	mg/l	mg/l	mg/Kg	ppm	ppm	ug/l
DETECTION LIMIT	0.001	0.001	1	0.01	0.05	0.05
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	OE	OE	OE	MS	MS	MS
CHECKS						
0001 Y035300			X			
0002 Y036166						
0003 Y008673				1.00	1.05	
0004 Y043821	0.002					2.78
0005 MW-Comp4 pH 2.9		12.487				
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3			648			
0007 NAG Std 3			671			
0008 NAG Std 3			672			
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423					0.54	
0017 OREAS 921					0.57	
0018 OREAS 920				0.40		
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank			X			
0002 Control Blank			X			
0003 Control Blank			X			
0004 Control Blank				X	X	
0005 Control Blank				X	X	
0006 Control Blank	X					X
0007 Control Blank		X				

ELEMENTS	Mo	Mo	MPA	Na	Na	Na
UNITS	ug/l	mg/Kg	kgH2SO4/t	%	ppm	mg/l
DETECTION LIMIT	0.05	0.1	1	0.0005	10	0.1
DIGEST	ASLP/	NAGx/		AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MS	MS	/CALC	MS	MS	OE
CHECKS						
0001 Y035300		0.2	2			
0002 Y036166			5			
0003 Y008673				0.1720	2.11%	
0004 Y043821						28.2
0005 MW-Comp4 pH 2.9	0.40					
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3		X				
0007 NAG Std 3		X				
0008 NAG Std 3		X				
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278			29			
0014 OREAS 45d			1			
0015 OREAS 45h			X			
0016 AMIS0423					254	
0017 OREAS 921					6088	
0018 OREAS 920				0.0210		
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank		X	X			
0002 Control Blank		X	X			
0003 Control Blank		X	X			
0004 Control Blank				X	X	
0005 Control Blank				X	X	
0006 Control Blank						X
0007 Control Blank	X					

ELEMENTS	Na	Na	NAG	NAGpH	NAG(4.5)	NAPP
UNITS	mg/l	mg/Kg	kgH2SO4/t	NONE	kgH2SO4/t	kgH2SO4/t
DETECTION LIMIT	0.1	10	1	0.1	1	1
DIGEST	ASLP/	NAGx/	NAGx/	NAGx/	NAGx/	
ANALYTICAL FINISH	OE	OE	VOL	MTR	VOL	/CALC
CHECKS						
0001 Y035300		394	0	7.2	0	-9
0002 Y036166			0	7.7	0	-22
0003 Y008673						
0004 Y043821						
0005 MW-Comp4 pH 2.9	33.0					
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3		52	23	2.7	19	
0007 NAG Std 3		49	24	2.6	19	
0008 NAG Std 3		49	24	2.6	19	
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423						
0017 OREAS 921						
0018 OREAS 920						
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank		X	9	5.3	0	0
0002 Control Blank		X	9	4.7	0	-1
0003 Control Blank		X	5	5.0	0	0
0004 Control Blank						
0005 Control Blank						
0006 Control Blank						
0007 Control Blank	X					

ELEMENTS	Nb	Nb	Nb	Nb	Nb	Ni
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.002	0.01	0.05	0.05	0.05	0.04
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300					X	
0002 Y036166						
0003 Y008673	0.071	4.17				31.50
0004 Y043821			X			
0005 MW-Comp4 pH 2.9				X		
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3					X	
0007 NAG Std 3					X	
0008 NAG Std 3					X	
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423		8.95				
0017 OREAS 921		17.11				
0018 OREAS 920	0.595					36.73
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank					X	
0002 Control Blank					X	
0003 Control Blank					X	
0004 Control Blank	X	X				X
0005 Control Blank	0.005	X				X
0006 Control Blank			X			
0007 Control Blank				X		

ELEMENTS	Ni	Ni	Ni	Ni	OH	P
UNITS	ppm	mg/l	mg/l	mg/Kg	mgCaCO3/L	ppm
DETECTION LIMIT	0.5	0.01	0.01	1	1	2
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	18Ws5/	AR005/
ANALYTICAL FINISH	MS	OE	OE	OE	VOL	MS
CHECKS						
0001 Y035300				X		
0002 Y036166						
0003 Y008673	43.4					188
0004 Y043821		X			X	
0005 MW-Comp4 pH 2.9			0.03			
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3				8		
0007 NAG Std 3				9		
0008 NAG Std 3				8		
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423	127.7					
0017 OREAS 921	42.9					
0018 OREAS 920						686
0019 GWS-6					X	
0020 GWS-6						
BLANKS						
0001 Control Blank				X		
0002 Control Blank				X		
0003 Control Blank				X		
0004 Control Blank	X					X
0005 Control Blank	X					X
0006 Control Blank		X			X	
0007 Control Blank			X			

ELEMENTS	P	P	P	P	Pb	Pb
UNITS	ppm	mg/l	mg/l	mg/Kg	ppm	ppm
DETECTION LIMIT	50	0.05	0.05	10	0.005	0.5
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	OE	OE	OE	MS	MS
CHECKS						
0001 Y035300				X		
0002 Y036166						
0003 Y008673	195				24.132	54.9
0004 Y043821		X				
0005 MW-Comp4 pH 2.9			0.81			
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3				X		
0007 NAG Std 3				X		
0008 NAG Std 3				X		
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423	2.22%					81.1
0017 OREAS 921	694					28.9
0018 OREAS 920					21.288	
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank				X		
0002 Control Blank				X		
0003 Control Blank				X		
0004 Control Blank	X				0.041	X
0005 Control Blank	X				X	X
0006 Control Blank		X				
0007 Control Blank			X			

ELEMENTS	Pb	Pb	Pb	Pd	pH	pH
UNITS	ug/l	ug/l	mg/Kg	ppb	NONE	NONE
DETECTION LIMIT	0.5	0.5	2	1	0.1	0.1
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	18Ws5/	Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MTR	MTR
CHECKS						
0001 Y035300			X			7.7
0002 Y036166						9.5
0003 Y008673				X		
0004 Y043821	X				8.2	
0005 MW-Comp4 pH 2.9		6.5				
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3			311			
0007 NAG Std 3			310			
0008 NAG Std 3			312			
0009 GWS-6						8.7
0010 GWS-6						8.7
0011 GWS-6						8.9
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423						
0017 OREAS 921						
0018 OREAS 920				2		
0019 GWS-6					9.0	
0020 GWS-6						
BLANKS						
0001 Control Blank			X			5.6
0002 Control Blank			X			6.0
0003 Control Blank			X			5.9
0004 Control Blank				X		
0005 Control Blank				X		
0006 Control Blank	X				5.8	
0007 Control Blank		0.6				

ELEMENTS	pH Drop	Pt	Rb	Rb	Rb	Rb
UNITS	NONE	ppb	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.1	2	0.005	0.05	0.02	0.02
DIGEST	ANCx/	AR005/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MTR	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300	3.7					
0002 Y036166	4.0					
0003 Y008673		X	698.987	764.98		
0004 Y043821					87.52	
0005 MW-Comp4 pH 2.9						1000.65
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6	3.5					
0006 NAG Std 3						
0007 NAG Std 3						
0008 NAG Std 3						
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423				15.38		
0017 OREAS 921				184.65		
0018 OREAS 920		X	28.246			
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank						
0002 Control Blank	3.5					
0003 Control Blank	3.7					
0004 Control Blank		X	X	X		
0005 Control Blank		X	0.747	1.03		
0006 Control Blank					X	
0007 Control Blank						X

ELEMENTS	Rb	Rb-Rp1	Re	Re	S	S
UNITS	mg/Kg	ppm	ppm	ppm	%	ppm
DETECTION LIMIT	0.05	0.5	0.0002	0.002	0.01	2
DIGEST	NAGx/	4AH/	AR005/	4A/		AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	/CSA	MS
CHECKS						
0001 Y035300	5.85				0.05	
0002 Y036166					0.15	
0003 Y008673			0.0004	X		97
0004 Y043821						
0005 MW-Comp4 pH 2.9						
STANDARDS						
0001 OREAS 935		87.3				
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3	10.66					
0007 NAG Std 3	10.51					
0008 NAG Std 3	10.48					
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278					0.96	
0014 OREAS 45d					0.04	
0015 OREAS 45h					0.03	
0016 AMIS0423				X		
0017 OREAS 921				X		
0018 OREAS 920			X			290
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank	X				X	
0002 Control Blank	0.06				X	
0003 Control Blank	X				X	
0004 Control Blank			X	X		X
0005 Control Blank			X	X		X
0006 Control Blank						
0007 Control Blank						

ELEMENTS	S	S	S	S	Sb	Sb
UNITS	%	mg/l	mg/l	mg/Kg	ppm	ppm
DETECTION LIMIT	0.001	0.1	0.1	10	0.005	0.002
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	OE	OE	OE	MS	MS
CHECKS						
0001 Y035300				601		
0002 Y036166						
0003 Y008673	0.010				0.066	0.185
0004 Y043821		2.1				
0005 MW-Comp4 pH 2.9			1.9			
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3				16067		
0007 NAG Std 3				16542		
0008 NAG Std 3				16473		
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423	0.650					39.935
0017 OREAS 921	0.067					1.495
0018 OREAS 920					0.728	
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank				X		
0002 Control Blank				X		
0003 Control Blank				X		
0004 Control Blank	X				X	0.004
0005 Control Blank	X				X	0.005
0006 Control Blank		X				
0007 Control Blank			X			

ELEMENTS	Sb	Sb	Sb	Sc	Sc	Sc
UNITS	ug/l	ug/l	mg/Kg	ppm	ppm	mg/l
DETECTION LIMIT	0.01	0.01	0.05	0.005	0.05	0.01
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	OE
CHECKS						
0001 Y035300			X			
0002 Y036166						
0003 Y008673				14.081	43.97	
0004 Y043821	0.04					X
0005 MW-Comp4 pH 2.9		0.03				
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3			0.06			
0007 NAG Std 3			0.05			
0008 NAG Std 3			0.06			
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423					15.59	
0017 OREAS 921					13.92	
0018 OREAS 920				2.925		
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank			X			
0002 Control Blank			X			
0003 Control Blank			X			
0004 Control Blank				X	X	
0005 Control Blank				X	X	
0006 Control Blank	X					X
0007 Control Blank		X				

ELEMENTS	Sc	Sc	Se	Se	Se	Se
UNITS	mg/l	mg/Kg	ppm	ppm	ug/l	ug/l
DETECTION LIMIT	0.01	1	0.01	0.05	0.5	0.5
DIGEST	ASLP/	NAGx/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	OE	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300		X				
0002 Y036166						
0003 Y008673			0.01	X		
0004 Y043821					1.4	
0005 MW-Comp4 pH 2.9	X					X
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3		X				
0007 NAG Std 3		X				
0008 NAG Std 3		X				
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423				1.07		
0017 OREAS 921				0.56		
0018 OREAS 920			0.21			
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank		X				
0002 Control Blank		X				
0003 Control Blank		X				
0004 Control Blank			X	X		
0005 Control Blank			X	X		
0006 Control Blank					X	
0007 Control Blank	X					X

ELEMENTS	Se	Sn	Sn	Sn	Sn	Sn
UNITS	mg/Kg	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	2	0.02	0.1	0.1	0.1	0.1
DIGEST	NAGx/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300	X					X
0002 Y036166						
0003 Y008673		1.44	4.1			
0004 Y043821				X		
0005 MW-Comp4 pH 2.9					X	
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3	X					X
0007 NAG Std 3	X					X
0008 NAG Std 3	X					X
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423			39.6			
0017 OREAS 921			5.9			
0018 OREAS 920		1.20				
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank	X					X
0002 Control Blank	X					X
0003 Control Blank	X					X
0004 Control Blank		X	X			
0005 Control Blank		X	X			
0006 Control Blank				X		
0007 Control Blank					X	

ELEMENTS	Sr	Sr	Sr	Sr	Sr	Ta
UNITS	ppm	ppm	ug/l	ug/l	mg/Kg	ppm
DETECTION LIMIT	0.01	0.1	0.02	0.02	0.05	0.005
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300					0.43	
0002 Y036166						
0003 Y008673	4.39	102.0				0.007
0004 Y043821			2.06			
0005 MW-Comp4 pH 2.9				186.81		
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3					10.27	
0007 NAG Std 3					9.96	
0008 NAG Std 3					10.03	
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423		3399.5				
0017 OREAS 921		77.9				
0018 OREAS 920	16.01					0.015
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank					X	
0002 Control Blank					X	
0003 Control Blank					X	
0004 Control Blank	X	X				X
0005 Control Blank	X	X				X
0006 Control Blank			0.02			
0007 Control Blank				X		

ELEMENTS	Ta	Ta	Ta	Ta	Te	Te
UNITS	ppm	ug/l	ug/l	mg/Kg	ppm	ppm
DETECTION LIMIT	0.01	0.001	0.001	0.01	0.002	0.005
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300				X		
0002 Y036166						
0003 Y008673	1.88				0.004	0.006
0004 Y043821		0.004				
0005 MW-Comp4 pH 2.9			0.118			
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3				X		
0007 NAG Std 3				X		
0008 NAG Std 3				X		
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423	1.48					3.141
0017 OREAS 921	1.42					0.024
0018 OREAS 920					0.021	
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank				X		
0002 Control Blank				0.02		
0003 Control Blank				0.02		
0004 Control Blank	X				X	X
0005 Control Blank	0.02				X	X
0006 Control Blank		X				
0007 Control Blank			X			

ELEMENTS	Te	Te	Te	Th	Th	Th
UNITS	ug/l	ug/l	mg/Kg	ppm	ppm	ug/l
DETECTION LIMIT	0.1	0.1	0.1	0.001	0.01	0.005
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300			X			
0002 Y036166						
0003 Y008673				2.502	3.07	
0004 Y043821	X					0.371
0005 MW-Comp4 pH 2.9		X				
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3			X			
0007 NAG Std 3			X			
0008 NAG Std 3			X			
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423					98.36	
0017 OREAS 921					19.26	
0018 OREAS 920				15.388		
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank			X			
0002 Control Blank			X			
0003 Control Blank			X			
0004 Control Blank				X	X	
0005 Control Blank				X	X	
0006 Control Blank	X					X
0007 Control Blank		X				

