BHP Mitsubishi Alliance

Appendix B

Geochemistry Assessment

TERRENUS
EARTH SCIENCES

Geochemical Assessment of Potential Spoil, Coal Tailings and Coarse Reject Materials

BLACKWATER MINE
NORTH EXTENSION PROJECT

Prepared for:

SLR Consulting, on behalf of BM Alliance Coal Operations Pty Ltd

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EXECUTIVE SUMMARY

Terrenus Earth Sciences (Terrenus) has completed a geochemical assessment of potential mineral waste (sub-soil and rock) from the Blackwater Mine (BWM) North Extension Project (the Project), being developed by BM Alliance Coal Operations Pty Ltd (BMA). The Project proposes an eastward (down-dip) extension to several existing open cut pits located at the northern end of BWM. Run-of-mine (RoM) coal would continue to be processed at the coal handling and preparation plant (CHPP), with tailings and coarse reject continuing to be disposed of in accordance with the BWM Environmental Authority (EA) [EPML00717813]. The geochemical assessment was completed to assist with mine planning and as part of the environmental regulatory documentation for the Project.

Terrenus has geochemically assessed potential overburden and interburden (collectively called spoil) and coal from drill-hole samples, and coal reject samples obtained from the CHPP. All geochemical data has been sourced from BHP (primarily from the BHP coal geochemical database).

Geochemical samples were obtained from two sources:

- Drill-core samples collected and analysed during 2019-2020 by BWM and BHP Minerals Australia Closure Planning.
- Tailings (fine reject) samples collected from the CHPP since 2010 by BWM and BHP Minerals Australia Closure Planning. A small number of coarse reject sample results are available from samples collected from coarse reject disposal areas at BWM.

The number of drill-hole samples of each key mineral waste group/type are approximately proportional to the drill-hole meterage of the mineral waste type in the assessment drill-holes. Tailings and coarse reject samples are representative of fine and coarse reject expected to be produced from the CHPP from processing RoM coal from the Project.

All samples were assessed with respect to their ability to generate acid and metalliferous drainage (AMD) and salinity. AMD includes acid/acidic drainage (AD), neutral and metalliferous drainage (NMD) and saline drainage from sulfide oxidation (SD). Samples representing materials likely to report to final landform surfaces (*ie*. spoil samples) also underwent assessment for sodicity and dispersion potential.

The geochemical characteristics associated with mineral waste materials are discussed by type:

- Non-carbonaceous spoil (n=638 samples) – estimated to represent about 92 per cent of the total mineral waste and about 98 per cent of spoil. About 15 per cent of non-carbonaceous spoil will be weathered material.
- Carbonaceous spoil (excluding coal reject) (n=63 samples) – estimated to represent about two to three per cent of the total mineral waste and about two per cent of spoil. Of this, essentially all will be unweathered (fresh). This material type comprises materials described as carbonaceous and/or coaly (excluding coal from target seams).
- Tailings (n=180 samples) – fine-grained mineral waste from the CHPP. Estimated to represent about two per cent of the total mineral waste.
- Coarse reject (n=15 samples) – coarse-grained gravel to cobble-sized mineral wastes from the CHPP. Estimated to represent about 3 per cent of the total mineral waste.

- Coal (n=87 samples) – will predominantly report as RoM coal that is stored temporarily on a RoM pad pending processing. A small proportion of coal from non-target seams/plys will report as waste, and may also remain exposed on the highwall.

Geochemical Characteristics of Non-Carbonaceous Spoil

AMD Potential of Non-Carbonaceous Spoil

- Non-carbonaceous spoil, as a bulk material, is expected to generate pH-alkaline to highly alkaline contact water (run-off and seepage).
- The total sulfur (total S) concentration of this material is very low, with a 90th percentile total S concentration of 0.06 per cent. As such, and combined with acid neutralising capacity (ANC) values (median 44 kilograms of sulfuric acid per tonne of rock [kg H_2SO_4/t]), which is significantly higher than the maximum potential acidity (MPA) (median 0.9 kg H_2SO_4/t), greater than 99 per cent of samples (634 out of 638 samples) were classified as non-acid forming (NAF). Due to the very low total S concentration, this material has a negligible potential to generate saline drainage (SD) due to sulfide oxidation.
- ANC is expected to be about 50-60 per cent available under field conditions, with dolomite (ankerite) and iron-dolomite being the main carbonate minerals contributing to the acid buffering potential of the spoil. Siderite, present in minor quantity, does not provide any net ANC. Overall, non-carbonaceous waste has excess acid neutralising capacity.
- Total metal and metalloid concentrations from 122 samples are very low compared to average element abundance in soil in the earth's crust. That is to say, non-carbonaceous spoil has low enrichment in total metals and metalloids compared to unmineralised rocks.
- Soluble multi-element results indicate that leachate from non-carbonaceous spoil is expected to contain low concentrations of soluble metals and metalloids.

Non-carbonaceous spoil – which is expected to represent about 92 per cent of the total mineral waste at the Project – has a negligible potential to generate AMD as either AD and/or NMD and/or SD.

Salinity Potential of Non-Carbonaceous Spoil

Non-carbonaceous spoil has electrical conductivity (EC) values ranging from 137 to 1670 microSiemens per centimetre (μS/cm), with 90th percentile values of 387 and 502 μS/cm.

Contact water (run-off and seepage) from non-carbonaceous spoil is expected to be non-saline, either as a result of dissolution of geogenic salts and/or from sulfide oxidation (sulfate salinity).

Sodicity and Dispersion Potential of Non-Carbonaceous Spoil

Non-carbonaceous spoil samples (n=117) had modest cation exchange capacity (CEC) values and high exchangeable sodium percentage (ESP) values, resulting in all except two samples being classified as 'strongly sodic'. The CEC and ESP values suggest that this material type would be

subject to some degree of dispersion. Emerson Class testing on all samples found that all samples displayed 'some dispersion'.

Non-carbonaceous spoil is expected to be strongly sodic with potential for dispersion.

Geochemical Characteristics of Carbonaceous Spoil

AMD Potential of Carbonaceous Spoil

- Carbonaceous spoil, as a bulk material, is expected to generate pH-alkaline to highly alkaline contact water (run-off and seepage).
- The total S concentration of this material is generally low, with a 90th percentile value of 0.57 per cent and similarly low 90th percentile sulfide (Scr) concentration of 0.35 per cent. A small number of samples had moderate to high total S (and Scr) concentrations. Due to the generally low total S concentration, this material has a low potential to generate SD due to sulfide oxidation.
- Combined with generally moderate ANC values (median 22 kg H_2SO_4/t) and relatively low MPA values (median 5.5 kg H_2SO_4/t), and net acid generation pH (NAGpH) values generally greater than pH 4.5, 86 per cent of carbonaceous samples were classified as NAF, with a further nine per cent classified as NAF-S [*ie*. NAF with total S greater than 1 per cent] or UC(NAF) [*ie*. uncertain, but expected to be NAF]. Three (out of 63 samples) were classified as potentially acid forming (PAF), low capacity PAF (PAF-LC) or UC(PAF) [*ie*. uncertain, but expected to be PAF].
- ANC is expected to be about 20-30 per cent available under field conditions, with iron-dolomite and dolomite (ankerite) being the main carbonate minerals contributing to the acid buffering potential of carbonaceous spoil. Siderite, present in minor quantity, does not provide any net ANC.
- Total metal and metalloid concentrations are generally very low compared to average element abundance in soil in the earth's crust. Seven of the 16 samples assayed had minor or significant enrichment with respect to S (consistent with the geochemical data) and/or arsenic (As) and/or mercury (Hg).
- Soluble multi-element results indicate that leachate from carbonaceous spoil is expected to contain low concentrations of soluble metals and metalloids – similar to non-carbonaceous spoil. Of the seven samples described above that had minor to significant enrichment with respect to S and/or As and/or Hg, five were classified as NAF/NAF-S and two were classified as PAF/PAF-LC. All samples produced pH-alkaline leachate – most with low soluble metals and metalloid concentrations, including As and Hg. One PAF sample produced soluble sulfate (SO_4), calcium (Ca), magnesium (Mg) and some metals (notably manganese [Mn]) at moderate to high concentrations – evidence of AMD generation – and confirming the PAF classification of this single sample.

Carbonaceous spoil has a generally low potential to generate AD and/or NMD and/or SD. A very small proportion of this material type has some potential to generate low-level AD and/or NMD and/or SD.

Salinity Potential of Carbonaceous Spoil

Carbonaceous spoil has similar EC values to non-carbonaceous spoil – ranging from 110 to 1260 μS/cm, with median and 90th percentile values of 367 and 509 μS/cm.

Consistent with non-carbonaceous spoil, contact water (run-off and seepage) from carbonaceous spoil is expected to be non-saline, either as a result of dissolution of geogenic salts and/or from sulfide oxidation (sulfate salinity).

Sodicity and Dispersion Potential of Carbonaceous Spoil

Carbonaceous spoil samples (n=63) had low CEC and high ESP values comparable to non-carbonaceous samples, resulting in all samples being classified as 'strongly sodic'. The CEC and ESP values suggest that this material type would be subject to some degree of dispersion. Emerson Class testing on all samples found that all samples displayed 'some dispersion'.

Consistent with non-carbonaceous spoil, carbonaceous spoil is expected to be strongly sodic with potential for dispersion.

Geochemical Characteristics of Tailings

AMD Potential of Tailings

- Tailings is expected to generate pH-alkaline contact water (run-off and seepage).
- The total S concentration of this material ranges from low to high, but is generally low-moderate to high, with 75th and 90th percentile total S values of 1.44 per cent and 4.92 per cent, respectively. The proportion of total S as sulfide was highly varied in the tailings samples, ranging from four per cent to 100 per cent of total S. The generally low-moderate to high total S concentration of tailings suggests some tailings may have some potential to generate SD due to sulfide oxidation.
- The ANC of samples spanned a wide range, from less than one to 129 kg H_2SO_4/t, with the median ANC (33 kg H_2SO_4/t) being only slightly higher than the median MPA (26 kg H_2SO_4/t). These results, combined with half of the tailings samples having NAGpH values below pH4.5, resulted in 31 per cent of tailings samples being classified as PAF or PAF-LC and 17 per cent classified as UC(PAF). That is, about half of 180 tailings samples were classified as PAF, PAF-LC or UC(PAF). Of the remaining samples, 31 per cent were classified as NAF and 19 per cent as UC(NAF).
- Kinetic geochemical test-work conducted on low-moisture tailings samples suggests relatively moderate to rapid pyrite oxidation rates of PAF tailings, with lag times until potential acidification (under oxidising conditions) ranging from less than one month to several years.
- There is a level of uncertainty surrounding the AMD classification of 36 per cent of the tailings samples and, as such, these samples have been tentatively classified as UC(NAF) or UC(PAF) based on comparing the data available for these samples with the results from tailings samples where extensive geochemical test-work has been undertaken. In view of the potential limitations

of the results, the classification of the samples is conservative and classifying approximately half of the tailings samples as PAF is likely an upper limit.

- ANC is expected to be about 55-65 per cent available under field conditions, with ANC availability expected to range from about 20-75 per cent, with iron-dolomite and dolomite (ankerite) as the main neutralising minerals contributing to the acid buffering of carbonaceous spoil. Siderite, present in minor quantity, does not provide any net ANC.
- With some exceptions, the total metal and metalloid concentrations from 34 samples tested are generally low compared to average element abundance in soil in the earth's crust. About 65 per cent of tailings samples tested were significantly enriched with regard to S and all tailings samples had some degree of enrichment with regard to S (consistent with the geochemical data). Four tailings samples had minor enrichment with regard to Hg. There was no correlation found between AMD classifications of the tailings samples compared to elemental enrichment.
- Soluble multi-element results indicate that leachate from tailings is expected to contain low concentrations of soluble metals and metalloids. Leachate from PAF tailings after oxidation has the potential to generate low pH leachate (AD) or NMD with elevated sulfate and soluble metal and metalloid concentrations. Under brackish and saline leaching conditions mobilisation of soluble metals and metalloids is also expected to be low.

A significant proportion (up to half) of tailings currently reporting to the tailings storage facility (TSF) [and also expected to be representative of tailings to be produced by the Project] have a moderate to high potential to generate AMD as either AD and/or NMD and/or SD.

Salinity Potential of Tailings

Tailings has EC values ranging from 274 to 4980 μS/cm, with median and 90th percentile values of 659 and 1135 μS/cm, respectively.

Contact water (run-off and seepage) for most current tailings is expected to be slightly to moderately saline, either as a result of dissolution of geogenic salts and/or from sulfide oxidation (sulfate salinity). A small proportion of current tailings are saline to strongly saline, with moderate potential for SD (from sulfide oxidation). The salinity characteristics of future tailings from the Project are expected to be comparable to existing tailings.