ELEMENTS	Th	Th	Ti	Ti	Ti	Ti
UNITS	ug/l	mg/Kg	ppm	ppm	mg/l	mg/l
DETECTION LIMIT	0.005	0.01	1	1	0.01	0.01
DIGEST	ASLP/	NAGx/	AR005/	4A/	18Ws5/	ASLP/
ANALYTICAL FINISH	MS	MS	MS	MS	OE	OE
CHECKS						
0001 Y035300		X				
0002 Y036166						
0003 Y008673			1459	3941		
0004 Y043821					X	
0005 MW-Comp4 pH 2.9	0.040					X
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3		0.07				
0007 NAG Std 3		0.07				
0008 NAG Std 3		0.07				
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423				3360		
0017 OREAS 921				4620		
0018 OREAS 920			1252			
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank		X				
0002 Control Blank		X				
0003 Control Blank		X				
0004 Control Blank			X	X		
0005 Control Blank			X	3		
0006 Control Blank					X	
0007 Control Blank	X					X

ELEMENTS	Ti	Tl	Tl	Tl	Tl	Tl
UNITS	mg/Kg	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	1	0.005	0.01	0.01	0.01	0.02
DIGEST	NAGx/	AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	OE	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300	X					X
0002 Y036166						
0003 Y008673		5.135	5.39			
0004 Y043821				0.04		
0005 MW-Comp4 pH 2.9					2.89	
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3	X					2.09
0007 NAG Std 3	X					2.10
0008 NAG Std 3	X					2.11
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423			0.13			
0017 OREAS 921			0.91			
0018 OREAS 920		0.170				
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank	X					X
0002 Control Blank	X					X
0003 Control Blank	X					X
0004 Control Blank		X	X			
0005 Control Blank		X	0.02			
0006 Control Blank				X		
0007 Control Blank					X	

ELEMENTS	TotAlk	U	U	U	U	U
UNITS	mgCaCO3/L	ppm	ppm	ug/l	ug/l	mg/Kg
DETECTION LIMIT	5	0.001	0.005	0.005	0.005	0.01
DIGEST		AR005/	4A/	18Ws5/	ASLP/	NAGx/
ANALYTICAL FINISH	/CALC	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300						0.04
0002 Y036166						
0003 Y008673		0.964	1.170			
0004 Y043821				0.077		
0005 MW-Comp4 pH 2.9					28.605	
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3						4.48
0007 NAG Std 3						4.50
0008 NAG Std 3						4.60
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6	100					
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423			29.969			
0017 OREAS 921			3.714			
0018 OREAS 920		2.169				
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank	X					X
0002 Control Blank						X
0003 Control Blank						X
0004 Control Blank		X	X			
0005 Control Blank		X	X			
0006 Control Blank				X		
0007 Control Blank					X	

ELEMENTS	V	V	V	V	V	W
UNITS	ppm	ppm	mg/l	mg/l	mg/Kg	ppm
DETECTION LIMIT	0.02	0.05	0.01	0.01	1	0.01
DIGEST	AR005/	4A/	18Ws5/	ASLP/	NAGx/	AR005/
ANALYTICAL FINISH	MS	MS	OE	OE	OE	MS
CHECKS						
0001 Y035300					2	
0002 Y036166						
0003 Y008673	111.29	231.78				2.55
0004 Y043821			X			
0005 MW-Comp4 pH 2.9				X		
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3					X	
0007 NAG Std 3					X	
0008 NAG Std 3					X	
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423		171.93				
0017 OREAS 921		89.54				
0018 OREAS 920	26.30					0.46
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank					X	
0002 Control Blank					X	
0003 Control Blank					X	
0004 Control Blank	X	X				X
0005 Control Blank	0.03	X				0.01
0006 Control Blank			X			
0007 Control Blank				X		

ELEMENTS	W	W	W	W	Y	Y
UNITS	ppm	ug/l	ug/l	mg/Kg	ppm	ppm
DETECTION LIMIT	0.05	0.02	0.02	0.1	0.001	0.01
DIGEST	4A/	18Ws5/	ASLP/	NAGx/	AR005/	4A/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	MS
CHECKS						
0001 Y035300				0.5		
0002 Y036166						
0003 Y008673	5.32				4.365	11.18
0004 Y043821		9.51				
0005 MW-Comp4 pH 2.9			0.03			
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3				X		
0007 NAG Std 3				X		
0008 NAG Std 3				X		
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423	0.71					55.97
0017 OREAS 921	3.14					32.99
0018 OREAS 920					18.983	
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank				X		
0002 Control Blank				X		
0003 Control Blank				X		
0004 Control Blank	X				X	X
0005 Control Blank	X				0.003	X
0006 Control Blank		X				
0007 Control Blank			X			

ELEMENTS	Y	Y	Y	Zn	Zn	Zn
UNITS	ug/l	ug/l	mg/Kg	ppm	ppm	mg/l
DETECTION LIMIT	0.005	0.005	0.05	0.2	1	0.01
DIGEST	18Ws5/	ASLP/	NAGx/	AR005/	4A/	18Ws5/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	OE
CHECKS						
0001 Y035300			X			
0002 Y036166						
0003 Y008673				128.5	189	
0004 Y043821	0.147					X
0005 MW-Comp4 pH 2.9		5.648				
STANDARDS						
0001 OREAS 935						
0002 AMIS0297						
0003 ANC-6						
0004 ANC-6						
0005 ANC-6						
0006 NAG Std 3			1.40			
0007 NAG Std 3			1.40			
0008 NAG Std 3			1.38			
0009 GWS-6						
0010 GWS-6						
0011 GWS-6						
0012 GWS-6						
0013 OREAS 278						
0014 OREAS 45d						
0015 OREAS 45h						
0016 AMIS0423					198	
0017 OREAS 921					132	
0018 OREAS 920				98.5		
0019 GWS-6						
0020 GWS-6						
BLANKS						
0001 Control Blank			X			
0002 Control Blank			X			
0003 Control Blank			X			
0004 Control Blank				X	X	
0005 Control Blank				X	X	
0006 Control Blank	X					X
0007 Control Blank		X				

ELEMENTS	Zn	Zr	Zr
UNITS	mg/Kg	ppm	ppm
DETECTION LIMIT	1	0.01	0.05
DIGEST	NAGx/	AR005/	4A/
ANALYTICAL FINISH	OE	MS	MS
CHECKS			
0001 Y035300	X		
0002 Y036166			
0003 Y008673		4.37	22.84
0004 Y043821			
0005 MW-Comp4 pH 2.9			
STANDARDS			
0001 OREAS 935			
0002 AMIS0297			
0003 ANC-6			
0004 ANC-6			
0005 ANC-6			
0006 NAG Std 3	442		
0007 NAG Std 3	454		
0008 NAG Std 3	453		
0009 GWS-6			
0010 GWS-6			
0011 GWS-6			
0012 GWS-6			
0013 OREAS 278			
0014 OREAS 45d			
0015 OREAS 45h			
0016 AMIS0423			766.32
0017 OREAS 921			147.20
0018 OREAS 920		22.50	
0019 GWS-6			
0020 GWS-6			
BLANKS			
0001 Control Blank	X		
0002 Control Blank	X		
0003 Control Blank	X		
0004 Control Blank		X	X
0005 Control Blank		X	0.09
0006 Control Blank			
0007 Control Blank			

METHOD CODE DESCRIPTION

Method Code Date Tested Package	Analysing Laboratory NATA Laboratory Accreditation	NATA Scope of Accreditation
/CALC **18/07/24 10:55**	Intertek Genalysis Perth **3244 3237** No digestion or other pre-treatment undertaken. Results Determined by calculation from other reported data.	*
/CALC **18/07/24 10:55** **18Ws5/VOL09**	Intertek Genalysis Perth **3244 3237** No digestion or other pre-treatment undertaken. Results Determined by calculation from other reported data.	*
/CSA **21/08/24 09:57** **ARD01**	Intertek Genalysis Perth **3244 3237** Induction Furnace Analysed by Infrared Spectrometry	**ENV_W061(Per), MPL_W161(Adl)**
18Ws5/COL **21/08/24 09:57** **18Ws5/COL01**	Intertek Genalysis Perth **3244 3237** 18hr Water Extraction using a sample:water ratio of 1:5. Analysed by Inductively Coupled Plasma UV-Visible Spectrometry	
18Ws5/MS **15/08/24 14:58** **18Ws5/MS01**	Intertek Genalysis Perth **3244 3237** 18hr Water Extraction using a sample:water ratio of 1:5. Analysed by Inductively Coupled Plasma Mass Spectrometry.	
18Ws5/MTR **21/08/24 09:57** **18Ws5/MTR**	Intertek Genalysis Perth **3244 3237** 18hr Water Extraction using a sample:water ratio of 1:5. Analysed with Electronic Meter Measurement	
18Ws5/OE **15/08/24 14:58** **18Ws5/OE**	Intertek Genalysis Perth **3244 3237** 18hr Water Extraction using a sample:water ratio of 1:5. Analysed by Inductively Coupled Plasma Optical (Atomic) Emission Spectrometry.	
18Ws5/SIE **12/07/24 13:12** **18Ws5/SIE**	Intertek Genalysis Perth **3244 3237** 18hr Water Extraction using a sample:water ratio of 1:5. Analysed by Specific Ion Electrode.	

METHOD CODE DESCRIPTION

Method Code Date Tested Package	Analysing Laboratory NATA Laboratory Accreditation	NATA Scope of Accreditation
18Ws5/VOL **21/08/24 09:57** **18Ws5/VOL09**	Intertek Genalysis Perth **3244 3237** 18hr Water Extraction using a sample:water ratio of 1:5. Analysed by Inductively Coupled Plasma Volumetric Technique	
4A/MS **25/06/24 10:51** **4A/MSQ48**	Intertek Genalysis Perth **3244 3237** Multi-acid digest including Hydrofluoric, Nitric, Perchloric and Hydrochloric acids in Teflon Tubes. Analysed by Inductively Coupled Plasma Mass Spectrometry.	**MPL_W002, MS_IM_001(Per), *(Adl), *[Tvl]**
ANCx/MTR **01/07/24 06:07** **ARD01**	Intertek Genalysis Perth **3244 3237** Acid Neutralizing Capacity Digestion Procedure. Analysed with Electronic Meter Measurement	**ENV_W035**
ANCx/QUAL **01/07/24 06:07** **ARD01**	Intertek Genalysis Perth **3244 3237** Acid Neutralizing Capacity Digestion Procedure. Analysed by Qualitative Inspection	**ENV_W035**
ANCx/VOL **01/07/24 06:07** **ARD01**	Intertek Genalysis Perth **3244 3237** Acid Neutralizing Capacity Digestion Procedure. Analysed by Volumetric Technique.	**ENV_W035**
AR005/MS **25/06/24 07:54** **AR005/MSQ53**	Intertek Genalysis Perth **3244 3237** 0.5 gram mini Aqua-Regia digest. Analysed by Inductively Coupled Plasma Mass Spectrometry.	****
ASLP/MS **20/08/24 06:35** **ASLP/MS**	Intertek Genalysis Perth **3244 3237** AS4439.3-1997: Australian Standard Leachates Protocol for Wastes, Sediments & Contaminated Soils. Analysed by Inductively Coupled Plasma Mass Spectrometry.	**ENV_W037, MS_IM_001**
ASLP/MTR **21/08/24 09:57** **ASLP/MTR**	Intertek Genalysis Perth **3244 3237** AS4439.3-1997: Australian Standard Leachates Protocol for Wastes, Sediments & Contaminated Soils. Analysed with Electronic Meter Measurement	**ENV_W037**

METHOD CODE DESCRIPTION

Method Code Date Tested Package	Analysing Laboratory NATA Laboratory Accreditation	NATA Scope of Accreditation
ASLP/OE **20/08/24 06:36** **ASLP/OE**	Intertek Genalysis Perth **3244 3237** AS4439.3-1997: Australian Standard Leachates Protocol for Wastes, Sediments & Contaminated Soils. Analysed by Inductively Coupled Plasma Optical (Atomic) Emission Spectrometry.	**ENV_W037, ICP_IM_001**
NAGx/MS **28/06/24 14:06** **NAGx/MS**	Intertek Genalysis Perth **3244 3237** Net Acid Generation Extraction of samples with H2O2 Analysed by Inductively Coupled Plasma Mass Spectrometry.	**ENV_W036**
NAGx/MTR **28/06/24 14:06** **ARD01**	Intertek Genalysis Perth **3244 3237** Net Acid Generation Extraction of samples with H2O2 Analysed with Electronic Meter Measurement	**ENV_W036**
NAGx/OE **28/06/24 14:06** **NAGx/OE**	Intertek Genalysis Perth **3244 3237** Net Acid Generation Extraction of samples with H2O2 Analysed by Inductively Coupled Plasma Optical (Atomic) Emission Spectrometry.	**ENV_W036**
NAGx/VOL **28/06/24 14:06** **ARD01**	Intertek Genalysis Perth **3244 3237** Net Acid Generation Extraction of samples with H2O2 Analysed by Volumetric Technique.	**ENV_W036**
Ws5/MTR **21/08/24 09:57** **ARD01**	Intertek Genalysis Perth **3244 3237** Water Extraction using a sample:water ratio of 1:5. Analysed with Electronic Meter Measurement	*****

* Denotes not on Scope of Accreditation

SAMPLE RECEIPT ACKNOWLEDGEMENT

M M M R D

R M

r r r r r r d r r d
r r r r d d

Order Number	Submission No.	Intertek Ref. No.	Date Received
D R			M

Ref.	Project	Sample Numbers	Methods	#Smpl
	D R	M	RD	
			TOTAL NUMBER of SAMPLES	**5**

M

r
D d

M dd r r
D r M dd r r
r r

r r

COHLABS

Suite 2, 92 Cleveland Street
Greenslopes, QLD 4120
PO Box 635, Coorparoo QLD 4151
Tel. +61 (0)7 3015 7555

CERTIFICATE OF ANALYSIS

Asbestos Identification - TEM

Certificate No: T24-0087

Client:	Glossop Consultancy	**Date Sampled:**	Unknown
Client Contact:	Laurie Glossop	**Date Received:**	29/05/2024
Telephone:	0438 001 955	**Date Analysis Complete:**	3/06/2024
Email:	laurie.glossop@glossopconsultancy.com.au	**Date Issued:**	3/06/2024
Address:	1 Cumnock Place Duncraig WA 6023	**Order No.:**	232456
Site:	232456	**Sampled By:**	As Received

Test Method:

Samples analysed by Transmission Electron Microscopy (TEM) at COHLABS Greenslopes laboratory based on the principles of standard ISO 22262-1 — "International Standard, Part 1: Air quality — Bulk materials: Sampling and qualitative determination of asbestos in commercial bulk materials."