Geochemical Characteristics of Coarse Reject

Limited coarse reject sampling and analysis has been undertaken and, as such, the data is not statistically valid. Two thirds of the reject samples (10 samples) were clearly NAF, with relatively high ANC and low total S values, producing moderate to strongly negative net acid producing potential (NAPP) values. The remaining reject samples (5 samples) had varying AMD classifications of PAF, PAF-LC and UC(PAF).

The available data suggests that coarse reject is expected to have environmental geochemical characteristics potentially more similar to coal and carbonaceous spoil than to tailings – a finding that is consistent with the geochemical characteristics of coarse reject – generally – from similar

Permian coal mining operations with the Bowen Basin, based on Terrenus' significant experience working in the region.

Coarse reject has EC values (from 15 samples) ranging from 451 to 2020 μS/cm, with median and 90th percentile values of 1120 and 1806 μS/cm, respectively, and has generally low total S concentrations similar to coal. On this basis – and acknowledging the small dataset – contact water (run-off and seepage) is expected to be slightly to moderately saline, either as a result of dissolution of geogenic salts and/or from sulfide oxidation (sulfate salinity).

Geochemical Characteristics of RoM Coal

AMD Potential of RoM Coal

- RoM coal, as a bulk material, is expected to generate pH-alkaline to highly alkaline contact water (run-off and seepage).
- The total S concentration of this material is generally low, with 90th percentile total S and Scr values of 0.51 per cent and 0.25 per cent, respectively.
- Coal samples have a wide range of ANC values from less than 0.5 to 166 kg H_2SO_4/t however the median ANC is low (12 kg H_2SO_4/t) and, as such, 47 per cent of samples were classified as NAF with a further 21 per cent classified as UC(NAF) – with the remaining 32 per cent classified as PAF, PAF-LC or UC(PAF).
- There is a level of uncertainty surrounding the AMD classification of 27 per cent of the coal samples and, as such, these samples have been tentatively classified as UC(NAF) or UC(PAF) based on comparing the data available for these samples with the results from coal samples where extensive geochemical test-work has been undertaken. In view of the potential limitations of this extrapolation of the results, the classification of the samples is conservative and classifying approximately one-third of coal samples as PAF (to some degree) is likely an upper limit. The generally low sulfur concentrations in coal samples indicate that the sulfate loads from sulfide oxidation would likely be low.
- Total metal and metalloid concentrations from 23 samples tested are generally low compared to average element abundance in soil in the earth's crust. One sample (classified as NAF-S) was significantly enriched with regard to As, Hg and S. Half of the coal samples had some minor to moderate enrichment with regard to S.
- Soluble multi-element results from 23 samples tested indicate that contact water (run-off and seepage) from coal is expected to contain low concentrations of soluble metals and metalloids.

RoM coal has a low potential to generate AMD as either AD, NMD or SD.

Salinity Potential of RoM Coal

Coal has lower EC values from 31 to 623 μS/cm, with low median and 90th percentile values of 107 and 259 μS/cm, respectively.

On a RoM pad, coal is expected to generate low-salinity contact water (run-off and seepage). Due to the relatively low total S concentrations and the short exposure (temporary storage) of RoM coal, the potential for salinity release, either by dissolution of geogenic salts and/or from sulfide oxidation (sulfate salinity), is low.

Management and Mitigation of Spoil

The management of overburden and interburden (spoil) materials generated by the Project will be consistent with the current approved mine waste management strategy – comprising the disposal of overburden and interburden into in-pit spoil dumps, then progressively rehabilitated – with run-off and seepage captured by the mine water management system.

Spoil is overwhelmingly NAF with excess ANC and has a negligible risk of developing AMD, including AD, NMD or SD. Furthermore, surface water run-off and seepage from spoil is expected to be non-saline with relatively low soluble metal/metalloid concentrations. However, spoil is expected to be strongly sodic with potential for dispersion and erosion.

Where highly sodic and/or dispersive spoil is identified it should, wherever practicable, not report to final landform surfaces and should not be used in construction activities. Tertiary spoil has generally been found to be unsuitable for construction use or on final landform surfaces (Australian Coal Association Research Program [ACARP], 2004 and 2019).

It is unlikely that sodic and potentially dispersive spoil will be able to be selectively handled and emplaced during operation of the Project. Therefore, in the absence of such selective handling, spoil landforms would need to be constructed with short and low (shallow) slopes and progressively rehabilitated to minimise erosion, as per the BHP Landform Design Guideline (BHP, 2020b). Where practical, and where competent rock is available, armouring of slopes should be considered.

Where rock is used for construction activities, this should be limited to unweathered Permian sandstone, as this material has been generally found to be more suitable for construction and for use as embankment covering on final landform surfaces. Regardless of the rock type, especially where engineering or geotechnical stability is required, laboratory testing and rehabilitation field trials should be undertaken to determine the propensity for dispersion and erosion of spoil landforms.

Surface water run-off and seepage from spoil, including any rehabilitated areas, should be monitored for 'standard' water quality parameters including, but not limited to, pH, EC, major anions (sulfate [SO_4], chloride [Cl] and alkalinity), major cations (sodium [Na], calcium [Ca], magnesium [Mg] and potassium [K]), total dissolved solids (TDS) and a broad suite of soluble metals/metalloids at high resolution analysis.

With the implementation of the proposed management and mitigation measures spoil is regarded as posing a low risk of environmental harm.

Management and Mitigation of Tailings

Based on the current assessment, tailings are a mix of NAF and PAF materials, with geochemical properties controlled by the blend of coal seams being processed on the day. Potentially half of all tailings pose a moderate (to potentially high) AMD hazard with respect to generation of AD and/or NMD and/or SD, with lag times until potential AMD generation under relatively dry conditions of months to years. Under very moist or saturated conditions these lag times would be extended considerably (potentially indefinitely). Mineralogical analysis shows tailings to have a high clay content, comprising hydrophilic swelling clays (typical for Bowen Basin Permian coal tailings).

The management of tailings generated by the Project will be consistent with the current EA approved management strategies for tailings – comprising their disposal as a slurry into the TSF (or similar approved tailings disposal area).

Management of Coarse Reject

Based on the current assessment, coarse reject materials are regarded as posing a generally low AMD hazard with respect to generation of acidity and/or sulfate, however some coarse reject materials are expected to have some potential to generate low-level AMD.

The management of coarse reject generated by the Project will be consistent with the current approved management strategies for coarse reject – comprising their disposal within in-pit spoil dumps at designated disposal areas. Seepage would be confined within the footprint of the open cut pit and would drain into/towards open cut pit areas (and therefore be captured by the mine water management system). Surface water run-off would drain into mine dams/drains and also be captured by the mine water system. Therefore, when buried deeply amongst alkaline NAF spoil the risk of environmental harm and health-risk that emplaced coarse reject poses is very low.

Validation of Tailings and Coarse Reject

BMA will continue to undertake geochemical test-work of tailings and coarse reject samples during development of the Project. Test-work would, at minimum, comprise a broad suite of environmental geochemical parameters, such as pH, EC (salinity), acid-base accounting (ABA) parameters, sulfur speciation, and total and soluble metals/metalloids analysis at high resolution.

Management of RoM Coal and RoM Stockpiles

RoM coal is not mining waste, and surface water run-off and seepage from RoM stockpiles would not report off-site and would be managed as part of the mine water management system. The available information suggests that RoM coal generated by the Project is expected to have a low risk associated with potential acid, salt and soluble metals generation. Surface water run-off from RoM coal and product coal stockpiles would also be assessed on a periodic basis.

RoM coal would be stored at BWM for a relatively short period of time (days to weeks) compared to mineral waste materials, which would be stored at BWM in perpetuity. Management practices are therefore different for RoM coal (compared to spoil) and would largely be based around the operational (day-to-day) management of surface water run-off from RoM coal stockpiles, as is currently accepted practice at coal mines in Australia.

Surface water run-off from RoM coal stockpiles would be monitored for 'standard' water quality parameters including, but not limited to, pH, EC, major anions (SO_4, Cl and alkalinity/acidity), major cations (Ca, K, Mg, Na), TDS, and a broad suite of soluble metals/metalloids at high resolution analysis.

Geochemical Assessment of Potential Spoil, Coal, Tailings and Coarse Reject Materials

BLACKWATER MINE - NORTH EXTENSION PROJECT

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GLOSSARY of TERMS

Acid	A measure of hydrogen ion (H^+) concentration in water; generally expressed as pH.
Acid-Base Account	Evaluation of the balance between acid generation and acid neutralisation processes. Generally determined by the maximum potential acidity (MPA) and the inherent acid neutralising capacity (ANC), as defined below. See also "MPA" and "ANC".
AMD	Acid and metalliferous drainage from mining waste material. A process of sulphide oxidation generating a drainage of variable chemistry depending on the balance between acid generating and acid neutralising capacity of a material. It includes acid(ic) drainage (AD), pH-neutral and metalliferous drainage (NMD), or saline drainage (SD). The term AMD is used more recently to replace the term acid rock drainage (ARD) as metalliferous and saline drainage can occur under pH-neutral conditions.
ANC	Acid neutralising capacity, expressed as kg H_2SO_4 per tonne of rock/material. A measure of a sample's maximum potential ability to neutralise acid.
ANC/MPA ratio	Ratio of the acid neutralising capacity (ANC) to the maximum potential acidity (MPA) of a sample. Used to assess the risk of a sample generating acid conditions. See also "ANC" and "MPA".
CHPP	Coal handling and preparation plant.
Coal reject	The general term given to solid waste produced during the processing of coal, typically from a CHPP. Coal reject is produced in different size fractions – fine (such as tailings) through to very coarse (such as breaker rejects) and combinations thereof.
EC	Electrical conductivity, expressed as μS/cm.
Interburden	Potential spoil material between mined coal seams. See also "overburden", "mining waste" and "spoil".
Kinetic test	Procedure used to measure the geochemical/weathering behaviour of a sample of mine material over time.
MPA	Maximum potential acidity. Calculated by multiplying the total sulfur (S) or sulfide-sulfur (Scr) content of a sample by 30.6 (stoichiometric factor) and expressed as kg H_2SO_4 per tonne of rock/material.
Mineral waste	Overburden, interburden and similar 'waste rock' material mined during extraction of coal. In this report, the definition of Mineral Waste also extends to coal reject materials (see "Coal reject").

NAF	Non-acid forming. Geochemical classification criterion for a sample that would not generate acid conditions. A sample classified as NAF may, or may not, have a significant sulfur content but the availability of neutralising material within the sample is more than adequate to neutralise all the acid that theoretically could be produced by any contained sulfide minerals. As such, material classified as NAF is considered unlikely to be a source of acidic drainage, however NAF material may still develop NMD and/or SD.
NAPP	Net acid producing potential, expressed as kg H_2SO_4 per tonne of rock/material. Calculated by subtracting the ANC from the MPA.
NATA accreditation	Accreditation by the National Association of Testing Authorities (Australia). NATA accreditation for a specific analytical test indicates that the test method and means of undertaking the test (following the method and achieving valid results) by the laboratory has been independently recognised by NATA. Accreditation provides a means of determining and formally recognising the competence of facilities to perform specific types of testing, inspection, calibration, and other related activities, on a routine basis.
NMD	Neutral and metalliferous drainage. A component of AMD, NMD occurs where drainage is pH-neutral or higher yet contains elevated trace metals and metalloids in solution.
Org S	Organic sulfur.
Overburden	Potential spoil material overlying the uppermost mined (economic) coal seam. See also "spoil".
OxCon	Oxygen consumption test. A type of kinetic test for estimating the sulfide oxidation rates, acidity generation rates and carbonate neutralisation rates for sulfidic geological materials.
PAF	Potentially acid forming. Geochemical classification criterion for a sample that has the potential to generate acid conditions. A sample classified as PAF has an acid generating potential (MPA) that exceeds the inherent acid neutralising capacity (ANC) of the material. This means there is a high risk that such a material, even if pH circum-neutral when freshly mined or processed, could oxidise and generate acidic drainage if exposed to atmospheric conditions. See also PAF-LC.
PAF-LC	Potentially acid forming (low capacity). Geochemical classification criterion for a sample that has the potential to generate relatively low-level AMD.
Rejects	In this report, 'rejects' refers to all coal reject other than tailings.
RoM	Run of mine. Coal as it comes from the mine, including any impurities.
S	Sulfur.
Scr	Chromium reducible sulfur. Analytical procedure to determine the sulfide-sulfur concentration in a sample.