Lab ID	Sample ID	Sample Details	Sample Type	Size / Weight cm/g	Analysis Result
TEM001	Y002032	Not Supplied	Pulverized rock	4.523 g	NAD
TEM002	Y038539	Not Supplied	Pulverized rock	5.721 g	NAD
TEM003	Y031889	Not Supplied	Pulverized rock	4.448 g	NAD
TEM004	Y040198	Not Supplied	Pulverized rock	4.007 g	NAD
TEM005	Y001482	Not Supplied	Pulverized rock	5.095 g	NAD
TEM006	Y030020	Not Supplied	Pulverized rock	4.280 g	NAD
TEM007	Y021618	Not Supplied	Pulverized rock	5.115 g	NAD
TEM008	YD05863	Not Supplied	Pulverized rock	5.516 g	NAD
TEM009	LG-Comp1	Not Supplied	Pulverized rock	4.435 g	NAD
TEM010	MW-Comp2	Not Supplied	Pulverized rock	4.279 g	NAD
TEM011	MW-Comp3	Not Supplied	Pulverized rock	4.944 g	NAD

Identification Legend

CHR - Chrysotile Asbestos
AMO - Amosite Asbestos
CRO - Crocidolite Asbestos
TRE - Tremolite Asbestos
ACT - Actinolite Asbestos
ANT - Anthophyllite Asbestos
NAD - No Asbestos Detected

Approved Analyst

Name: Jordan Ogor

Approved Signatory

Name: Jordan Ogor

Notes:

The results contained within this report relate only to the sample(s) submitted for testing.
COHLABS accepts no responsibility for the initial collection, packaging or transportation of samples submitted by external persons.
Sample material descriptions and results reported may be limited by the size and condition of the sample submitted for analysis. Sizes and weights stated are approximate only.

NATA Accreditation number: 19499
Accredited for compliance with ISO/IEC: 17025 - Testing

ABN: 62 166 540 094

COHLABS

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PO Box 635, Coorparoo QLD 4151
Tel. +61 (0)7 3015 7555

Certificate No: T24-0087

All analytical data such as analytical sensitivity, number of grid openings analysed, average grid opening size, micrograph and EDS spectra identification is available on request.

Samples are routinely disposed of approximately 1 month from receipt. Requests for longer term sample storage must be received in writing.

T24-0087 TEM DETAILED ANALYSIS REPORT

Transmission Electron Microscopy (TEM)

COHLABSTEM Ref:	T24-0087
Order No.	232456
Client:	Glossop Consultancy
Client Contact:	Laurie Glossop
Telephone:	+61 (0) 438 001955
Email:	Laurie.glossop@glossopconsultancy.com.au;
Client Address:	1 Cumnock Place, Duncraig, WA, 6023, AUSTRALIA
Site / Sample Location:	MBS (Delta Lithium Yinnetharra WRC)
No. of Samples Received:	11
Sample Type:	Pulverized rock samples
Date Sample(s) Received:	29/05/2024
Date Sample(s) Analysed:	03/06/2024
Date Report Issued:	03/06/2024
TEM Analyst:	Jordan Ogor

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1 Introduction

1.1 Samples received

Table 1 Samples received.

CLIENT ID	LAB ID	SAMPLE AND CONTAINER WEIGHT (G)	POWDER COLOUR
Y002032	T24-0087-01	4.523	LIGHT GREY
Y038539	T24-0087-02	5.721	LIGHT GREY
Y031889	T24-0087-03	4.448	LIGHT GREY
Y040198	T24-0087-04	4.007	LIGHT GREY
Y001482	T24-0087-05	5.095	LIGHT GREY
Y030020	T24-0087-06	4.280	LIGHT GREY
Y021618	T24-0087-07	5.115	GREY
YD05863	T24-0087-08	5.516	LIGHT BROWN
LG-Comp1	T24-0087-09	4.435	LIGHT GREY
MW-Comp2	T24-0087-10	4.279	BROWN
MW-Comp3	T24-0087-11	4.944	WHITE

1.2 Sample preparation and analysis

- Elutriation procedure: The samples were initially examined by stereomicroscopy to determine homogeneity. The samples were prepared as described herein. Approximately 20mg of sample was weighed with a microbalance, transferred into a 500mL beaker, diluted with distilled water and placed in a 100W ultrasonic bath. A surface aliquot of 10 mL was filtered on a polycarbonate membrane (25mm diameter, 0.2um pore size) and transferred onto TEM grids. A total of 20 structures were examined or a total of 36 grid openings were counted depending on which limit was reached first.
- The TEM fibre identification analysis was based on three (3) criteria as per ISO 22262-1:
    1. FIBRE DEFINITION AS PER ISO 22262-1: *"elongated particle which has parallel or stepped sides. For the purposes of this part of ISO 22262-1, a fibre is defined to have an aspect ratio equal to or greater than 3:1".* An Elongated Mineral Particle (EMP) – also called CLEAVAGE FRAGMENT - is the same definition as a fibre with the exception that it has no parallel or stepped sides. As per client requirements, only fibres greater than 5 um in length were identified.
    2. QUALITATIVE ELECTRON DIFFRACTION DEFINITION AS PER ISO 22262-1: *"Qualitative ELECTRON DIFFRACTION (ED) consists of visual examination, without detailed measurement, of the general characteristics of the ED pattern obtained on the TEM viewing screen from a randomly oriented fibre. ED patterns obtained from fibres with cylindrical symmetry, such as chrysotile, do not change when the fibres are tilted about their axes, and patterns from randomly oriented fibres of these minerals can be interpreted quantitatively. For fibres which do not have cylindrical symmetry, only those ED patterns obtained when the fibre is oriented with a principal crystallographic axis closely parallel with the incident electron-beam direction can be interpreted quantitatively."*
    3. The chemical composition using Energy Dispersive X-Ray Spectroscopy (EDX).

2 Analysis results

2.1 Summary table

The purpose of the analysis was to find / observe fibres and EMPs (Elongated Mineral Particles or "Cleavage Fragments"), assess their crystallinity by electron diffraction and assess their chemical composition by EDX.

Table 2 Summary table of fibres and elongated mineral particles detected within the samples[1]

ID		DATA / PARAMETERS						#GO SCANNED		SUMMARY OF RESULTS
CLIENT ID	LAB ID	(SAMPLE + CONTAINER) WEIGHT (G)	WEIGHT BEFORE DILUTION IN 500ML WATER (G)	ALIQUOT VOLUME FILTERED V (ML)	EFA (MM2)	EFD (MM)	GOA (MM2)	G01	TOTAL AREA (MM2)	VARIETIES + #
Y002032	T24-0087-01	4.523	0.020	10.0	299.9	19.5	0.0078	36	0.281	- NO ASBESTOS FIBRE DETECTED - NO ASBESTOS EMP DETECTED - AlSiKO EMPs DETECTED
Y038539	T24-0087-02	5.721	0.022	10.0	299.9	19.5	0.0078	36	0.281	- NO ASBESTOS FIBRE DETECTED - NO ASBESTOS EMP DETECTED - AlSiKO EMPs DETECTED
Y031889	T24-0087-03	4.448	0.020	10.0	299.9	19.5	0.0078	36	0.281	- NO ASBESTOS FIBRE DETECTED - NO ASBESTOS EMP DETECTED - AlSiKO EMPs DETECTED
Y040198	T24-0087-04	4.007	0.021	10.0	299.9	19.5	0.0078	36	0.281	- NO ASBESTOS FIBRE DETECTED - NO ASBESTOS EMP DETECTED - AlSiKO EMPs DETECTED
Y001482	T24-0087-05	5.095	0.019	10.0	299.9	19.5	0.0078	36	0.281	- NO ASBESTOS FIBRE DETECTED - NO ASBESTOS EMP DETECTED - AlSiKO EMPs DETECTED*[2]
Y030020	T24-0087-06	4.280	0.021	10.0	299.9	19.5	0.0078	36	0.281	- NO ASBESTOS FIBRE DETECTED - NO ASBESTOS EMP DETECTED - MAGNESIOHORNBLENDE EMPs DETECTED*
Y021618	T24-0087-07	5.115	0.021	10.0	299.9	19.5	0.0078	36	0.281	- NO ASBESTOS FIBRE DETECTED - NO ASBESTOS EMP DETECTED

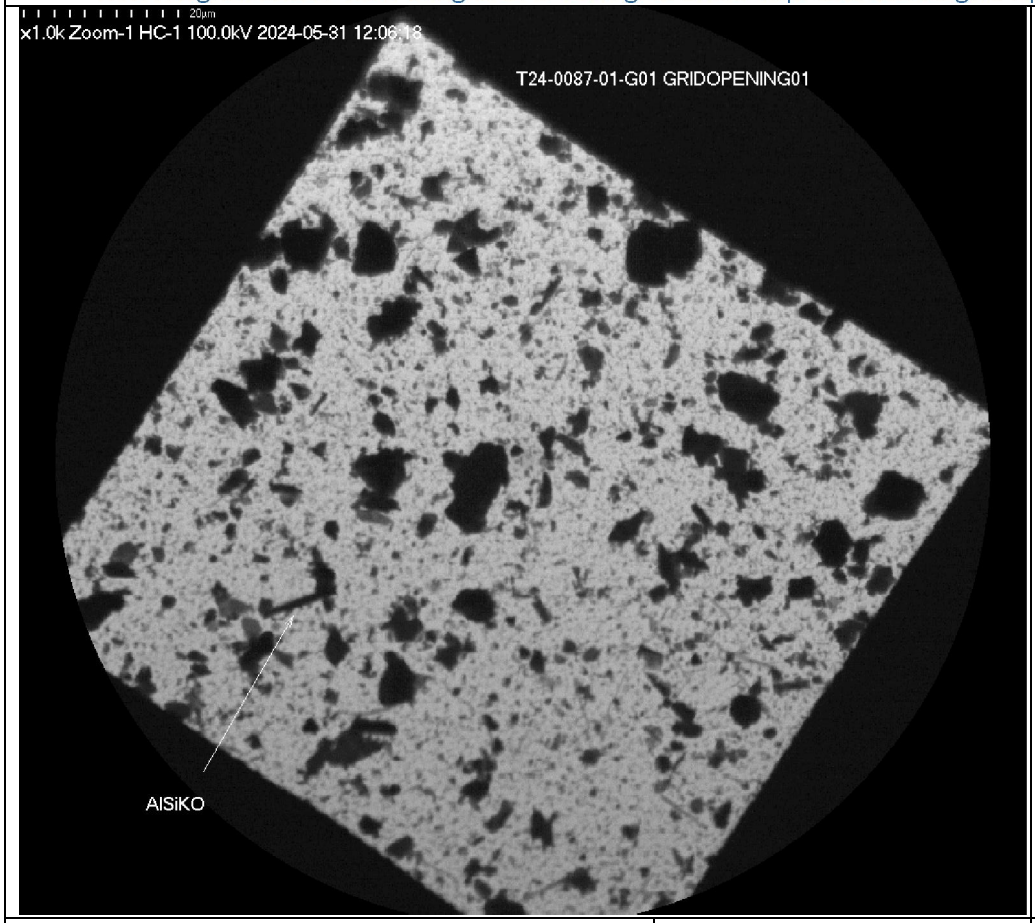
[1] Explanatory notes to the table:

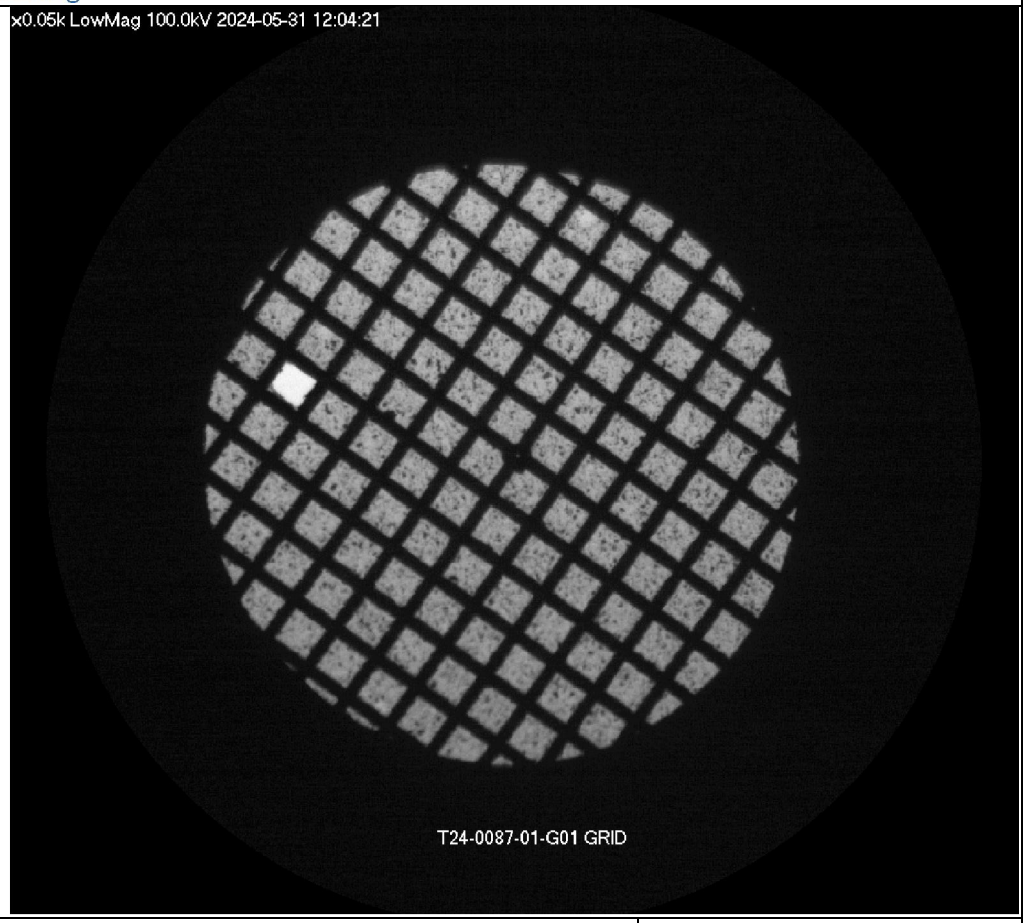
- EFA: Funnel Effective Filtration Area (in mm^2)
- EFD: Funnel Effective Filtration Diameter (in mm)
- GO: Grid Opening (or "field")
- GOA: Grid Opening Area (in mm^2)

[2] * Details of fibres and elongated mineral particles identification shown in pages below. Additional TEM images and EDX spectrums can be provided upon request.