SD	Saline drainage. A component of AMD, SD occurs where drainage is saline due to elevated sulfate as a result of sulfide oxidation.
SO_4	Sulfate.
Spoil	Also called 'waste rock'. Rock material overlying and between 'target' coal seams, which will report as waste. Waste rock overlying a mined coal seam is called overburden. Waste rock between mined coal seams is called interburden.
Static test	Procedure for characterising the geochemical nature of a sample at one point in time. Static tests may include measurements of mineral and chemical composition of a sample and the Acid-Base Account.
Tailings	Very fine-grained mining waste material produced from the CHPP as part of the processing and washing of coal, and which have not been dewatered. Tailings typically comprises mud/clay, silt and fine coal present in CHPP wastewater.
Uncertain (UC)	In the context of classifying a material (sample) as NAF or PAF. An 'Uncertain' classification (UC) applies when there is an apparent conflict in results such that neither NAF nor PAF classification can be given, or there is insufficient information to unequivocally classify as NAF or PAF. Uncertain samples are sometimes given a tentative sub-classification, such as UC(NAF) or UC(PAF) where preliminary data suggests the sample may be NAF or PAF, respectively.
Water extract	A method to determine the water-soluble parameters in soil. Solid samples undergo a bottle leach method where 10 g of pulped solid (85 per cent passing 75 μm) is combined with 50 grams of de-ionised water into a glass bottle. The 1:5 solution (one part solid to five parts water) is tumbled end-over-end for one hour. Solutes are leached from the soil by the continuous suspension and agitation. The water extract solution is measured for pH and electrical conductivity (EC) prior to filtering for solute analysis (eg. metals/metalloids and major ions).

1 Introduction and Context

Terrenus Earth Sciences (Terrenus) has completed a geochemical assessment of potential mineral waste (sub-soil and rock) from the Blackwater Mine (BWM) North Extension Project (the Project), being developed by BM Alliance Coal Operations Pty Ltd. The Project proposes an eastward (down-dip) extension to several existing open cut pits located at the northern end of BWM. The geochemical assessment was completed to assist with mine planning and as part of the environmental regulatory documentation for the Project.

The Project will utilise existing mining infrastructure at BWM and will adopt the current approved mining and disposal practices for mine waste (spoil) and coal reject authorised by the BWM Environmental Authority (EA) [EPML00717813]. Coal will be mined by conventional open cut methods and spoil (waste rock) will be placed behind the active mining face into in-pit spoil dumps. RoM coal will be transported to the existing coal handling and preparation plant (CHPP) for processing.

Terrenus has geochemically assessed potential overburden and interburden (collectively called spoil) and coal from drill-hole samples, and coal reject samples obtained from the coal handling and preparation plant (CHPP) at BWM. All geochemical data has been sourced from BHP (primarily from the BHP coal geochemical database).

1.1 Objective

The overall objective of this geochemical assessment was to:

Evaluate the geochemical nature of mine and processing wastes likely to be produced from the Project and identify any environmental issues that may be associated with mining, handling and storing these materials.

1.2 Geological Background

BWM extends over 85 kilometres (km) from north to south. As such, there is some degree of geological variability between the far northern part of the mine compared to the far south – mostly around the presence/absence of seams and plys at the north compared to the south. The lithology within the Project area is consistent with the lithology of the current mining area of the northern end of the mine – characterised by typical sedimentary geologic materials, comprising mudstone, claystone, siltstone, sandstone (typically fine- to medium-grained), carbonaceous sediments and coal seams. At the northern end of BWM, including the Project area, the depth to base of weathering ranges from about 12 to 30 metres (m) below natural surface, with an average depth to base of weathering of approximately 20 m.

The coal bearing sequence within BWM and the Project area is the Permian-age Rangal Coal Measures (Blackwater Group). BWM exposes three seams, known at BWM as Tops, Middles and Lowers (named Aries/Pisces, Castor and Taurus/Argo, respectively, at neighbouring mines). The northern end of the mine predominantly mines the Lowers. The central area mines the Middles and Lowers; and the southern area mines all three seams. Complex seam splitting and coalescing occurs along the full strike length of the mine. At the Project area the Middles and Lowers will be the seams

mined, however the Project proposes to extract run-of-mine (RoM) coal from all seams and plys where coal thickness and quality is economic.

Overlying the Rangal Coal Measures is a thin veneer of Tertiary-age sediments – typically one to five m thick (where present). At the Project the Tertiary sediments are highly weathered, semi-consolidated and typically comprise sand, clay and gravel.

2 Geochemical Assessment Methodology

This section provides the methodology used for the geochemical assessment of potential spoil, coal and tailings expected to be generated by the Project.

The data was assessed with regard to the samples potential to generate acid and metalliferous drainage (AMD). Only after making such an assessment to understand the potential AMD hazard can appropriate management measures be formulated to adequately mitigate the risks. The term 'AMD' is used to describe low-quality seepage or drainage that has been affected by the oxidation of sulfide minerals (primarily pyrite and marcasite) and/or by the dissolution of acid generating sulfate minerals (such as jarosite and alunite), regardless of final drainage chemistry.

AMD may be produced when sulfide minerals (such as pyrite) are exposed to oxygen and water. Oxidation of sulfide minerals may result in the production of acid(ity), sulfate (SO_4) and, depending on mineralogy, the release of metals and salinity. AMD can be acidic, pH circum-neutral, alkaline and/or saline (INAP, 2009[1], DIIS, 2016[2]). Whether contact water is acidic and metalliferous (acid drainage [AD]), pH-neutral/alkaline and metalliferous (neutral and metalliferous drainage [NMD]) or saline due to elevated sulfate (saline drainage [SD]) largely depends on the relative proportion of sulfide minerals (acid generating) and carbonate minerals (acid neutralising) in the source materials. In this assessment unless specified otherwise, the term AMD is broadly used to describe AD, NMD and/or SD, which is consistent with BHP's definition of AMD (BHP, 2021).

2.1 Desktop Review of Existing Information

A desktop review of available project data and information was completed to provide a better understanding of the Project. The review included geological and geochemical data, mining methods and mine plan, coal handling and processing methods, and mining waste disposal and management strategies. Discussions were held with BHP personnel (predominantly geologists and Closure Planning specialists) to identify and discuss relevant technical information. Geological information was obtained from drill-hole logs from the northern part of BWM and the Project area.

2.2 Sample Data

Geochemical samples were obtained from drill-core samples collected and analysed during 2019-2020 by BWM and BHP Minerals Australia Closure Planning; and tailings (fine reject) samples collected from the CHPP since 2010 by BWM and BHP Minerals Australia Closure Planning. A small

1 INAP, 2009. Global Acid Rock Drainage Guide.

2 DIIS, 2016, Preventing Acid and Metalliferous Drainage. Handbook from Australian Federal Government's Leading Practice Sustainable Development Program for the Mining Industry. https://www.industry.gov.au/data-and-publications/leading-practice-handbook-preventing-acid-and-metalliferous-drainage.

number of coarse reject sample results are available from samples collected from coarse reject disposal areas at BWM.

There are currently no specific regulatory requirements regarding the number of samples required to be tested for coal, spoil (waste rock) or potential coal reject material for mines in Queensland. Whilst historical guidelines do exist in Queensland (Department of Minerals and Energy [DME] 1995), more recent Australian and international guidelines (Department of Industry, Innovation and Science [DIIS] 2016; International Network on Acid Prevention [INAP] 2009) advocate a risk-based approach to sampling, especially for proposed coal mines/projects where the geology and environmental geochemistry is well understood (from primary and secondary information sources).

The Project proposes to mine the same geologic materials as are currently mined from the existing open cut pits in the vicinity of the Project area (ie. mining at the Project will follow the natural downward dip of the current seams being mined). Therefore, overburden, interburden and coal drill-hole samples from the current approved mining area are representative of these same materials to be mined from the Project.

Geochemical data is available for 701 drill-core samples from seven drill-holes, comprising samples of each mineral waste type (where intersected) – grouped as follows:

- Gp1: weathered; predominantly non-carbonaceous spoil. 97 samples;
- Gp2: fresh, non-carbonaceous spoil. 541 samples;
- Gp3: fresh, carbonaceous spoil, which includes carbonaceous materials away from seams and also carbonaceous material associated with seams, such as seam roof, thick parting and floor. 63 samples; and
- Gp4: fresh, coal. 87 samples.

Carbonaceous spoil refers to lithologies such as carbonaceous claystone or [carb.] siltstone, which typically contain appreciable concentrations of organic carbon. Comparatively, non-carbonaceous lithologies are essentially void of (or have negligible) carbonaceous material.

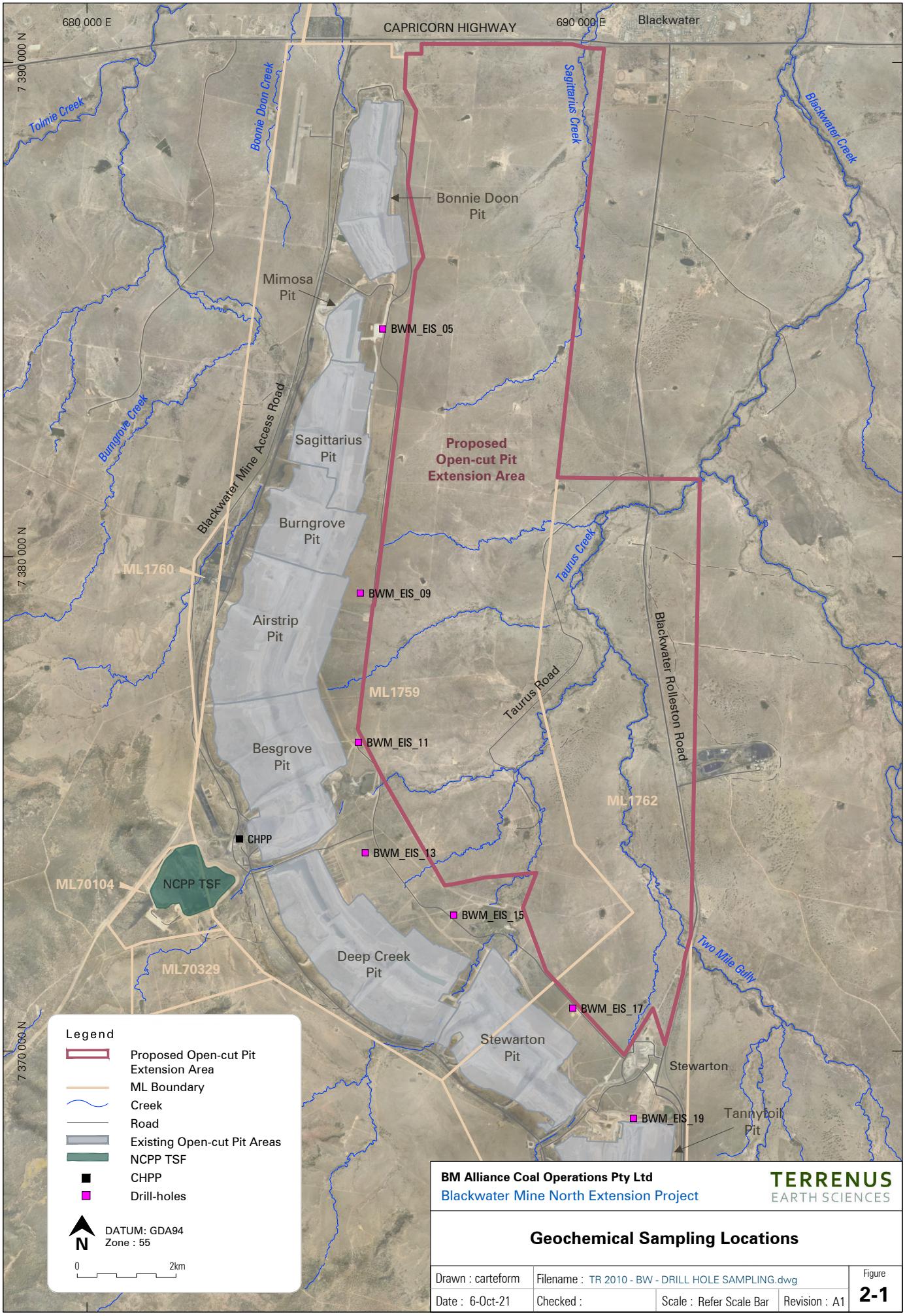
It is understood that, generally, coal is not waste. It is also understood that a small proportion of coal (sub-economic coal) will report to spoil as waste, or may report as coal reject (tailings or coarse reject). Therefore, coal is included in the geochemical assessment.

Geochemical data is available for 180 tailings samples collected as tailings slurry from the CHPP since early 2010 (by BMA). The samples were collected for different sampling programs with different intents. As such, the level of geochemical detail varies between sampling programs.

Limited geochemical data is available from the BHP geochemical database for 15 coarse reject samples collected in early 2010 from reject stockpiles (reject derived from the North CHPP).

The Gp1 to Gp3 samples are assessed as 'potential spoil'. The coal drill-hole samples (Gp4) are discussed with the assessment of tailings (and coarse reject) samples, given the general geochemical similarity between coal, tailings and coarse reject materials.