ID		DATA / PARAMETERS						#GO SCANNED		SUMMARY OF RESULTS
CLIENT ID	LAB ID	(SAMPLE + CONTAINER) WEIGHT (G)	WEIGHT BEFORE DILUTION IN 500ML WATER (G)	ALIQUOT VOLUME FILTERED V (ML)	EFA (MM2)	EFD (MM)	GOA (MM2)	G01	TOTAL AREA (MM2)	VARIETIES + #
										- MAGNESIOHORNBLENDE EMPs DETECTED
YD05863	T24-0087-08	5.516	0.021	10.0	299.9	19.5	0.0078	36	0.281	- NO ASBESTOS FIBRE DETECTED - NO ASBESTOS EMP DETECTED - MAGNESIOHORNBLENDE EMPs DETECTED
LG-Comp1	T24-0087-09	4.435	0.018	10.0	299.9	19.5	0.0078	36	0.281	- NO ASBESTOS FIBRE DETECTED - NO ASBESTOS EMP DETECTED - AlSiKO EMPs DETECTED
MW-Comp2	T24-0087-10	4.279	0.020	10.0	299.9	19.5	0.0078	36	0.281	- NO ASBESTOS FIBRE DETECTED - NO ASBESTOS EMP DETECTED - AlSiKO EMPs DETECTED
MW-Comp3	T24-0087-11	4.944	0.019	10.0	299.9	19.5	0.0078	36	0.281	- NO ASBESTOS FIBRE DETECTED - NO ASBESTOS EMP DETECTED - AlSiKO EMPs DETECTED

2.2 Low magnification TEM images of a TEM grid and a representative grid opening





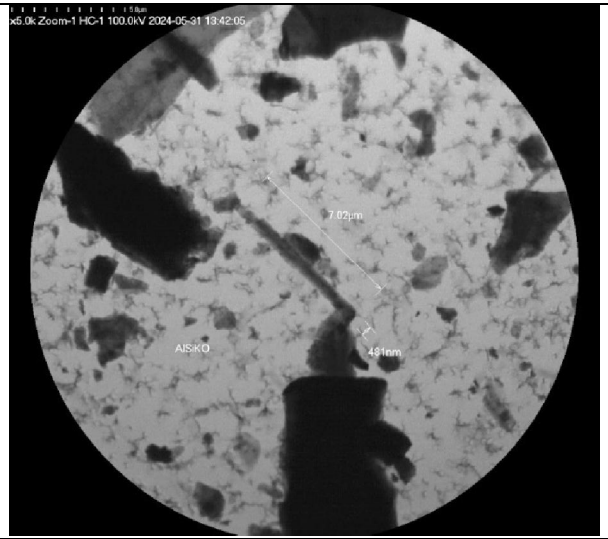
Standard / Display Magnification:[3]	X01.00K / X02.00K	Standard / Display Magnification:	X00.05K / X00.10K
Reference:	T24-0087-01-G01	Reference:	T24-0087-01-G01

[3] Extracted from HT7700 Software Manual: *"Standard Magnification: in an instrument model equipped with the integration CCD camera, the magnification of an image projected at the CCD (scintillator) position is taken as a magnification standard.*
Display Magnification: Display magnification refers to a magnification factor on the display monitor."

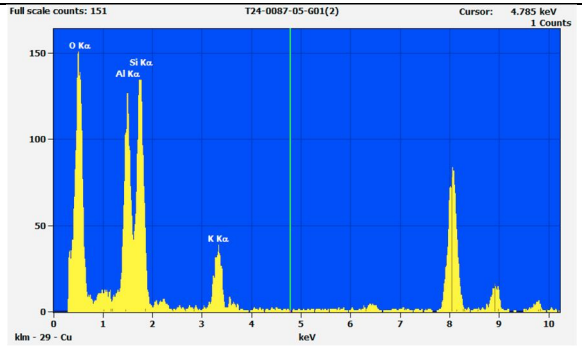
2.3 Examples of structures identified

2.3.1 Sample T24-0087-05 [Client ID: Y001482]: Example of Aluminosilicates Elongated Mineral Particles identified

2.3.1.1 TEM OBSERVATION



2.3.1.2 EDX SPECTRUM



Quantitative Results for: T24-0087-05-G01(2)

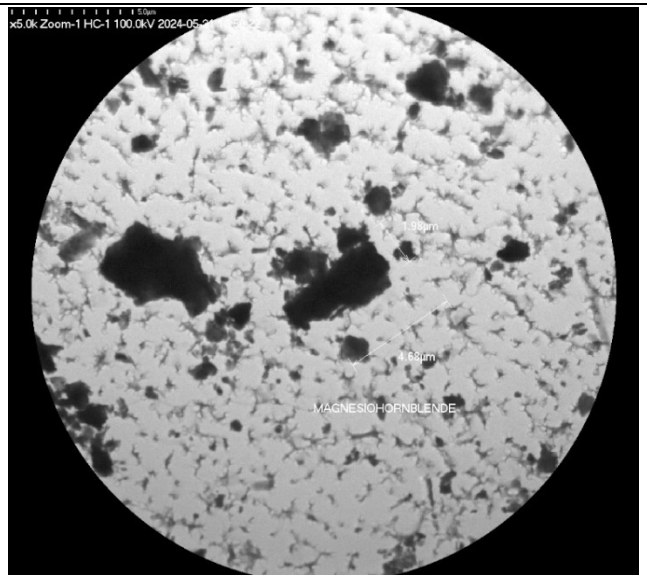
O K	0	0	---	47.635	---	62.07	± 0.00	(null)	---
Al K	1807	± 44	0.975	20.24	---	15.64	± 0.38	Al2O3	38.25
Si K	2146	± 48	1.000	24.66	---	18.31	± 0.41	SiO2	52.75
K K	591	± 26	1.100	7.47	---	3.98	± 0.18	K2O	9.00
Total				100.00		100.00			100.00

Standard / Display Magnification:[4]	X05.00K / X10.00K	Tilt angle	20 deg
Emission current:	10 uA	Acquisition time	30-60 sec
Acceleration voltage:	100 kV		
FIBRE DEFINITION AS PER ISO 22262-1: *"elongated particle which has parallel or stepped sides, For the purposes of this part of ISO 22262-1, a fibre is defined to have an aspect ratio equal to or greater than 3:1."*		The EDX spectrum identifies the presence of OXYGEN, ALUMINIUM, SILICON and POTASSIUM and is qualitatively similar to the EDX spectrum of ALUMINOSILICATE Elongated Mineral Particle.	
OBSERVATION: The structure DOES NOT meet the criteria of a fibre as per ISO 22262-1.			
RESULT: ALUMINOSILICATE ELONGATED MINERAL PARTICLE IDENTIFIED.			

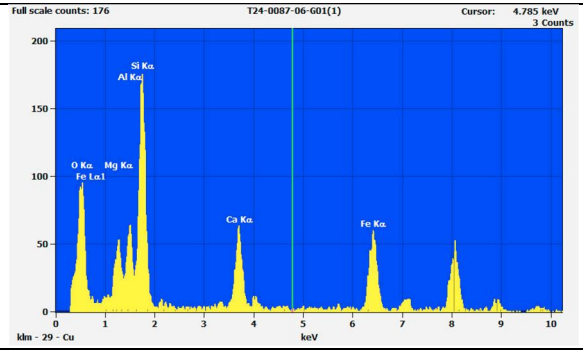
[4] Extracted from HT7700 Software Manual: *"Standard Magnification: in an instrument model equipped with the integration CCD camera, the magnification of an image projected at the CCD (scintillator) position is taken as a magnification standard.*
Display Magnification: Display magnification refers to a magnification factor on the display monitor."

2.3.2 Sample T24-0087-06 [Client ID: Y030020]: Example of Magnesio hornblende Elongated Mineral Particles identified

2.3.2.1 TEM OBSERVATION



2.3.2.2 EDX SPECTRUM



Quantitative Results for: T24-0087-06-G01(1)

O K	0	0	---	42.00S	---	59.95	± 0.00	(null)	---
Mg K	651	± 30	1.150	6.36	---	5.97	± 0.28	MgO	10.54
Al K	815	± 32	0.975	6.75	---	5.71	± 0.22	Al2O3	12.75
Si K	2468	± 52	1.000	20.96	---	17.04	± 0.36	SiO2	44.84
Ca K	1022	± 34	1.100	9.55	---	5.44	± 0.18	CaO	13.36
Fe K	1210	± 36	1.400	14.39	---	5.88	± 0.18	FeO	18.51
Total				100.00		100.00			100.00

Standard / Display Magnification:[5]	X05.00K / X10.00K	Tilt angle	20 deg
Emission current:	10 uA	Acquisition time	30-60 sec
Acceleration voltage:	100 kV		

FIBRE DEFINITION AS PER ISO 22262-1:

"elongated particle which has parallel or stepped sides, For the purposes of this part of ISO 22262-1, a fibre is defined to have an aspect ratio equal to or greater than 3:1."

OBSERVATION: The structure DOES NOT meet the criteria of a fibre as per ISO 22262-1.

The EDX spectrum identifies the presence of OXYGEN, MAGNESIUM, ALUMINIUM, SILICON CALCIUM and IRON and IS NOT qualitatively similar to the EDX spectrum of Asbestos.

RESULT: MAGNESIO HORNBLENDE ELONGATED MINERAL PARTICLE IDENTIFIED.

[5] Extracted from HT7700 Software Manual: *"Standard Magnification: in an instrument model equipped with the integration CCD camera, the magnification of an image projected at the CCD (scintillator) position is taken as a magnification standard.*
Display Magnification: Display magnification refers to a magnification factor on the display monitor."

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QUANTITATIVE X-RAY DIFFRACTION ANALYSIS

REPORT PREPARED FOR	CHEMISTRY CENTRE (WA)
CLIENT CODE	396.00
JOB CODE	2311939
No. of SAMPLES	3
CLIENT O/N	22S4550
SAMPLE SUBMISSION No.	22S4550
PROJECT	
STATE	PULP
DATE RECEIVED	27/06/2023
DATE COMPLETED	05/08/2023
DATE WRITTEN	08/08/2023
WRITTEN BY	Dr Cat Kealley
ANALYSING LABORATORY	Perth

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intertek.com
ABN: 32 008 787 237

SAMPLE DETAILS

DISCLAIMER

This report relates specifically to the sample(s) that were drawn and/or provided by the client or their nominated third party. The reported result(s) provide no warranty or verification on the sample(s) representing any specific goods and/or shipment and only relate to the sample(s) as received and tested. This report is prepared solely for the use of the client named in this report. Intertek accepts no responsibility for any loss, damage or laibility suffered by a third party as a result of any reliance upon or use of this report.

The results provided are not intended for commercial settlement purposes.

SIGNIFICANT FIGURES

The detection limit for most crystalline phases is approximately 0.5 wt%. However, this is dependent on instrument conditions, matrix, crystallinity and whether the pattern for the phase has been sufficiently deconvoluted in the presence of overlapping reflections.

Uncertainty in the analysis should reflect errors (absolute) of no greater than: +/-10% for phases 50-95%, +/- 5% for phases 10-50% and +/- 2% for phases <10%.

Please note that results are rounded off to integer values

LEGEND

ND	Not Detected
EMPTY CELL	Phase not included in refinement

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JOB INFORMATION

PREPARATION

XRD16 (dry 50C, mill < 60um, micronised)

ANALYTICAL METHOD

XRDQUANT02 - Quantitative analysis, crystalline and amorphous content, double scan

SAMPLING

Sample(s) coned and quartered, then grab(s) taken

AMORPHOUS CONTENT DETERMINATION

Internal standard double scan

ADDITIONS

Internal standard CaF2 (fluorite)

SAMPLE PRESENTATION

Sample(s) packed and presented as unoriented powder mount(s) of the total sample

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JOB INFORMATION

INSTRUMENTATION AND PARAMETERS

INSTRUMENT:

PANalytical Cubix^3 XRD
Cobalt radiation (operating at 40 kV and 40 mA)
BBHD monochromator (incident beam)

PARAMETERS:

Parameter	Setting
Start angle (deg 2θ)	5
End angle (deg 2θ)	95
Step size (deg 2θ)	0.02
Time/active length (secs)	30
Active length (deg 2θ)	4.01

SOFTWARE:

Qualitative analysis: Bruker Diffrac.EVA 6.0 Search/Match
ICDD PDF-2 (2022) database

Quantitative analysis: SIROQUANT Version 4
ICSD (2022) database

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RESULTS

The quantitative analysis of the crystalline and amorphous content of each sample is given in the file, **396.00_2311939 XRD RESULTS.xlsx**, attached to the report email.

Calculation of the phase abundances has been based on the Brindley contrast corrections using a particle diameter of 10 µm.

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NOTES

1

The amorphous content may contain some of the more poorly crystalline clay phases and conversely the clay phase content may contain some poorly crystalline or amorphous material. Where there is a significant presence of clay material, the distinction between poorly crystalline material and amorphous content can be imprecise.

2

For confirmation of the clay mineralogy, a clay separation followed by analysis of oriented clay mounts (glycol and heat treated) would be required.

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QUALITY CONTROL

NIST STANDARD REFERENCE MATERIAL (SRM) 656

This standard is used for quality control on the instrument and software.

The standard reference material is a powder which consists of sub-micrometer, equi-axial, non-aggregated grains that do not display the effects of absorption contrast, extinction or preferred orientation.

An aliquot of this SRM, spiked with 10% Al2O3 (SRM 676a) for the amorphous content determination, was prepared as un-oriented powder mount of the total sample and the pattern analysed with SIROQUANT™.

Sample ID **α 656 (High α Phase Powder)**

		2311939	method std dev	SRM certified	SRM uncert
Phase	**Formula**	**wt%**	**wt%**	**wt%**	**wt%**
Amorphous content		9.3	0.4	9.6	0.61
Si3N4, alpha	Si3N4	87.8	0.4	87.4	0.59
Si3N4, beta	Si3N4	2.9	0.1	3.0	0.05

Each interval defined by the certified value and its uncertainty is a 95% confidence interval for the true value of the mean in the absence of systematic error.

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METHOD DESCRIPTION

Quantification is determined from the chosen software package: this uses the full-profile Rietveld method of refining the profile of the calculated XRD pattern against the profile of the measured XRD pattern. The total calculated pattern is the sum of the calculated patterns of the individual phases.

Results are given as weight % of the total crystalline phases and amorphous content.

The amorphous content quantifies the amorphous material and unknown minerals or known minerals for which there is not a suitable crystal structure.

Corrections are incorporated into the process that allows for a more accurate description of the mineral's contribution to the measured pattern and to allow for variation due to atomic substitution, layer disordering, preferred orientation, and other factors that affect the acquisition of the XRD scan.

The limitations of qualitative XRD analysis are as follows:

There is a limit of detection of approximately 0.5 wt% on the crystalline phases.
The detection of a phase may be dependent on its crystallinity.
Where there exist multiple phases, overlap of diffracted reflections can occur, thus rendering some ambiguity into the interpretation.
Overlapping reflections of a major phase can mask the presence of minor or trace phases.

Some phases cannot be unambiguously identified as they are present in minor or trace amounts.

The limitations of quantitative XRD analysis by a full-profile Rietveld method are as follows:

The limitations for qualitative XRD analysis apply.
The method as described is standardless: it relies solely on the published crystallographic data available for each phase. Some data may not exactly describe the phases present.

Particle size is important with respect to the absorption of the X-rays by the sample. Micronising reduces the particle size to that more suitable for quantitative analysis.

The accuracy of the analysis is dependent on sampling and sample preparation in addition to the calculated profiles being exactly representative of the chemistry of the component phases and their crystallinity. Some preferred orientation effects and reflection overlaps may occur which cannot be adequately resolved.

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AMORPHOUS CONTENT

INTERNAL STANDARD METHOD

Single scan

The amorphous content is determined from the addition of a known spike of a well-crystalline internal standard to each sample.

When amorphous material is present, the weight percentage of the spike found is larger than actually weighed out. The amount of amorphous material that causes the difference in the spike weight percentages is then calculated and all weight percentages are normalised to include the amorphous content.

Double scan

It is possible to combine the results from the analyses of a spiked pattern with a previous unspiked pattern. This choice has the potential to have better accuracy, as the weight percentages from an unspiked pattern are not diluted by the spike addition. The percentages from the unspiked sample are normalised to the amorphous content calculated from the spiked sample pattern.

EXTERNAL STANDARD METHOD

The amorphous content is determined from the external standard method[1].

The normalisation constant is determined from the external standard which allows the calculated weight fractions to be placed on an absolute scale.

Reference:

1. O'Connor, B.H., and Raven, M.D., "Application of the Rietveld refinement procedure in assaying powdered mixtures", Powder Diffraction 3(1), (1988), 2-6.

Modelling

A pattern representing a poorly crystalline form of silica is used in the SIROQUANT program.[2]

Reference:

2. Ward, C.R. and French, D., "Determination of glass content and estimation of glass composition in fly ash using quantitative X-ray diffractometry." Fuel 85 (2006), 2268-2277.

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Sample name	Amorphous Content*	12A Clay**	Amphibole	Chlorite**	Magnetite	Mica**	Olivine	Pyrrhotite	Quartz	Serpentine	Talc**	Total
Formula			e.g. Ca2(Mg,Fe)5S	(Fe,Al,Mg)6(Si,Al)	Fe3O4	(K,Ca,Na)(Al,Mg,F	Fe2SiO4	Fe1-xSx	SiO2	Mg3Si2O5(OH)4	Mg3Si4O10(OH)2	
Sample ID / Units	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%
22S4550/001	10	2	43	1		<0.5			42		2	100
22S4550/002	16	3	58	<0.5	2	<0.5		1	14	6	<0.5	100
22S4550/003	13	<0.5	57		1		1	<0.5	24	3	1	100
22S4550/001 DUPLICATE	10	2	41	1		<0.5			44		2	100

*Please see Note 1 in the main report

**Please see Note 2 in the main report

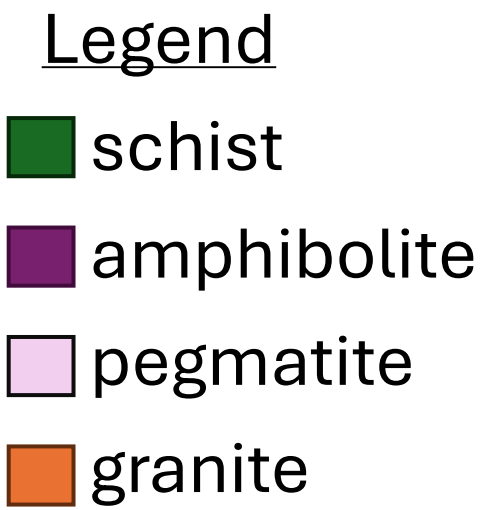
Uncertainty in the analysis should reflect errors (absolute) of no greater than: +/- 10% for phases 50-95%, +/- 5% for phases 10-50% and +/- 2% for phases <10%.

APPENDIX C

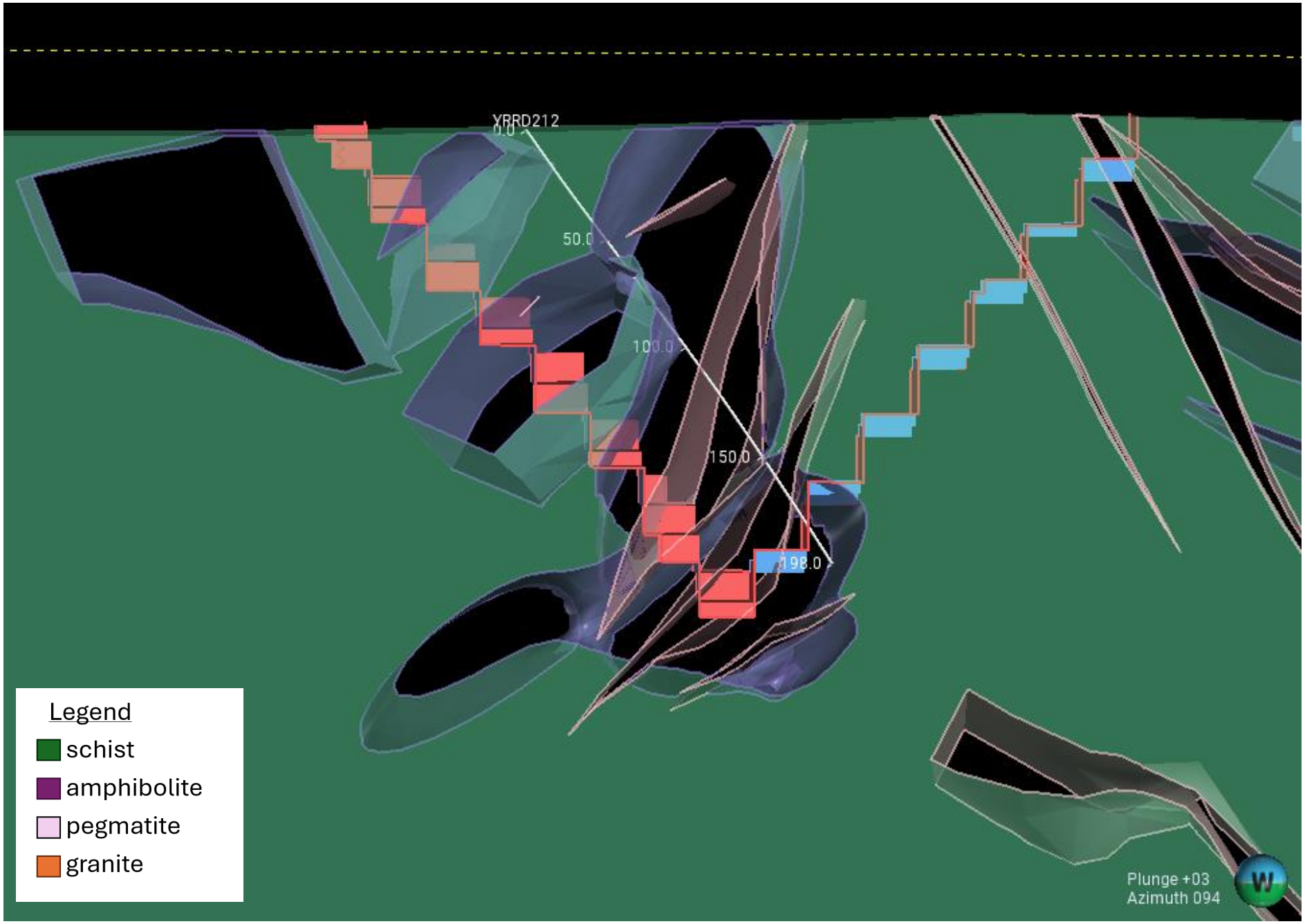
APPENDIX C:
GEOLOGICAL CROSS SECTIONS

MBS ENVIRONMENTAL

Lithological cross sections Malinda with pit shells yin_mii0p5_2400_s1



M47 – YRRD212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100.0
150.0
198.0
Legend
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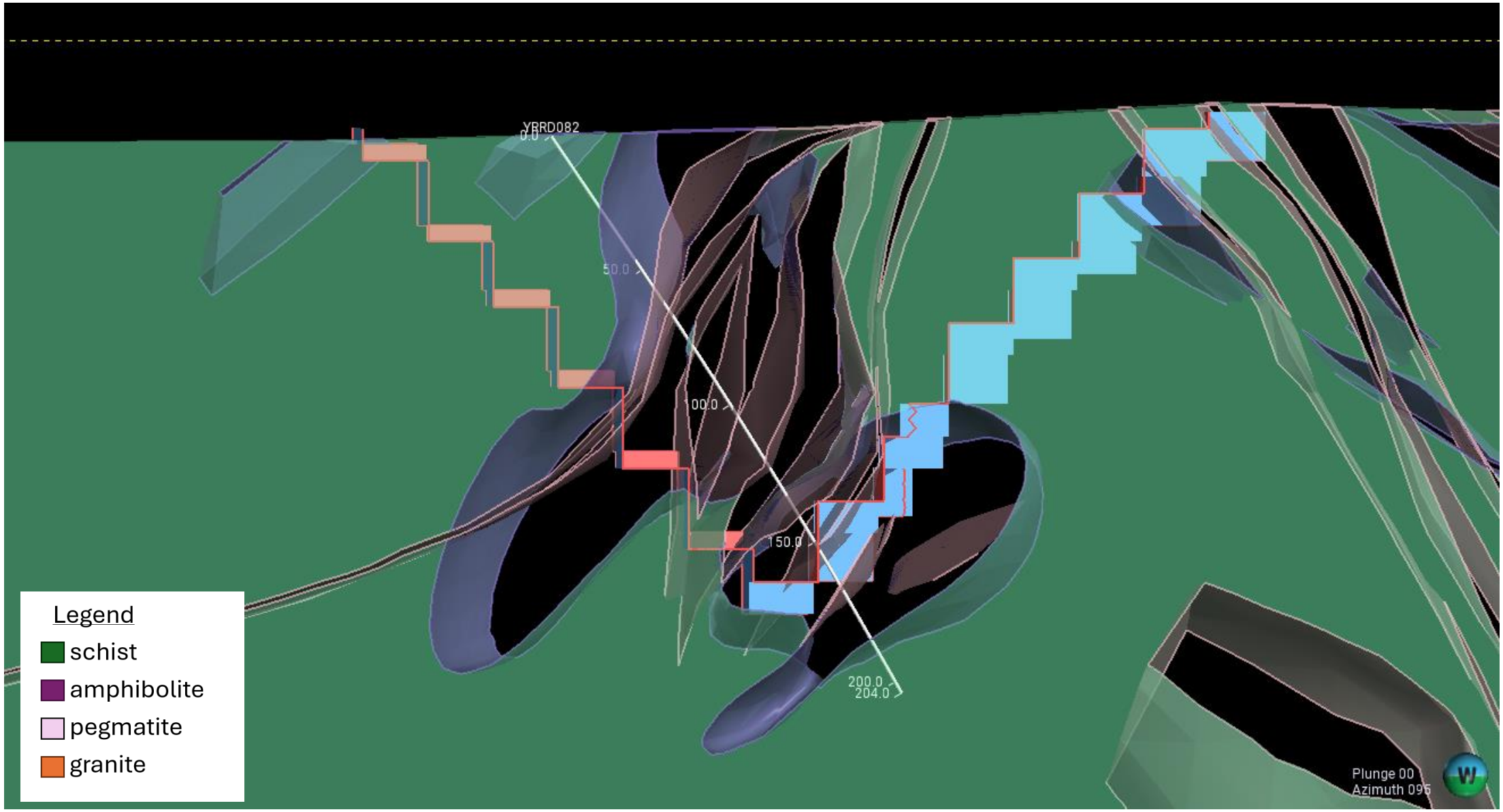
amphibolite
pegmatite
granite
Plunge +03
Azimuth 094