Drill-hole information is provided in **Appendix A** and the drill-hole (sampling) locations are shown on **Figure 2-1**. Sample descriptions are provided in the tables in **Appendix B** and **Appendix C**.



BM Alliance Coal Operations Pty Ltd
Blackwater Mine North Extension Project

TERRENUS EARTH SCIENCES

Geochemical Sampling Locations

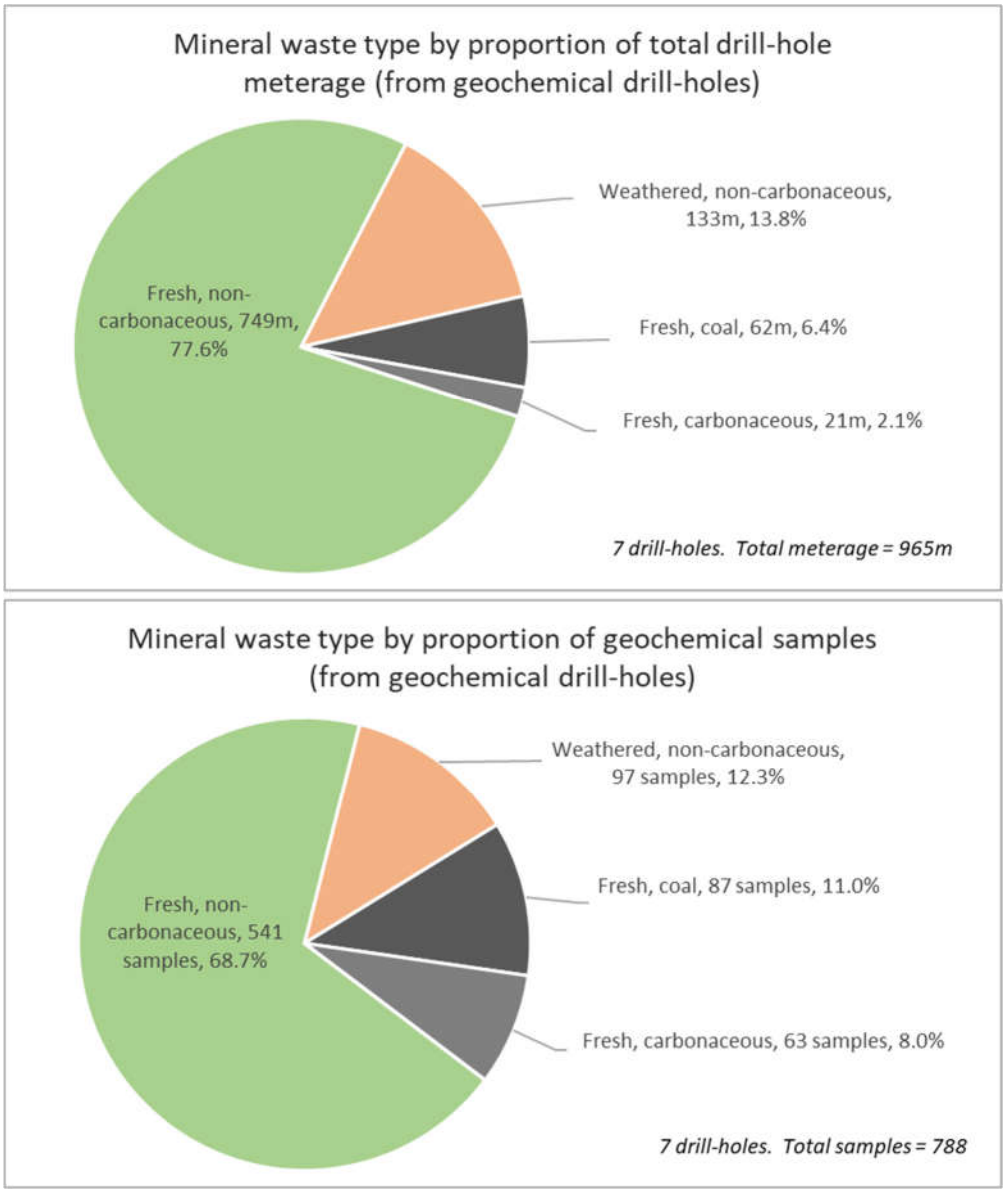
Drawn : carteform	Filename : TR 2010 - BW - DRILL HOLE SAMPLING.dwg			Figure 2-1
Date : 6-Oct-21	Checked :	Scale : Refer Scale Bar	Revision : A1	

2.3 Sample Representativeness

The drill-hole samples that have undergone test-work are representative of the relative frequency of occurrence of mineral wastes and types as inferred from the stratigraphic distribution recorded in the seven drill-holes drilled for the Project. The dominant mineral waste type at the Project is fresh non-carbonaceous spoil (claystone, siltstone and fine- to medium-grained sandstone), which comprises about 78 per cent of the drill-hole meterage (from 965 m of drilling from seven drill-holes), followed by weathered non-carbonaceous material, which comprises about 14 per cent of the drill-hole meterage. Non-carbonaceous material accounts for about 91 per cent of the drill-hole meterage, with the remainder associated with fresh coal and carbonaceous materials comprising about 6.4 per cent and 2.1 per cent respectively.

As evident in Figure 2-2, the drill-hole sampling undertaken at the Project broadly approximates these waste type proportions.

Figure 2-2. Mineral Waste and Drill-Hole Sample Proportions



The proportion of drill-hole samples reporting to carbonaceous and coal intervals is greater in the sample set compared to the frequency of occurrence through the stratigraphic sequence, in recognition that carbonaceous spoil and coal domains generally pose a greater AMD hazard compared to non-carbonaceous spoil.

Tailings samples are representative of tailings currently produced at BWM since early 2010 and those expected to be produced from RoM coal from the Project.

Limited geochemical data is available for coarse reject materials. However, the geochemical data indicates similarities between coarse reject materials and carbonaceous spoil materials, which is consistent with expectations.

2.4 Geochemical Tests

The samples were characterised using static geochemical test methods, which provide the fundamental geochemical characteristics of a sample. Static tests involve discrete analytical tests undertaken on samples, where the results represent the geochemical characteristics of the sample at a single point in time and under simple experimental conditions as a 'snapshot' of the sample's likely environmental geochemical characteristics. Selected tailings samples have also undergone oxygen consumption (OxCon) tests, which is a type of kinetic geochemical test used to estimate the sulfide oxidation rate, acidity generation rate and carbonate neutralisation rate of a given sample.

Static Test Methodology

The geochemical test-work program has been undertaken in stages, with stage one (screening tests) comprising 'standard' test-work, and subsequent stages involving more advanced and specialised test-work. All samples have undergone 'screening' tests for:

- pH and electrical conductivity (EC) – an end-over-end bottle leach at 1:5 weight:volume [w:v] solid:water ratio using deionised water.
- net acid producing potential (NAPP), which comprises total sulfur (S) and acid neutralising capacity (ANC). The NAPP test provides the fundamental information about the theoretical maximum amount of acid-producing and acid-neutralising material that a sample could produce.
- sulfur as sulfide [chromium reducible sulfur (Scr)]

Based on the results of the screening tests, selected samples were subjected to some or all of the following tests:

- acid buffering characterisation curve (ABCC) - a test to determine the proportion of ANC that's in a readily-available form under field conditions and to provide an indication of the mineralogy of the neutralising material.
- net acid generation (NAG) [single addition] - a test that encourages the oxidation of a sample to determine if acid can be produced, and how much acid could be produced.
- extended boil net acid generation test (NAG extended) - a refinement of the single addition NAG test to resolve uncertainty due to potential organic acid interference (where non-acid generating organic acids can provide false positive results in the single addition NAG test).

- sequential net acid generation test (NAG sequential) - a refinement of the single addition NAG test to resolve uncertainty due to incomplete oxidation of all sulfide [for samples with high sulfide concentration] during the single addition NAG test.
- kinetic net acid generation test (K-NAG) – undertaking a single addition NAG test whilst logging the change in temperature and pH of the sample during the oxidation reaction.
- total metals and metalloids by two-acid (aqua regia) or 4-acid (mixed acid) digest with analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS) and Flow Injection Mercury System (FIMS).
- quantitative x-ray diffraction (QXRD) - to determine the mineralogical composition.
- deionised water extract leach procedure – a one hour end-over-end bottle leach at 1:5 w:v (solid:water) ratio using de-ionised water, with filtered leachate analysed for:
    - major and minor ions [calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), sulfate (SO_4), chloride (Cl) and fluoride (F)];
    - alkalinity [total alkalinity, bicarbonate (HCO_3) and carbonate (CO_3)];
    - acidity (pH dependent);
    - soluble metals and metalloids [approximately 28 elements by ICP-MS, ICP-AES and FIMS].
- saline water extract leach procedure – a one hour end-over-end bottle leach at 1:5 w:v (solid:water) ratio using saline water (two g/L NaCl and 10 g/L NaCl), with filtered leachate analysed for the same suite of soluble analytes as listed above.
- Exchangeable cations (Ca, Mg, Na, K) with pre-treatment for salinity, if required. Results were used to calculate the cation exchange capacity (CEC).
- Emerson aggregate class testing (Standards Australia method AS1289-3.8.1).

Kinetic Test Methodology

Oxygen consumption and carbon dioxide (CO_2) generation (OxCon) test-work was undertaken by Earth Systems (Melbourne) on selected tailings samples. The samples were selected on the basis of earlier static test results.

OxCon is a laboratory-scale kinetic geochemical test for the estimation of sulfide oxidation rates, acidity generation rates and carbonate neutralisation rates for sulfidic geological materials.

Test-work involves isolating a known mass of sulfide-bearing material in a known volume of oxygen inside a sealed vessel and allowing pyrite oxidation to proceed. Once the test is initiated, oxygen in the vessel is consumed via pyrite oxidation. Oxygen consumption is measured directly on an hourly basis and logged over the test-work period (one to eight weeks, depending upon the sample). In coal mining scenarios essentially all carbon dioxide is generated as a result of carbonate neutralisation reactions. (Bacterial metabolism of organic carbon to generate carbon dioxide typically only occurs in materials with 'recent' organic carbon contribution – for example in acid sulfate soil samples). Carbon dioxide generation is measured hourly and logged for estimation of the extent of acid neutralisation by carbonate minerals or the rate of biological organic carbon oxidation during testing.

Once test-work is completed, the sample is flushed with deionised water and the leachate analysed for pH, EC, acidity, alkalinity, major ions and dissolved metal/metalloid concentrations.

Summary of Test-Work Program

The geochemical test work program is summarised in **Table 2-1** by sample type. Laboratory test work was primarily undertaken by ALS Environmental and ALS Minerals (Brisbane), using National Association of Testing Authorities (NATA) accredited methods (where such accreditation exists). Specialist laboratory test-work was also undertaken by Environmental Geochemistry International (EGi) [Sydney] and Indicium Laboratory (Brisbane) on selected tailings samples. Mineralogical analysis (QXRD) was undertaken by a mineralogical laboratory in Melbourne (via Earth Systems). OxCon test-work was undertaken by Earth Systems.

Table 2-1. Summary of the Geochemical Test-Work Undertaken
(Number of samples subjected to each test regime)

Analytical tests	Drill-hole Samples (2020)	Tailings Samples (2010-2020)	Coarse Reject Samples (2010)
pH and EC in 1:5 (w:v) deionised water extract	788 samples	177 samples	15 samples
Total sulfur (S)	788 samples	180 samples	15 samples
Sulfide (Scr)	788 samples	180 samples	3 samples
ANC	788 samples	179 samples	15 samples
NAG	20 samples	180 samples	-
NAG extended	47 samples (mostly coal samples)	16 samples	-
NAG sequential	-	2 samples	-
Kinetic NAG	-	4 samples	-
ABCC	100 samples	27 samples	4 samples
QXRD	21 samples	9 samples	-
OxCon (including post-OxCon leachate analysis)	-	5 samples	-
Total elements in solids – aqua-regia (2-acid) digest; ICP-MS (53 elements)	45 samples	34 samples	-
Total elements in solids – 4-acid digest; ICP-MS (53 elements)	116 samples	-	-
Soluble parameters in 1:5 (w:v) deionised water extract ICP-AES	-	-	6 composite samples
Soluble parameters in 1:5 (w:v) deionised water extract ICP-MS	161 samples	26 samples	-
Soluble parameters in 1:5 (w:v) 'saline' water extract (2g/L NaCl); ICP-MS	-	15 samples	-
Soluble parameters in 1:5 (w:v) 'saline' water extract (10g/L NaCl); ICP-MS	-	15 samples	-
Soluble parameters in NAG leachate; ICP-MS	-	23 samples	-
Exchangeable cations	129 samples	-	-
Emerson aggregate class	129 samples	-	-

Assessment of Element Enrichment

From an environmental perspective, multi-element scans are typically undertaken to identify elements (particularly metals and metalloids) present in a material at concentrations that *may* be of environmental concern with respect to surface and seepage water quality.