M47 – YRRD082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50.0
100.0
150.0
200.0
204.0
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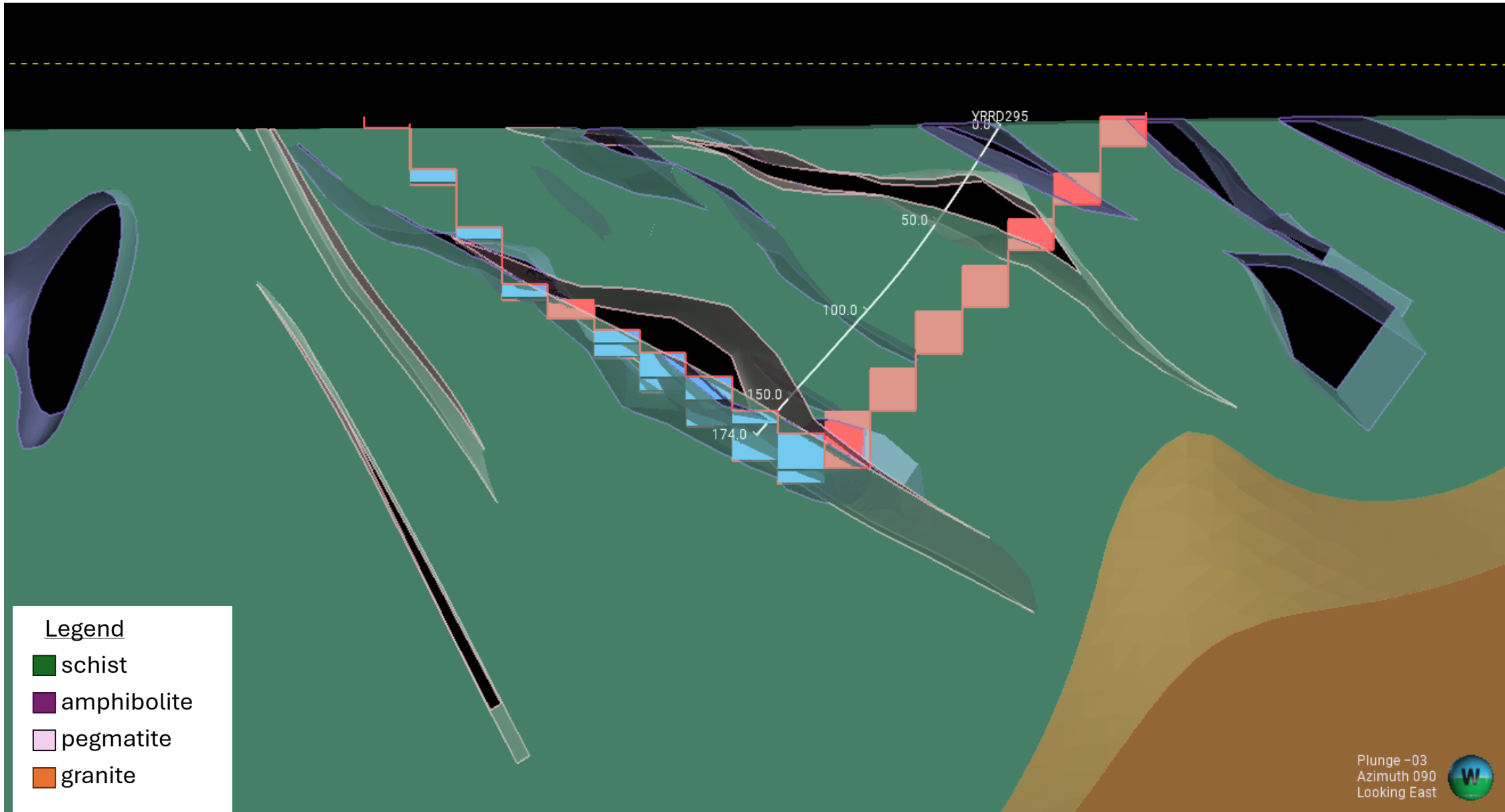
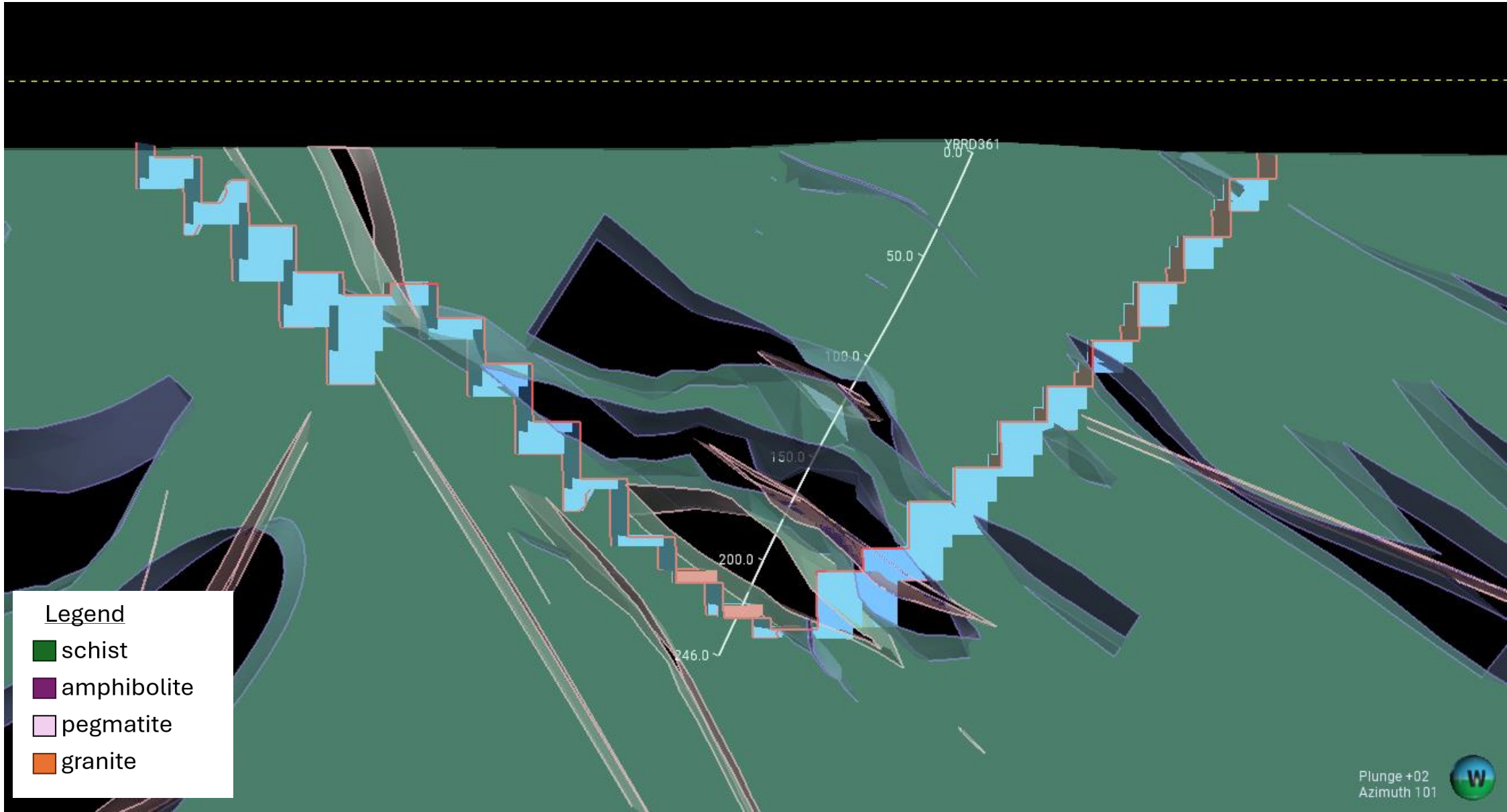
amphibolite
pegmatite
granite
Plunge 00
Azimuth 095