To assess the potential environmental enrichment, the total concentration result for each element were compared to average element abundance in soil in the earth's crust (AusIMM 2011; Bowen 1979) to measure how the total elemental concentrations in the samples compare against average elemental concentrations in unmineralised soil (worldwide). Such a comparison is undertaken to identify samples that contain what may be regarded as 'elevated' concentrations of metals and metalloids to assess any potential concerns related to disposal and rehabilitation. However, enrichment in metals/metalloids in the solids does not translate to enhanced leachability or mobilisation of that specific element.

From the comparison with average crustal abundance in rocks a geochemical abundance index (GAI) was calculated. The GAI quantifies an assay result for a particular element in terms of the average abundance for that element. The index, based on a log two scale, is expressed in seven integer increments (zero to six), which correspond to enrichment factors from zero to over 96 times average crustal abundance, as shown in Table 2-2.

Table 2-2. Geochemical Abundance Index (GAI)

GAI	Enrichment factor	GAI	Enrichment factor
0	Less than 3-fold enrichment	4	24 to 48-fold enrichment
1	3 to 6-fold enrichment	5	48 to 96-fold enrichment
2	6 to 12-fold enrichment	6	Greater than 96-fold enrichment
3	12 to 24-fold enrichment		

As a general rule, a GAI greater than or equal to three indicates enrichment to a level that potentially warrants further investigation or provides an indication of which elements may potentially be problematic with respect to environmental impacts.

Elements identified as enriched may not necessarily be a concern for revegetation and rehabilitation, human and animal health or drainage water quality, but their significance should be evaluated. Similarly, if an element is not enriched it does not mean it would never be a concern, as GAI is a measure of element abundance against a non-mineralised terrain and does not provide any insight into metal/metalloid mobilisation and bioavailability.

Assessment of Element Solubility

Solubility data is available from a range of drill-hole and tailings samples (as summarised in Table 2-1). The leaching tests for drill-hole samples were performed on pulped samples (85 per cent passing 75 micrometres (μm) in diameter [<0.075 mm]). The leaching test for tailings samples were also performed on pulped samples (either 85 per cent passing 75 μm in diameter or 100 per cent passing 212 μm in diameter). These are standard preparation methods that provide a homogenous sample for testing and creates a large surface contact area. This, in turn, provides a large potential for sample dissolution and reaction. All leach-tested samples have undergone 1:5 w:v (solid:water)

deionised water bottle leach procedure to determine the immediate solubility and potential mobility of elements under highly agitated and solubility-inducing conditions. Selected tailings samples have also undergone a 1:5 w:v (solid:water) saline water bottle leach procedure (at different salt concentrations) – to better simulate the brackish (mine effected) water quality within the CHPP.

The solubility data from bottle leaching provides an indication of likely solubility/release of salt and metals/metalloids under field pH and redox (oxidation) conditions (and/or saline or low-pH conditions, where applicable). Solubility data from samples subjected to OxCon tests provides an indication of likely solubility/release of salt and metals/metalloids when oxidised. NAG leachate data also provides an indication of potential acidity and concentrations of metals and metalloids that could be released from samples under acid-generating conditions.

No comparison is made between leachate results and water quality guideline values, such as ANZG (2018), as such a comparison is inappropriate. The guideline values provided in ANZG (2018) are for receiving water environments (eg. creeks and rivers), whereas the soluble element data in this assessment is 'point source' obtained from a finely pulped sample subjected to rigorous and artificial extraction to obtain a concentration approaching 'near maximum'. Furthermore, contact water will undergo a number of geochemical reactions along a pathway from source to receptor, including: retardation, adsorption and precipitation – and also likely dilution, which will attenuate the concentration as seepage/contact water migrates from the source. These processes are not accounted for in a laboratory setting.

2.5 Acid Classification Criteria

Sample classification of mineral waste material follows some general rules. Samples were initially classified, with respect to acid generation, using NAPP and ANC/MPA ratio (and NAG data, where available) into three broad categories:

- NAF Non-acid Forming;
- Uncertain Those samples with inconclusive results, leading to a degree of uncertainty about their ability to generate acid; and
- PAF Potentially Acid Forming.

Within these three broad categories the preliminary sample classification was further refined with the aid of Total S data (**Table 2-3**).

Table 2-3. Preliminary Acid Classification Criteria

Preliminary Classification	Sulfur %	NAPP kg H_2SO_4/t	ANC/MPA ratio	NAG pH (if data available)
NAF	≤ 1	< 0	≥ 2	-
	≤ 1	< 0	-	≥ 4.5
NAF-Sulfur (NAF-S)	> 1	< 0	≥ 2	-
	> 1	< 0	-	≥ 4.5
PAF – Low Capacity (PAF-LC)	≤ 1	≥ 0 and < 10	< 2	-
	-	≥ 0 and < 10	-	< 4.5
PAF	-	≥ 10	< 2	-
	-	≥ 10	-	< 4.5
Uncertain	Any result outside of the above criteria, or results that appear to significantly conflict with the expected result based on lithology or mineralogy			

Where available, additional geochemical information such as sulfide (Scr), ABCC, NAG extended and NAG sequential was used to resolve acid classification uncertainties.

3 Geochemical Test Results – Potential Spoil Samples

The Project proposes to mine the same overburden, interburden and coal (potential spoil) materials as is currently mined from the existing northern pits at BWM. Therefore, overburden, interburden and coal drill-hole samples from the current northern pits are representative of potential spoil and RoM coal expected to be mined from the Project. Spoil comprises about 95 per cent of all mineral waste at BWM (BHP, 2020a) and the Project is expected to produce spoil in similar proportions to the current operation.

The geochemical results for drill-hole samples representing overburden and interburden (potential spoil) are tabulated in **Appendix B** and discussed below. Overburden and interburden is comprised of the following waste types, which is dominated by fresh, non-carbonaceous material (Gp2), as discussed in **Section 2.3**:

- Gp1: weathered (all non-carbonaceous)
- Gp2: fresh, non-carbonaceous
- Gp3: fresh, carbonaceous

The static geochemical results for drill-hole samples representing potential coal are also tabulated in **Appendix B** and the results for coal samples are presented in **Section 4**, alongside the results for tailings samples.

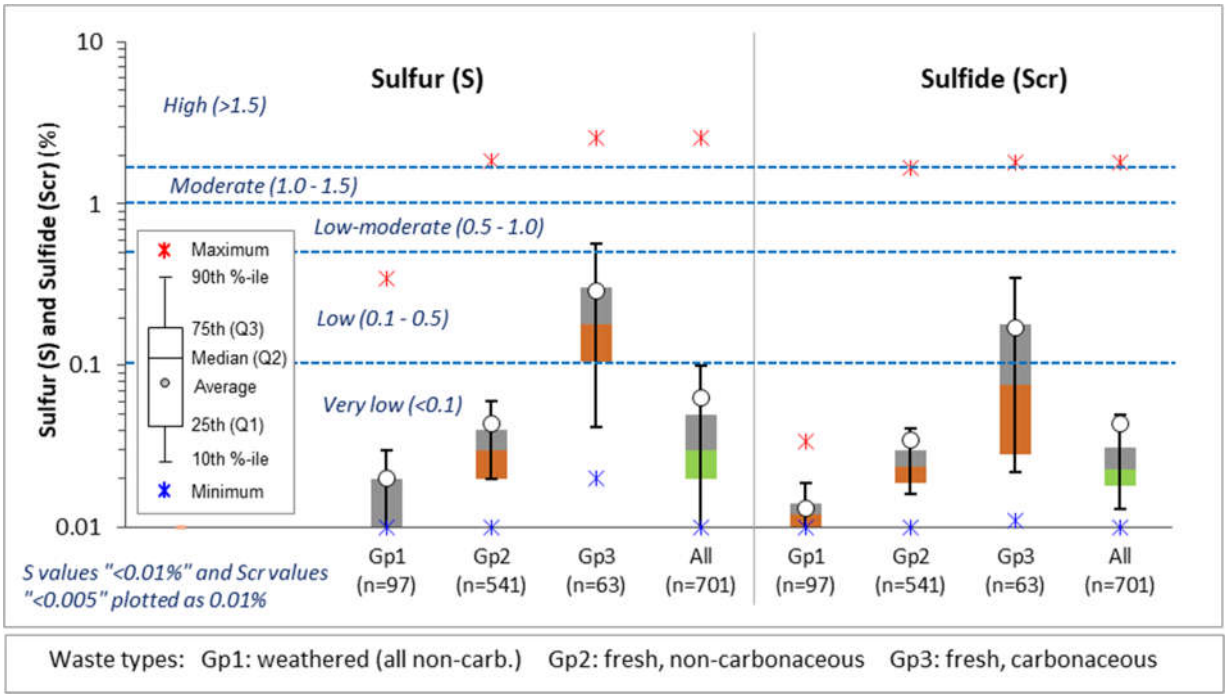
3.1 Acid-Base Accounting (Potential for Acid Generation)

The ABA is the theoretical balance between the potential for a sample to generate acid and neutralise acid and is expressed in units of kg H_2SO_4/t.

Sulfur and Sulfide

The total sulfur (total S) concentration values of potential spoil samples ranged from less than 0.01 per cent to 2.58 per cent, with very low median and 90th percentile values of 0.03 per cent and 0.10 per cent, respectively (**Figure 3-1**). Chromium reducible sulfur (Scr) was measured on all 701 samples and values ranged from less than 0.005 per cent to 1.79 per cent, with very low median and 90th percentile Scr values of 0.02 per cent and 0.05 per cent (**Figure 3-1**). As a proportion of total S, Scr (sulfide) accounts for about 85 per cent (on average) of total S. These results indicate that the maximum potential acidity (MPA) that could be generated by these samples is very low. As evident, the total S and Scr concentrations were higher in the carbonaceous materials (Gp3) compared to the non-carbonaceous materials, however were still generally low.

Figure 3-1. Distribution of Total Sulfur (S) and Sulfide (Scr) of Potential Spoil



Maximum Potential Acidity and Acid Neutralising Capacity

The maximum potential acidity (MPA) and acid neutralising capacity (ANC) represent each side of the acid-base account. MPA is calculated from total S and is the theoretical maximum potential acidity that can be generated if all of the S, assumed to be associated entirely with sulfide, is able to oxidise and generate acid. ANC represents the theoretical maximum amount of acid-neutralising capacity of a sample assuming all neutralising material is in a readily available form. The net acid producing potential (NAPP) – discussed below – is the difference between the MPA and the ANC. In simple terms, a negative NAPP indicates an excess of ANC and the sample is likely to be non-acid forming (NAF) and a positive NAPP indicates an excess of MPA and the sample is likely to be potentially acid forming (PAF) – though there can be exceptions to this simplified interpretation.

Due to the very low total S values the MPA for all samples is very low, with a 90th percentile MPA value for all samples of 3.1 kg H_2SO_4/t (*ie*. 90 per cent of samples have an MPA less than 3.1 kg H_2SO_4/t). A small number of samples have high MPA values – maximum 79 kg H_2SO_4/t (or

2.6 per cent total S). The carbonaceous (Gp3) samples generally have greater MPA values compared to all other samples, as expected by the greater sulfur concentrations in this material.

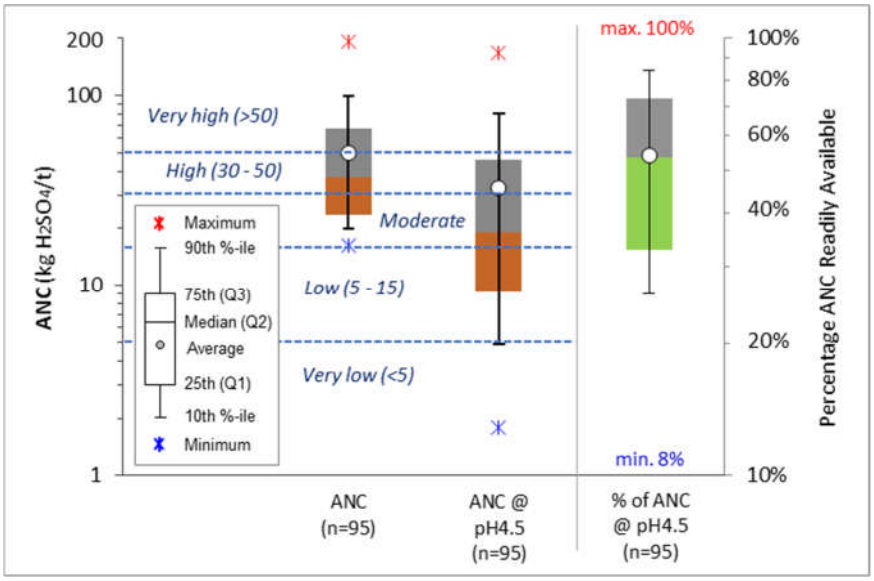
The ANC values are typically well in excess of the MPA values and span a very large range, from less than 6 to 504 kg H_2SO_4/t, with a median ANC value for all samples of 42 kg H_2SO_4/t and a moderate 10th percentile value of 18 kg H_2SO_4/t (*ie*. 90 per cent of samples have an ANC greater than 18 kg H_2SO_4/t). Weathered samples, generally, had moderate to high ANC values and the fresh non-carbonaceous samples had high to very high ANC values. The carbonaceous samples, generally, had moderate ANC values.