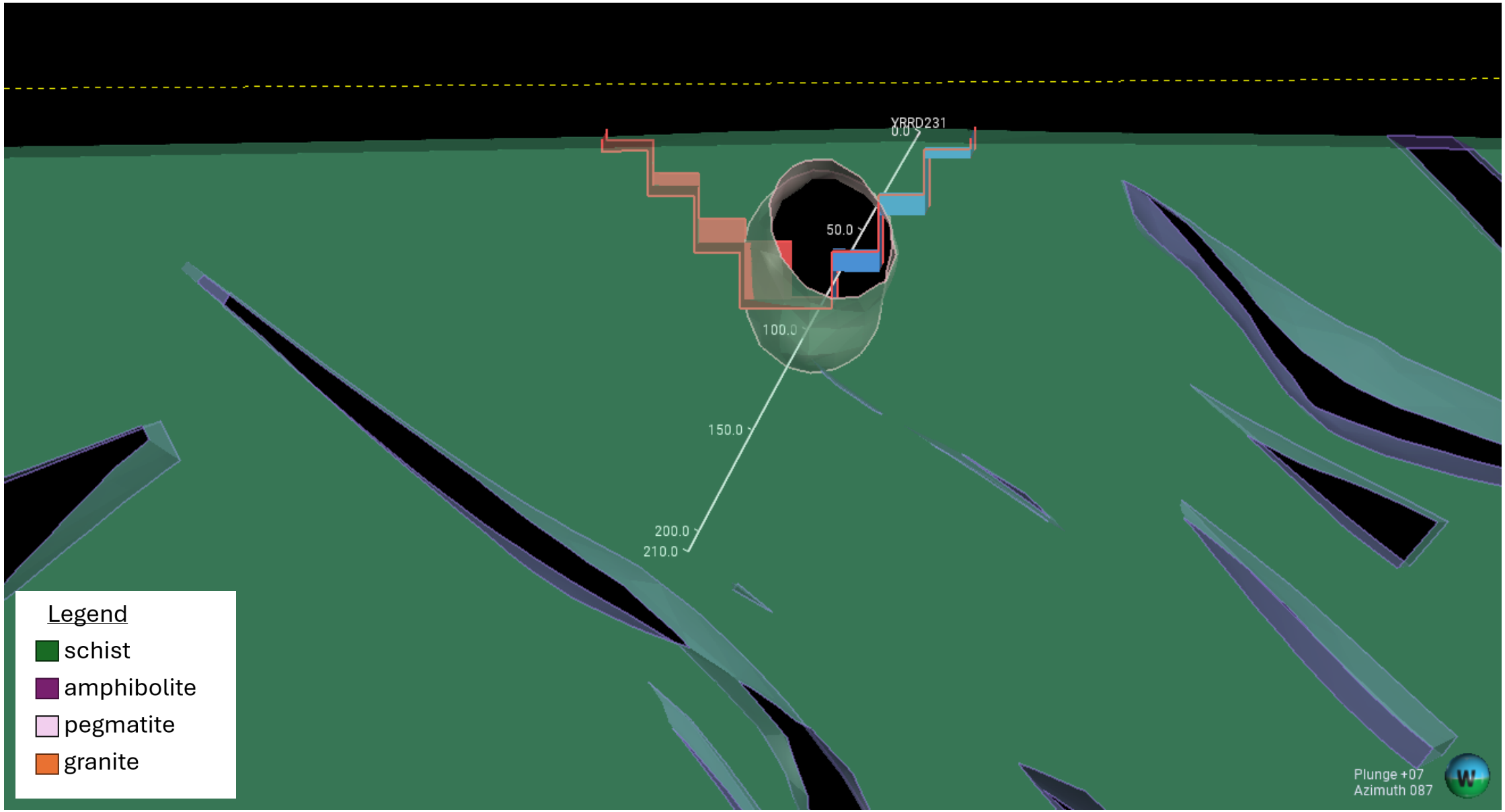
M36 west – YRRD295



M36 East – YRRD361



M69 – YRRD231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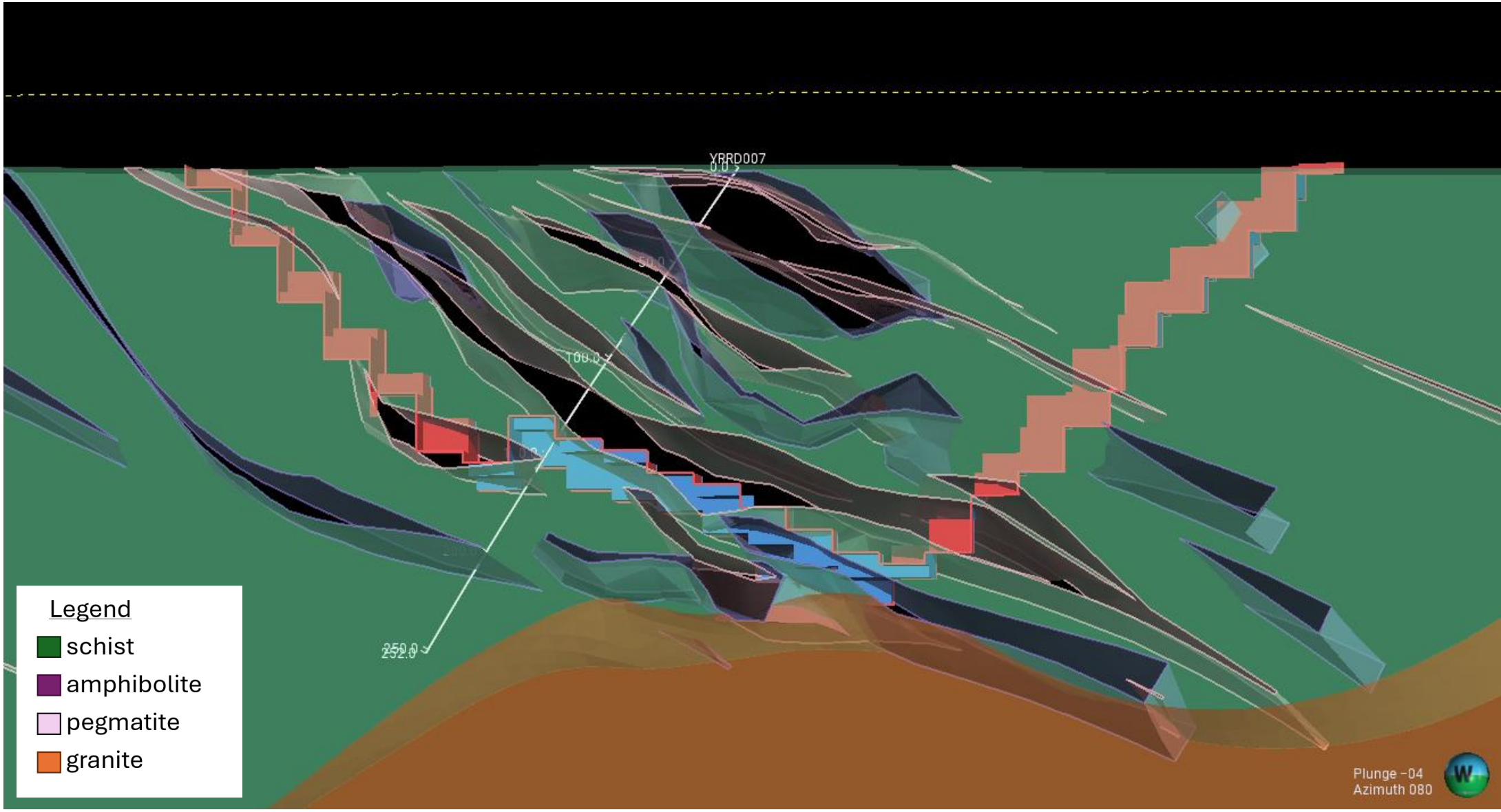
210.0
Legend
schist
amphibolite
pegmatite
granite
Plunge +07
Azimuth 087

M1 – YRRD007


YRRD007
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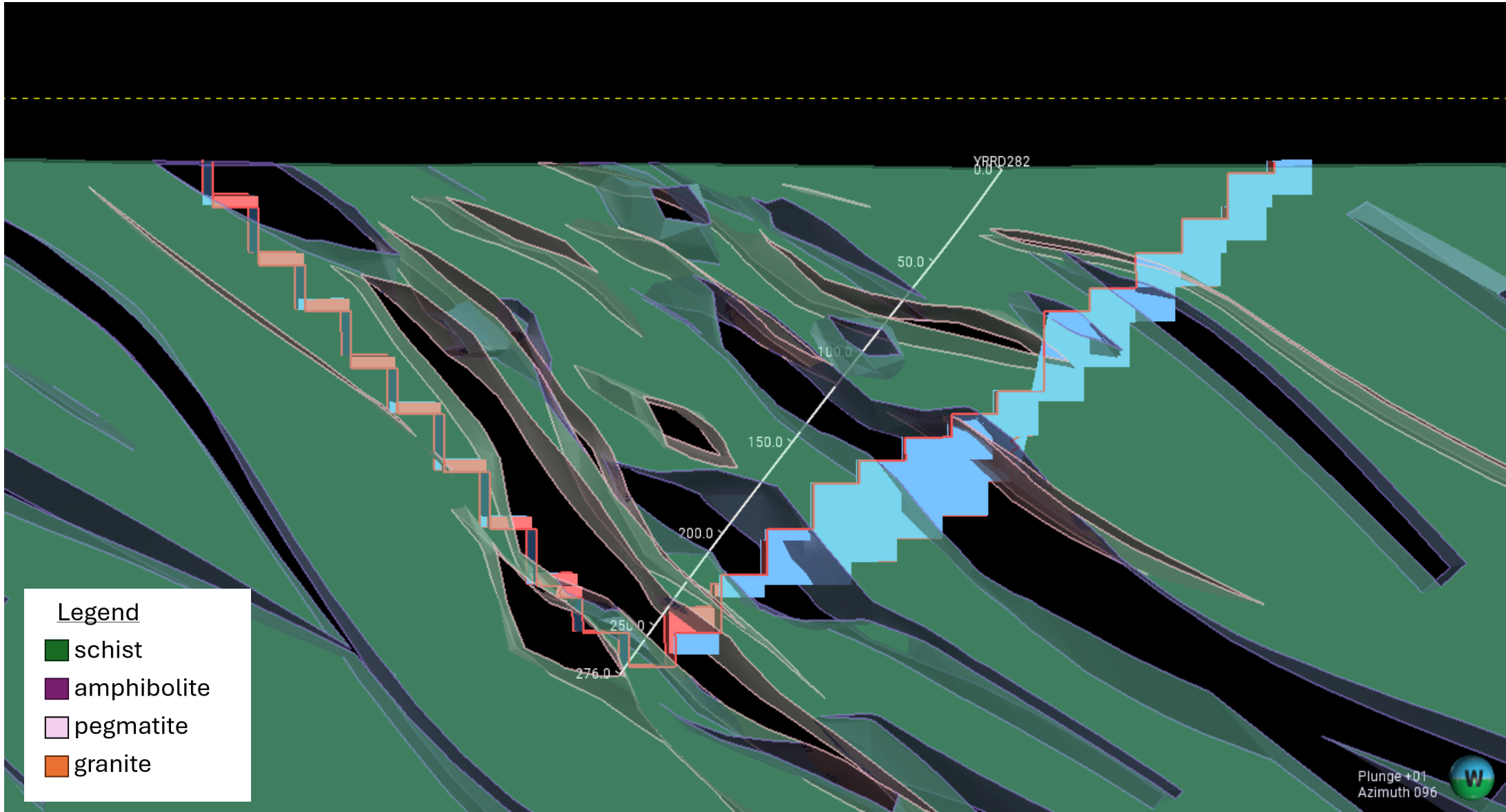
amphibolite
pegmatite
granite
Plunge -04
Azimuth 080

M1 – YRRD282


YRRD282
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50.0
100.0
150.0
200.0
250.0
276.0
Legend
schist
amphibolite
pegmatite
granite
Plunge +01
Azimuth 096

APPENDIX D

APPENDIX D:
QA/QC RESULTS SUMMARY

MBS ENVIRONMENTAL

1. Background

Standard laboratory QA/QC programs include the following samples:

- An 'Internal Blank'. This is used to verify that cross contamination of samples or sample aliquots has not occurred in the laboratory.
- Duplicates. These are used to verify the reproducibility of sample preparation and analysis by calculation of the relative percentage difference (RPD) between duplicates. Duplicates from the laboratory are normally performed at a rate of one in twenty analytical samples (five percent).
- A laboratory certified reference material with known composition/analysis by means of a particular method for comparison.

The primary metric used to measure the accuracy of sample preparation and analysis in the laboratory is 'percentage recovery' (Standards Australia 2005). It is used to identify many of the issues that surround poor accuracy and reproducibility such as ineffective extraction methods, sample matrix effects and spectral interferences within the analytical instrumentation.

2. Internal Laboratory Quality Control and Assurance

The laboratory internal blanks analysed as part of analysis batches all returned values close to or below the limits of reporting for all metals and parameters analysed. No issues with laboratory cross contamination of samples within the laboratory is therefore suggested.

RPD values for all internal laboratory duplicate samples are included in the laboratory reports (Appendix B) and collated in Table 1 to Table 7 below. Acceptable RPDs are considered to be within 50% (AS 4482.1-2005 and MPL 2022 criteria) or within 30% (NEPC 2013c Schedule B3) for values more than five times the limit of reporting (specified by USEPA 1994). All analytes tested, were within the 30% RPD criteria for values more than five times the reporting limit for ABA, elemental composition and aqua regia digest. One analyte exceeded the NAG liquor analysis for 30% RPD criteria and 50% criteria for vanadium and boron with values of −40 and −66.67%, respectively. One analyte exceeded the 30% RPD criteria for mater majors (carbonate, −66.67%) and acetic acid leachate (tungsten, −66.67%) with the water metals recorded the most analytes exceeding the RPD criteria with one analyte exceeding the 30% RPD criteria and twelve analytes exceeding the 50% RPD criteria with values ranging from −66.67% to −139.13%.

The results indicate an acceptable level of analytical techniques and laboratory reproducibility. In particular it is noted that instances of higher RPD in water extractable metals all corresponded to rare earths at trace levels - levels below any considered default environmental criteria. Clay particles have a high affinity for these metals and presence of any clay particles/colloids passing through filtration of the extract may have influenced these results.

Table 1: Summary of Waste Rock Internal Laboratory RPD Values for Acid Base Accounting

Analyte	Units	Y036166			Y035300		
		Sample	Duplicate	RPD %	Sample	Duplicate	RPD %
ANC	kgH_2SO_4/t	28	27	−3.64	12	11	−8.70
C	%	0.04	0.04	0	<0.01	<0.01	N/A
EC	µS/cm	303	304	0.33	235	244	3.76
Final-pH	None	2	2.2	9.52	1.9	1.9	0
MPA	kgH_2SO_4/t	5	5	0	2	2	0
NAG	kgH_2SO_4/t	0	0	0	0	0	0
NAGpH	None	7.7	7.7	0	7.1	7.2	1.40
NAG(4.5)	kgH_2SO_4/t	0	0	0	0	0	0
NAPP	kgH_2SO_4/t	−23	−22	−4.44	−10	−9	−10.53
pH	None	9.4	9.5	1.06	7.8	7.7	−1.29
S	%	0.15	0.15	0	0.06	0.05	−18.18

Indicates greater than 30% variation for results more than 5 times the limit of reporting (NEPM 2013).

Indicates greater than 50% variation for results more than 5 times the limit of reporting (AS4482.1).

Table 2: Summary of Waste Rock Internal Laboratory RPD Values for NAG Liquor

Analyte	Units	Y035300		
		Sample	Duplicate	RPD
				%
Ag	mg/kg	<0.1	<0.1	N/A
Al	mg/kg	4	3	−28.57
As	mg/kg	<1	<1	N/A
B	mg/kg	2	1	−66.67
Ba	mg/kg	<0.1	<0.1	N/A
Be	mg/kg	<0.1	<0.1	N/A
Bi	mg/kg	<0.01	<0.01	N/A
Ca	mg/kg	35	35	0
Cd	mg/kg	<0.1	<0.1	N/A
Ce	mg/kg	<0.01	<0.01	N/A
Co	mg/kg	0	0	0
Cr	mg/kg	3	4	28.57
Cs	mg/kg	<0.005	<0.005	N/A
Cu	mg/kg	<1	<1	N/A
Fe	mg/kg	<1	<1	N/A
Ga	mg/kg	<0.1	<0.1	N/A
Ge	mg/kg	<0.1	<0.1	N/A
Hf	mg/kg	<0.01	<0.01	N/A
Hg	mg/kg	<0.01	<0.01	N/A
K	mg/kg	790	788	−0.25
La	mg/kg	<0.01	<0.01	N/A
Li	mg/kg	0.6	0.7	15.38
Mg	mg/kg	250	272	8.43
Mn	mg/kg	<1	<1	N/A
Mo	mg/kg	0.2	0.2	0
Na	mg/kg	399	394	−1.26
Nb	mg/kg	<0.05	<0.05	N/A
Ni	mg/kg	<1	<1	N/A
P	mg/kg	<10	<10	N/A
Pb	mg/kg	<2	<2	N/A
Rb	mg/kg	5.34	5.85	9.12

Analyte	Units	Y035300		
		Sample	Duplicate	RPD
				%
S	mg/kg	604	601	−0.50
Sb	mg/kg	<0.05	<0.05	N/A
Sc	mg/kg	<1	<1	N/A
Se	mg/kg	<2	<2	N/A
Sn	mg/kg	<0.1	<0.1	N/A
Sr	mg/kg	0.41	0.43	4.76
Ta	mg/kg	<0.01	<0.01	N/A
Te	mg/kg	<0.1	<0.1	N/A
Th	mg/kg	<0.01	<0.01	N/A
Ti	mg/kg	<1	<1	N/A
Tl	mg/kg	<0.02	<0.02	N/A
U	mg/kg	0.03	0.04	28.57
V	mg/kg	3	2	−40.00
W	mg/kg	0.4	0.5	22.22
Y	mg/kg	<0.05	<0.05	N/A
Zn	mg/kg	<1	<1	N/A

Indicates greater than 30% variation for results more than 5 times the limit of reporting (NEPM 2013).

Indicates greater than 50% variation for results more than 5 times the limit of reporting (AS4482.1).