Available Neutralising Capacity

The availability of neutralising material is generally determined by the mineralogy of the sample – with calcite and dolomite (carbonate minerals) being more readily-available to neutralise acidity compared with, for example, silicates. Siderite, although a carbonate, has no net acid neutralising capacity. Acid buffering characterisation curve (ABCC) tests were undertaken on 95 samples to assess the proportion of ANC that may be 'readily available' (*ie*. short-acting) in these materials under field conditions and provide some indication of what carbonate minerals are providing the ANC. 'Ready availability' is regarded as the proportion of ANC that is available for buffering reaction at pH 4.5.

For the 95 samples where ABCC data is available, the results showed that the proportion of ANC likely available under field conditions ranged from eight per cent to nominally 100 per cent of the ANC, with 25th, median (50th) and 75th percentile values of 33 per cent, 54 per cent and 73 per cent, respectively (Figure 3-2)[3].

Figure 3-2. Distribution of Acid Neutralising Capacity (ANC [total], ANC at pH4.5 and proportion (%) of ANC Expected to be Readily Available for Potential Spoil



3 Because the ABCC test is a separate test to the ANC test – performed on different sample splits – it is possible to achieve results with greater than 100 per cent ANC being readily available for the same sample. Such a result effectively means that all of the ANC for that sample is in a readily available form (*ie*. a practical maximum of 100 per cent availability). Similarly, at the lower end, the lowest 'readily available' amount may actually be slightly greater.

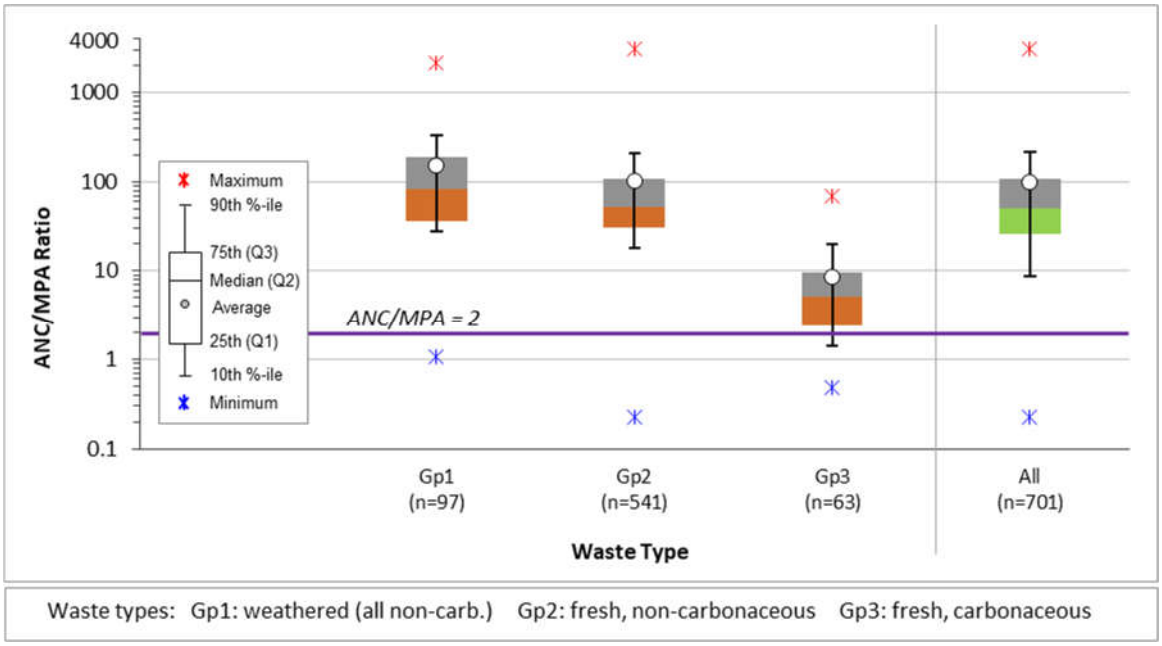
The shape of the ABCC curves (the reaction rate) can also be used to infer likely carbonate mineralogy based on standard curves/data for different carbonate minerals at varying ANC values. ABCC reaction rate curves can be provided on request. Iron dolomite (Fe-dolomite) and dolomite appear to be the dominant carbonate minerals (based on the ABCC curves). Some samples appear to have minor siderite and/or combined Fe-dolomite and siderite influence, which is also relatively common in the Bowen Basin. Siderite is fairly common throughout the Permian sediments of the Bowen Basin, albeit in relatively small amounts. It is uncommon in the Bowen Basin to have siderite as the dominant carbonate mineral in any significant quantity, and particularly within the Rangal Coal Measures.

Based on the above, the carbonate mineral in bulk spoil is likely to be dolomite (or a dolomitic variety, such as ankerite) with varying influence from siderite and calcite. Mineralogy is discussed in further detail in Section 3.2.

ANC/MPA Ratios

Generally, those samples with an ANC/MPA mass ratio greater than two are considered to have a negligible/low risk of acid generation (DIIS, 2016; INAP, 2009[4]), especially where sulfide concentrations are very low and reactive ANC is very high – as is the case with these drill-hole samples. The results, illustrated in Figure 3-3, show that 685 samples (98 per cent of samples) have an ANC/MPA ratio greater than two, and 95 per cent of samples have ANC/MPA ratios greater than five. The lowest MPA/ANC ratios were found in the carbonaceous samples (Gp3), as evident in Figure 3-3.

Figure 3-3. Distribution of the Ratio of Acid Neutralising Capacity (ANC) to Maximum Potential Acidity (MPA) [ANC/MPA ratio] of Potential Spoil

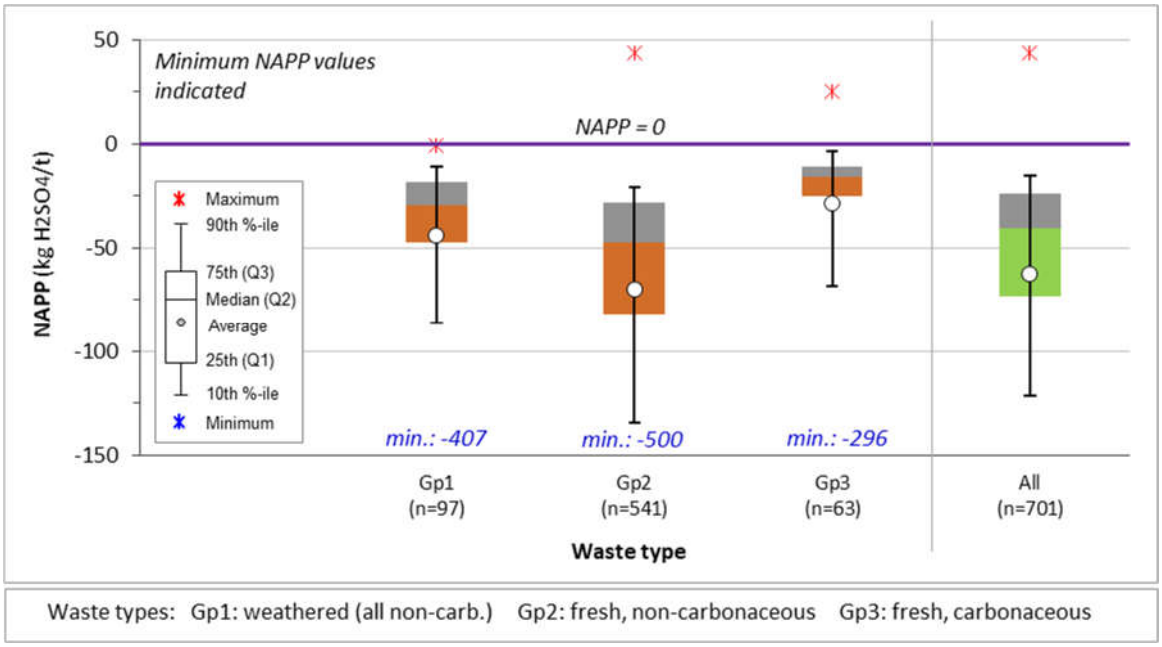


4 INAP (2009) considers that mine materials with an ANC/MPA ratio greater than two are likely to be NAF unless significant preferential exposure of sulfide minerals occurs along fracture planes, in combination with insufficiently reactive ANC.

Net Acid Producing Potential and Net Acid Generation Capacity

Based on the very low MPA and significantly higher ANC values (relative to the MPA), the calculated NAPP values are negative for all except five samples, and strongly negative for most samples (**Figure 3-4**). The results indicate that, overall, there is significantly excess neutralising capacity (ANC) compared to potential acidity (MPA).

Figure 3-4. Distribution of Net Acid Producing Potential (NAPP) of Potential Spoil



NAG test results are used in conjunction with NAPP values in determining the acid classification of samples. The calculated NAPP value assumes that all sulfur (or sulfide) will oxidise to generate acid (MPA) and that all neutralising material in a sample is in a readily available form to neutralise any acid that could be generated (ANC). Unlike the theoretical basis of the NAPP test, in a NAG test a sample is encouraged to oxidise by reaction with hydrogen peroxide and any acid generated through oxidation may be consumed by neutralising components in the sample. Any remaining acidity is measured and expressed as kg H_2SO_4/t. Samples with NAGpH values greater than pH 4.5 are considered to be NAF. Samples with NAGpH values less than or equal to pH 4.5 (*ie.* acid-generating) would also be expected to have measurable NAG capacity (*ie*. NAG capacity greater than 0.1 kg H_2SO_4/t). As a guide, NAG capacity values between 0.1 and five kg H_2SO_4/t are considered 'low capacity' (AMIRA, 2002).

NAG test data is available for 22 potential spoil samples (all fresh/unweathered samples), with the NAGpH distribution shown in **Figure 3-5**. Of the 22 samples, 18 samples were carbonaceous (Gp3) and four were non-carbonaceous (Gp2). Most of the carbonaceous samples (15 out of 18 samples) had NAGpH values greater than pH4.5. Three of the four non-carbonaceous samples tested had NAGpH values less than pH4.5.

NAGpH versus NAPP results are plotted in **Figure 3-6**, which shows that most samples have negative NAPP values associated with NAGpH greater than pH 4.5, and so plot in the NAF domain. Three samples have positive NAPP values associated with NAGpH less than pH 4.5, and so plot in the PAF

domain. A small number of samples have conflicting NAPP and NAGpH values, and so plot in the 'Uncertain' domains.

Figure 3-5. Distribution of Net Acid Generation pH (NAGpH) of Potential Spoil

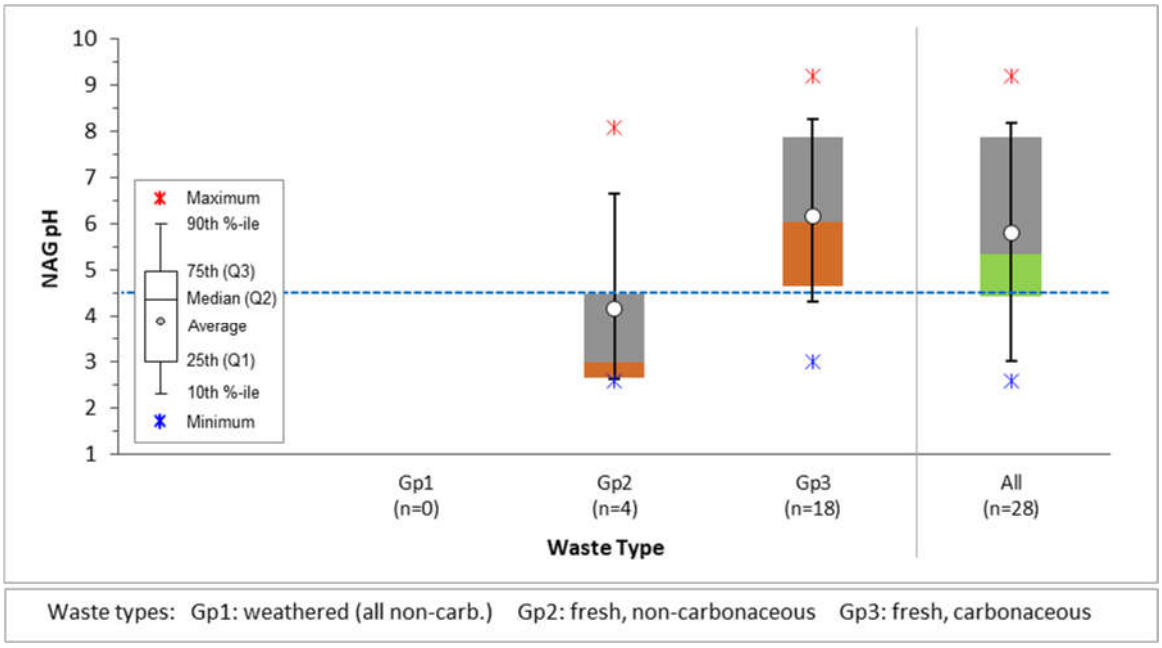
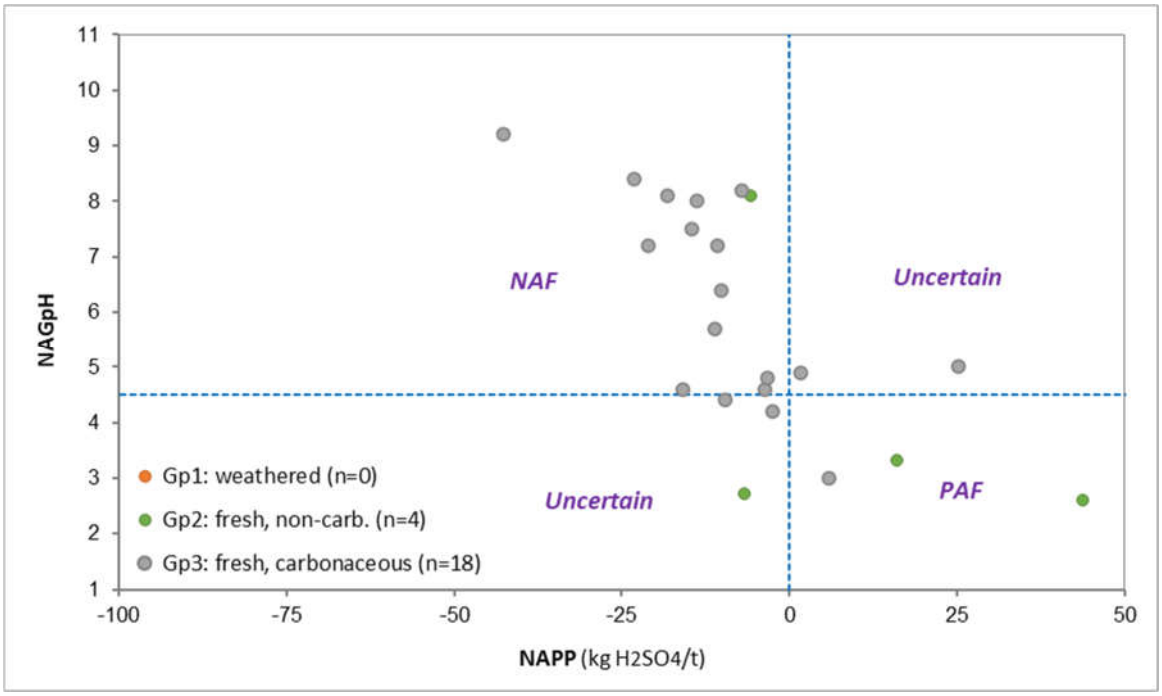


Figure 3-6. Net Acid Producing Potential (NAPP) and Net Acid Generation pH (NAGpH) of Potential Spoil



Geochemical Classification of Potential Spoil Samples

The ABA results presented in this section have been used to classify the acid forming nature of the drill-hole samples as shown in **Appendix B**, following the classification criteria outlined in **Section 2.5** and taking into account all additional relevant data, such as ABCC test results. The acid forming nature of these samples is summarised in **Table 3-1**.

The results in **Table 3-1** show that all 98 per cent of samples (*n=701*) were classified as NAF. These samples (and spoil material represented by these samples) have very low sulfur concentration, significant excess ANC (relative to the MPA) and clearly have negligible capacity to generate AMD. Only six (out of 701) samples were classified as UC(PAF), PAF-LC or PAF. Of these six UC(PAF), PAF-LC or PAF samples, three were carbonaceous (Gp3) and three were non-carbonaceous (Gp2) samples – of which two of the three Gp2 samples were described as slightly carbonaceous. Of the six samples, four were closely associated with coal seams (*ie*. roof or floor samples).

From an acid generating perspective spoil, as a bulk material, would be overwhelmingly NAF. Furthermore, the very low (negligibly low) sulfur concentrations in potential spoil indicate that the sulfate concentration that could be generated in spoil from sulfide oxidation (in addition to any salinity unrelated to sulfide oxidation) would also be very low.

Table 3-1. Geochemical Classification of Potential Spoil

Waste Type	NAF	NAF-S	UC(NAF)	UC(PAF)	PAF-LC	PAF
	No. and % of samples					
Gp1: Weathered (n=97)	96 (99%)	0	1 (1%)	0	0	0
Gp2: Fresh, non-carbonaceous (n=541)	538 (>99%)	0	0	1 (~0.2%)	0	2 (~0.4%)
Gp3: Fresh, carbonaceous (n=63)	54 (86%)	2 (3%)	4 (6%)	1 (~1.5%)	1 (~1.5%)	1 (~1.5%)
All samples (n=701)	*688 (98%)*	*2 (~0.3%)*	*7 (1%)*		*1 (~0.1%)*	*3 (~0.4%)*

3.2 Mineralogy

Data is available for 21 potential spoil samples from Gp2 and Gp3 that underwent mineralogical analysis by Quantitative X-Ray Diffraction (QXRD). The samples tested comprised:

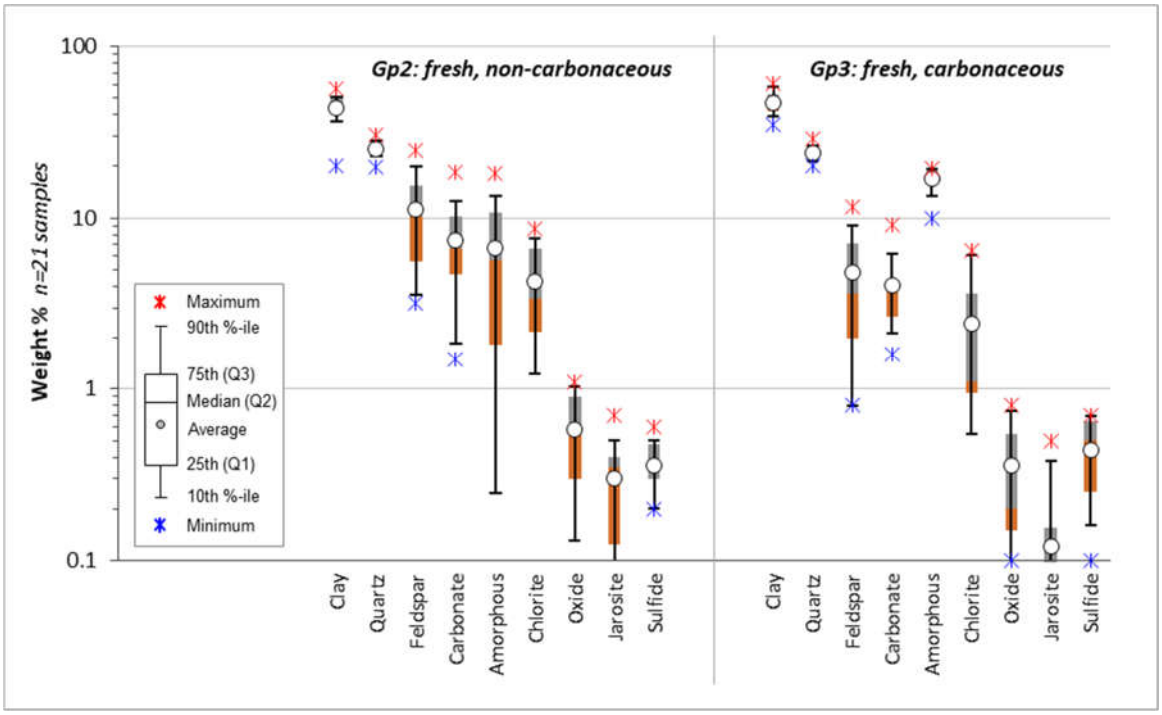
- Gp2: fresh, non-carbonaceous; 14 samples.
- Gp3: fresh, carbonaceous; seven samples.

The QXRD results (**Appendix B**, and summarised in **Figure 3-7**) show that most samples are dominated by quartz and clay minerals with variable major contributions of feldspar, carbonate and chlorite. Non-crystalline (amorphous) material has a wide range of concentrations in the fresh non-carbonaceous samples (Gp2) – ranging from less than 0.1 weight per cent to 18.1 weight per cent. In the carbonaceous samples the amorphous material ranges from 9.9 weight per cent to 19.5 weight per cent.

All samples have low sulfide mineral proportions (confirming the analytical chemistry results for sulfide). Sulfide is present mostly as pyrite with minor marcasite (marcasite is another form of FeS_2, similar to pyrite). All samples have low sulfate concentrations, present as jarosite.

Carbonate group minerals comprise calcite, ankerite (dolomite) and siderite in variable proportions, with minor rhodochrosite. ABCC data for these samples (where available) indicated that iron-dolomite and dolomite were the likely dominant carbonate minerals, which is broadly consistent with the mineralogy data.

Figure 3-7. Mineralogical Distribution Within Fresh Non-Carbonaceous [Gp2] and Carbonaceous [Gp3] Potential Spoil Samples



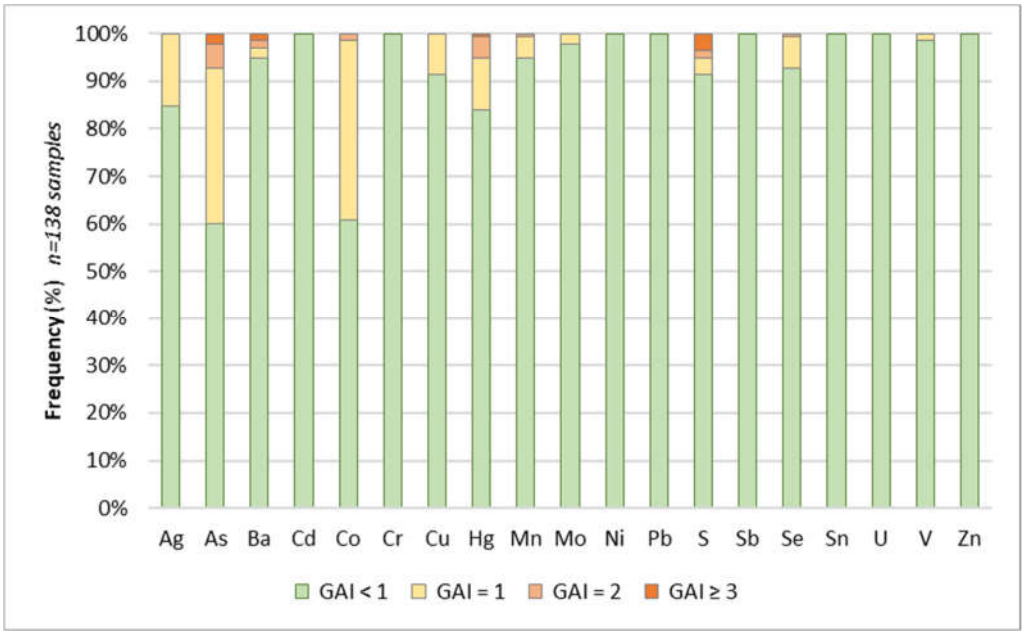
3.3 Metals and Metalloids

Multi-element (metal and metalloid) data is available for 138 potential spoil samples. The test results are presented in **Appendix B**. The results are compared to background concentrations for each element, based on average elemental abundance in soil in the earth's crust. The comparison is determined by the GAI, as outlined in **Section 2.4**. GAI values of two are regarded as 'slightly to moderately' enriched (with respect to average elemental abundance), GAI values of three or more are regarded as 'significantly' enriched. The GAI values are presented in **Appendix B** alongside the multi-element data. The degree of enrichment with respect to elements potentially of environmental interest is shown in **Figure 3-8**.

The GAI values show that a very small proportion of samples (almost all carbonaceous spoil) were significantly enriched with regard to one or more of arsenic (As) [three samples], barium (Ba) [two samples], mercury (Hg) [one sample] and sulfur (S) [five samples].

About 38 per cent of samples had minor enrichment (GAI = one or two) with regard to As and cobalt (Co), and about 10 to 15 per cent of samples had minor enrichment with regard to silver (Ag), copper (Cu), Hg and/or selenium (Se). Less than five per cent of samples had minor enrichment with regard to Ba, manganese (Mn), molybdenum (Mo), S and vanadium (V).