Table 3: Summary of Waste Rock Internal Laboratory RPD Values for Elemental Composition

Analyte	Units	Y008673		
		Sample	Duplicate	RPD
				%
Ag	mg/kg	<0.05	<0.05	N/A
Al	mg/kg	81,324	80,976	−0.43
As	mg/kg	2.3	1.9	−19.05
Ba	mg/kg	102.7	102.9	0.19
Be	mg/kg	12.9	12.9	0.00
Bi	mg/kg	1.05	1.04	−0.96
Ca	mg/kg	42,235	42,353	0.28
Cd	mg/kg	0.17	0.17	0.00
Ce	mg/kg	14.66	14.84	1.22
Co	mg/kg	44	44.1	0.23

Analyte	Units	Y008673		
		Sample	Duplicate	RPD %
Cr	mg/kg	250.3	204.9	−19.95
Cs	mg/kg	1,010.86	1,023.79	1.27
Cu	mg/kg	5	4.2	−17.39
Fe	%	7.46	7.559	1.32
Ga	mg/kg	19.09	19.2	0.57
Ge	mg/kg	3.7	3.4	−8.45
Hf	mg/kg	0.77	0.78	1.29
In	mg/kg	0.08	0.09	11.76
K	mg/kg	12,045	12,104	0.49
La	mg/kg	6.79	6.9	1.61
Li	mg/kg	662.5	673	1.57
Mg	mg/kg	4,8975	4,9201	0.46
Mn	mg/kg	1,829.2	1,828.5	−0.04
Mo	mg/kg	1.05	1.05	0
Na	mg/kg	20,819	21,117	1.42
Nb	mg/kg	4.07	4.17	2.43
Ni	mg/kg	42.9	43.4	1.16
P	mg/kg	198	195	−1.53
Pb	mg/kg	56.2	54.9	−2.34
Rb	mg/kg	759.01	764.98	0.78
Re	mg/kg	<0.002	<0.002	N/A
S	%	0.011	0.01	−9.52
Sb	mg/kg	0.16	0.185	14.49
Sc	mg/kg	44.46	43.97	−1.11
Se	mg/kg	<0.05	<0.05	N/A
Sn	mg/kg	4.1	4.1	0
Sr	mg/kg	103.1	102	−1.07
Ta	mg/kg	1.79	1.88	4.90
Te	mg/kg	0.005	0.006	18.18
Th	mg/kg	3.07	3.07	0
Ti	mg/kg	4,000	3,941	−1.49
Tl	mg/kg	5.37	5.39	0.37
U	mg/kg	1.163	1.17	0.60
V	mg/kg	237.7	231.78	−2.52

Analyte	Units	Y008673		
		Sample	Duplicate	RPD %
W	mg/kg	5.89	5.32	−10.17
Y	mg/kg	11.36	11.18	−1.60
Zn	mg/kg	187	189	1.06
Zr	mg/kg	26.17	22.84	−13.59

Indicates greater than 30% variation for results more than 5 times the limit of reporting (NEPM 2013).

Indicates greater than 50% variation for results more than 5 times the limit of reporting (AS4482.1).

Table 4: Summary of Waste Rock Internal Laboratory RPD Values for Aqua Regia Digest

Analyte	Units	Y008673		
		Sample	Duplicate	RPD %
Ag	mg/kg	<0.05	<0.05	N/A
Al	mg/kg	81,324	80,976	−0.43
As	mg/kg	2.3	1.9	−19.05
Ba	mg/kg	102.7	102.9	0.19
Be	mg/kg	12.9	12.9	0.00
Bi	mg/kg	1.05	1.04	−0.96
Ca	mg/kg	42,235	42,353	0.28
Cd	mg/kg	0.17	0.17	0.00
Ce	mg/kg	14.66	14.84	1.22
Co	mg/kg	44	44.1	0.23
Cr	mg/kg	250.3	204.9	−19.95
Cs	mg/kg	1,010.86	1,023.79	1.27
Cu	mg/kg	5	4.2	−17.39
Fe	%	7.46	7.559	1.32
Ga	mg/kg	19.09	19.2	0.57
Ge	mg/kg	3.7	3.4	−8.45
Hf	mg/kg	0.77	0.78	1.29
In	mg/kg	0.08	0.09	11.76
K	mg/kg	12,045	12,104	0.49
La	mg/kg	6.79	6.9	1.61
Li	mg/kg	662.5	673	1.57
Mg	mg/kg	4,8975	4,9201	0.46
Mn	mg/kg	1,829.2	1,828.5	−0.04

Mo	mg/kg	1.05	1.05	0
Na	mg/kg	20,819	21,117	1.42
Nb	mg/kg	4.07	4.17	2.43
Ni	mg/kg	42.9	43.4	1.16
P	mg/kg	198	195	−1.53
Pb	mg/kg	56.2	54.9	−2.34
Rb	mg/kg	759.01	764.98	0.78
Re	mg/kg	<0.002	<0.002	N/A
S	%	0.011	0.01	−9.52
Sb	mg/kg	0.16	0.185	14.49
Sc	mg/kg	44.46	43.97	−1.11
Se	mg/kg	<0.05	<0.05	N/A
Sn	mg/kg	4.1	4.1	0
Sr	mg/kg	103.1	102	−1.07
Ta	mg/kg	1.79	1.88	4.90
Te	mg/kg	0.005	0.006	18.18
Th	mg/kg	3.07	3.07	0
Ti	mg/kg	4,000	3,941	−1.49
Tl	mg/kg	5.37	5.39	0.37
U	mg/kg	1.163	1.17	0.60
V	mg/kg	237.7	231.78	−2.52
W	mg/kg	5.89	5.32	−10.17
Y	mg/kg	11.36	11.18	−1.60
Zn	mg/kg	187	189	1.06
Zr	mg/kg	26.17	22.84	−13.59

Indicates greater than 30% variation for results more than 5 times the limit of reporting (NEPM 2013).

Indicates greater than 50% variation for results more than 5 times the limit of reporting (AS4482.1).

Table 5: Summary of Waste Rock Internal Laboratory RPD Values for Water Majors

Analyte	Units	Y043821		
		Sample	Duplicate	RPD
				%
pH	NONE	8.1	8.2	1.23
EC	µS/cm	224	222	−0.90
Ca	mg/L	0.33	0.34	2.99
K	mg/L	23.9	24.9	4.10

Analyte	Units	Y043821		
		Sample	Duplicate	RPD
				%
Mg	mg/L	0.62	0.59	−4.96
Na	mg/L	27.2	28.2	3.61
F	mg/L	0.4	0.4	0.00
Cl	mg/L	36	38	5.41
OH^-	mg$CaCO_3$/L	<1	<1	N/A
CO_3^{2-}	mg$CaCO_3$/L	2	1	−66.7
HCO_3^-	mg$CaCO_3$/L	48	49	2.06

Indicates greater than 30% variation for results more than 5 times the limit of reporting (NEPM 2013).

Indicates greater than 50% variation for results more than 5 times the limit of reporting (AS4482.1).

Table 6: Summary of Waste Rock Internal Laboratory RPD Values for Water Extractable Metals

Analyte	Units	Y043821		
		Sample	Duplicate	RPD
				%
Ag	µg/L	<0.01	<0.01	N/A
Al	mg/L	1.17	0.97	−18.7
As	µg/L	0.1	0.1	0
B	mg/L	0.02	0.01	−66.7
Ba	µg/L	6.94	1.72	−120
Be	µg/L	<0.1	<0.1	N/A
Bi	µg/L	0.039	0.013	−100
Ca	mg/L	0.33	0.34	2.99
Cd	µg/L	<0.02	<0.02	N/A
Ce	µg/L	5.095	1.666	−101
Cl	mg/L	36	38	5.41
Co	µg/L	0.3	<0.1	N/A
Cr	mg/L	<0.01	<0.01	N/A
Cs	µg/L	0.002	0.002	0
Cu	mg/L	<0.01	<0.01	N/A
Fe	mg/L	0.46	0.2	−78.8
Ga	µg/L	4.4	3.93	−11.28
Ge	µg/L	<0.1	<0.1	N/A

Analyte	Units	Y043821		
		Sample	Duplicate	RPD %
Hf	µg/L	0.195	0.035	−139
Hg	µg/L	<0.1	<0.1	N/A
K	mg/L	23.9	24.9	4.10
La	µg/L	2.61	0.882	−99
Li	µg/L	26.45	27.2	2.80
Mg	mg/L	0.62	0.59	−4.96
Mn	mg/L	0.004	0.002	−67
Mo	µg/L	2.7	2.78	2.92
Na	mg/L	27.2	28.2	3.61
Nb	µg/L	0.11	<0.05	N/A
Ni	mg/L	<0.01	<0.01	N/A
P	mg/L	<0.05	<0.05	N/A
Pb	µg/L	1.7	<0.5	N/A
Rb	µg/L	92.71	87.52	−5.76
S	mg/L	2	2.1	4.88
Sb	µg/L	0.03	0.04	28.57
Sc	mg/L	<0.01	<0.01	N/A
Se	µg/L	1.9	1.4	−30.3
Sn	µg/L	<0.1	<0.1	N/A
Sr	µg/L	2.52	2.06	−20.09
Ta	µg/L	0.015	0.004	−116
Te	µg/L	<0.1	<0.1	N/A
Th	µg/L	1.369	0.371	−114
Ti	mg/L	<0.01	<0.01	N/A
Tl	µg/L	0.05	0.04	−22.22
U	µg/L	0.203	0.077	−90
V	mg/L	<0.01	<0.01	N/A
W	µg/L	10.43	9.51	−9.23
Y	µg/L	0.683	0.147	−129
Zn	mg/L	<0.01	<0.01	N/A

Indicates greater than 30% variation for results more than 5 times the limit of reporting (NEPM 2013).

Indicates greater than 50% variation for results more than 5 times the limit of reporting (AS4482.1).

Table 7: Summary of Waste Rock Internal Laboratory RPD Values for Acetic Acid Leachate

Analyte	Units	MW-Comp4		
		Sample	Duplicate	RPD %
Ag	µg/L	0.02	<0.01	N/A
Al	mg/L	27.22	27.45	0.84
As	µg/L	0.7	0.7	0
B	mg/L	0.08	0.08	0
Ba	µg/L	135.46	136.13	0.49
Be	µg/L	15	14.9	−0.67
Bi	µg/L	0.314	0.307	−2.25
Ca	mg/L	26.78	27.02	0.89
Cd	µg/L	1.16	1.19	2.55
Ce	µg/L	12.379	12.506	1.02
Co	µg/L	16.3	16.2	−0.62
Cr	mg/L	0.03	0.03	0
Cs	µg/L	0.048	0.048	0
Cu	mg/L	0.09	0.09	0
Fe	mg/L	30.71	30.94	0.75
Final-pH	NONE	3.6	3.6	0
Ga	µg/L	0.18	0.18	0
Ge	µg/L	1	1	0
Hf	µg/L	0.013	0.013	0
Hg	µg/L	<0.1	<0.1	N/A
K	mg/L	32.2	32.4	0.62
La	µg/L	6.068	6.131	1.03
Li	µg/L	2069.41	2101.21	1.52
Li	mg/L	1.6	1.6	0
Mg	mg/L	8.49	8.54	0.59
Mn	mg/L	12.383	12.487	0.84
Mo	µg/L	0.33	0.4	19.18
Na	mg/L	32.8	33	0.61
Nb	µg/L	<0.05	<0.05	N/A
Ni	mg/L	0.03	0.03	0
P	mg/L	0.8	0.81	1.24

Analyte	Units	MW-Comp4		
		Sample	Duplicate	RPD %
Pb	µg/L	6.5	6.5	0
Rb	µg/L	1004.85	1000.65	−0.42
S	mg/L	1.8	1.9	5.41
Sb	µg/L	0.02	0.03	40
Sc	mg/L	<0.01	<0.01	N/A
Se	µg/L	<0.5	<0.5	N/A
Sn	µg/L	<0.1	<0.1	N/A
Sr	µg/L	185.3	186.81	0.81
Ta	µg/L	0.129	0.118	−8.91
Te	µg/L	<0.1	<0.1	N/A
Th	µg/L	0.038	0.04	5.13
Ti	mg/L	<0.01	<0.01	N/A
Tl	µg/L	2.85	2.89	1.39
U	µg/L	28.51	28.605	0.33
V	mg/L	<0.01	<0.01	N/A
W	µg/L	0.06	0.03	−66.67
Y	µg/L	5.613	5.648	0.62

Indicates greater than 30% variation for results more than 5 times the limit of reporting (NEPM 2013).

Indicates greater than 50% variation for results more than 5 times the limit of reporting (AS4482.1).

3. Quality Assurance Summary

Duplicate samples analysed by the laboratory (Intertek) reported RPD values within 30% (NEPC 2013b Schedule B3) for the majority of analyses. A summary of each analysis is detailed below:

ABA:

- No analytes exceeded any RPD criteria.
- RPD values ranged from 0% to −18.18%.

NAG Liquor:

- No analytes exceeded any RPD criteria overall.
- One RPD 30% criteria exceedance (vanadium, −40.00%) and one 50% RPD criteria exceedance (boron, −66.67%), however these were within 5 times the limit of reporting.

Elemental Composition:

- No analytes exceeded any RPD criteria.
- RPD values ranged from 0% to −19.95%.

Aqua Regia Digest:

- No analytes exceeded any RPD criteria.
- RPD values ranged from 0% to 28.57%.

Water Majors:

- One 50% RPD criteria exceedance (carbonate, −66.67%), however this was within 5 times the limit of reporting.
- RPD values ranged from 0% to −66.67%.

Water Extractable Metals:

- One RPD 30% criteria exceedance (selenium, −30.30%) and twelve 50% RPD criteria exceedance.
- RPD values ranged from 0% to −139.13%.

Acetic Acid Leachate:

- No analytes exceeded any RPD criteria overall.
- One 50% RPD criteria exceedance (tungsten, −66.67%), however this was within 5 times the limit of reporting.

Keeping this in mind and based on the quality assurance controls assessment discussed above, it is considered that the reported results are of an acceptable quality upon which to draw reliable conclusions. In particular, it is noted that instances of higher RPD in water extractable metals all

corresponded to rare earths at trace levels - levels below any considered default environmental criteria. Clay particles have a high affinity for these metals and presence of any clay particles/colloids passing through filtration of the extract may have influenced these results.

4. References

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