Figure 3-8. Frequency Distribution of Geochemical Abundance Indices (GAI) of Selected Elements in Potential Spoil



Overall, the results suggest that bulk overburden and interburden material at the northern area of BWM, including the Project area, has low levels of metal and metalloid enrichment, which is consistent with Permian-age coal measures throughout eastern Australia. The elevated enrichment in some samples (with respect to some elements) does indicate that under low pH (acid/acidic) conditions these relatively 'enriched' samples may be predisposed to release soluble metals and metalloids, and sulfate, in higher concentrations than would otherwise be released under pH-neutral or alkaline conditions. However, acid conditions are not expected to develop within the spoil due to the overwhelming NAF composition of the spoil.

3.4 Solubility of Potential Spoil

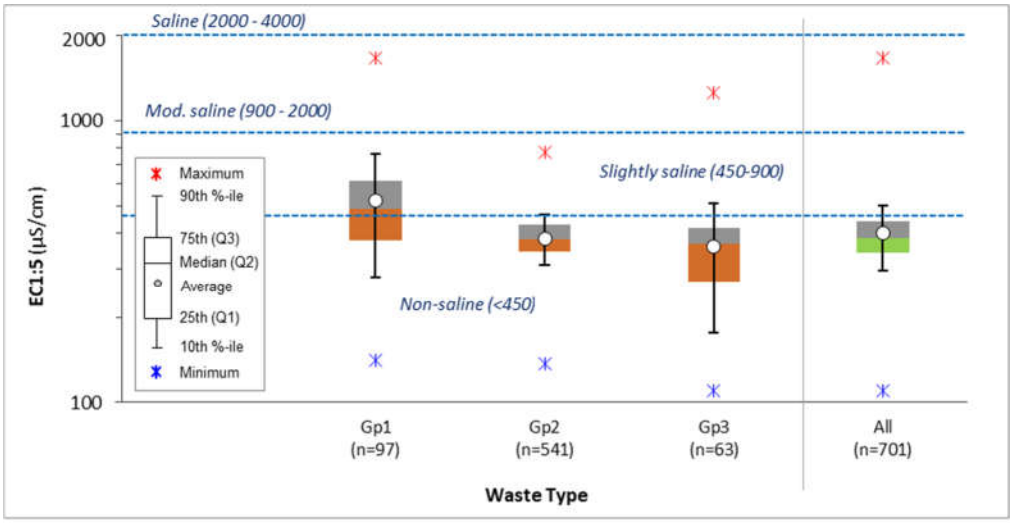
To evaluate the initial solubility of potential spoil materials, water extract test results for a variety of 'typical' water quality parameters are available for 138 samples. Therefore, a relatively large dataset is available to assess the potential for leaching of salt and environmentally important elements from potential spoil at the northern end of BWM and the Project area. Water extract tests provide an indication of the quality of surface water run-off or seepage from mined spoil during or shortly after a rainfall event shortly after the material has been exposed by mining.

The samples underwent a 1:5 w:v (solid:water) deionised water bottle leach procedure on fine pulps. Note that the use of fine pulped materials in water extract tests will enable a high level of reaction and dissolution. The results from these tests are provided in Appendix B.

Salinity and pH

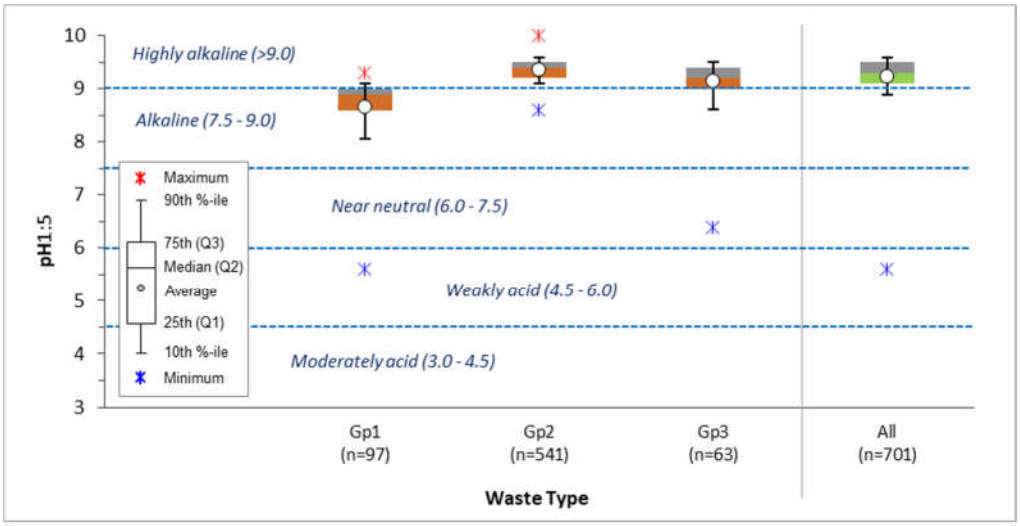
EC and pH data is available for all 701 potential spoil samples at 1:5 w:v on pulp. The $EC_{1:5}$ of the samples ranged from 110 to 1670 μS/cm, with median, 75th and 90th percentile $EC_{1:5}$ values of 385, 441 and 502 μS/cm, respectively. As evident in **Figure 3-9** the fresh (unweathered) samples, generally, are non-saline, whereas the weathered samples, generally, are a mix of non-saline and slightly saline material. These EC results are common (if not typical) for Bowen Basin Permian and Tertiary material based on Terrenus' significant experience in the region.

Figure 3-9. Electrical Conductivity (EC) Distribution of Potential Spoil



The pH distribution by material type are plotted in **Figure 3-10**, which shows the samples to be generally alkaline to highly alkaline, with a median pH of 9.3 and 10th percentile pH of 8.9 – indicating no readily soluble acidity from these samples. These pH results are typical for Bowen Basin Permian and Tertiary material based on Terrenus' significant experience in the region.

Figure 3-10. Soil pH Distribution of Potential Spoil



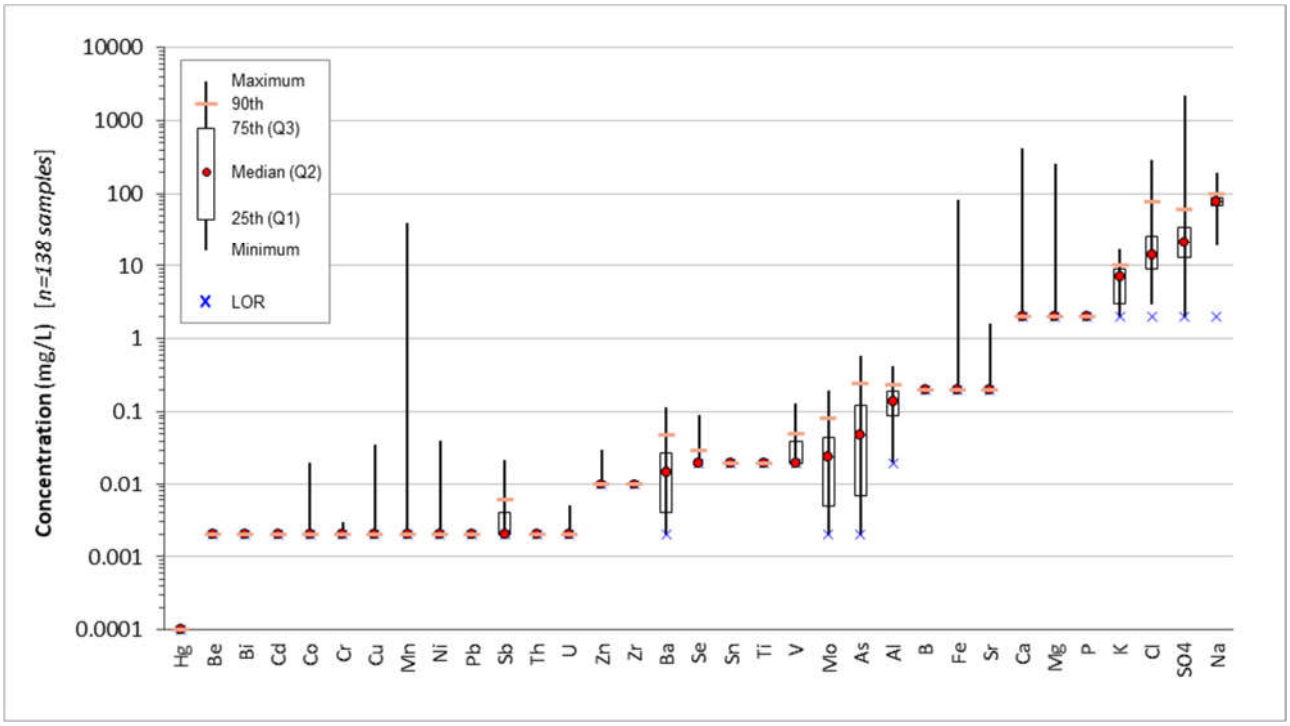
Metals and Metalloids

Water extract test results for soluble elements are available for 138 potential spoil samples. The water extract tests were undertaken on the same 138 potential spoil samples as assayed (**Section 3.3**). The results from these tests are provided in **Appendix B** and summarised in **Figure 3-11**. The median concentrations of major ions and environmentally important metals/metalloids in water extracts were as follows:

- ≤ 0.001 mg/L mercury (Hg)
- ≤ 0.01 mg/L cadmium (Cd), cobalt (Co), chromium (Cr), copper (Cu), manganese (Mn), nickel (Ni), lead (Pb), antimony (Sb)
- ≤ 0.1 mg/L arsenic (As), molybdenum (Mo), selenium (Se), tin (Sn), vanadium (V), zinc (Zn)
- ≤ 1.0 mg/L aluminium (Al), boron (B), iron (Fe)
- ≤ 10 mg/L calcium (Ca), magnesium (Mg), phosphorous (P), potassium (K)
- ≤ 100 mg/L chloride (Cl), sodium (Na), sulfate (SO_4)

For most samples for most elements the soluble element concentrations were very low – at or close to the laboratory limit of reporting LOR, as shown in **Figure 3-11**. The metals/metalloids present in many samples at concentrations greater than the laboratory LOR were Al, As, barium (Ba), Mo, Sb and V, however the concentrations for these elements were still low. In particular, Al was present in concentrations greater than the laboratory LOR in 96 per cent of samples; Mo was present in concentrations greater than the laboratory LOR in 91 per cent of samples; As was present in concentrations greater than the laboratory LOR in 83 per cent of samples; V was present in concentrations greater than the laboratory LOR in 53 per cent of samples; and Sb was present in concentrations greater than the laboratory LOR in 50 per cent of samples.

Figure 3-11. Distribution of Element and Major Ion Concentrations in Water Extracts of Potential Spoil



Soluble element results indicate that leachate from carbonaceous spoil is expected to generally contain low concentrations of soluble metals and metalloids – similar to non-carbonaceous materials. Of the seven carbonaceous spoil samples that had minor enrichment (GAI = two) to significant enrichment (GAI ≥ three) with respect to S and/or As and/or Hg, five were classified as NAF/NAF-S and two were classified as PAF/PAF-LC. All seven samples produced pH-alkaline leachate – most with low soluble metals and metalloid concentrations, including As and Hg. One PAF sample produced soluble SO_4, Ca, Mg and some metals (notably Mn) at moderate to high concentrations – evidence of AMD generation – and confirming the PAF classification of this sample.

No comparison has been made between bottle leachate results and water quality guideline values, such as ANZG (2018), as such a comparison is inappropriate. The guideline values provided in ANZG (2018) are for receiving water environments (eg. creeks and rivers), whereas the soluble element data in this assessment is 'point source' obtained from a finely pulped sample subjected to rigorous and artificial extraction to obtain a concentration approaching 'near maximum'. Furthermore, as contact water reports to the receiving environments a number of geochemical reactions will take place, including: retardation, adsorption and precipitation – and also likely dilution, which will attenuate the concentration as seepage/contact water migrates from the source. These processes are not accounted for in a laboratory setting.

The environmental significance of identified soluble metal/metalloid concentrations in mineral waste material in terms of risk is discussed in **Section 5**.

3.5 Cation Exchange Capacity, Sodicity and Dispersion

Exchangeable cation concentrations are used to evaluate the potential 'soil quality' of materials. Exchangeable cation data is available for 129 potential spoil samples. The results are presented in **Appendix B** and summarised in **Figure 3-12**.

The cation exchange capacity (CEC) spans a large range from four to 30 milliequivalents per 100 grams (meq/100g), with a relatively modest median CEC value of 12 meq/100g. The exchangeable sodium percentage (ESP) results range from eight per cent to 55 per cent, with a median ESP of 35 per cent. The weathered samples generally had higher CEC values and lower ESP values compared to the fresh samples – which is typical for sedimentary materials in the Bowen Basin.

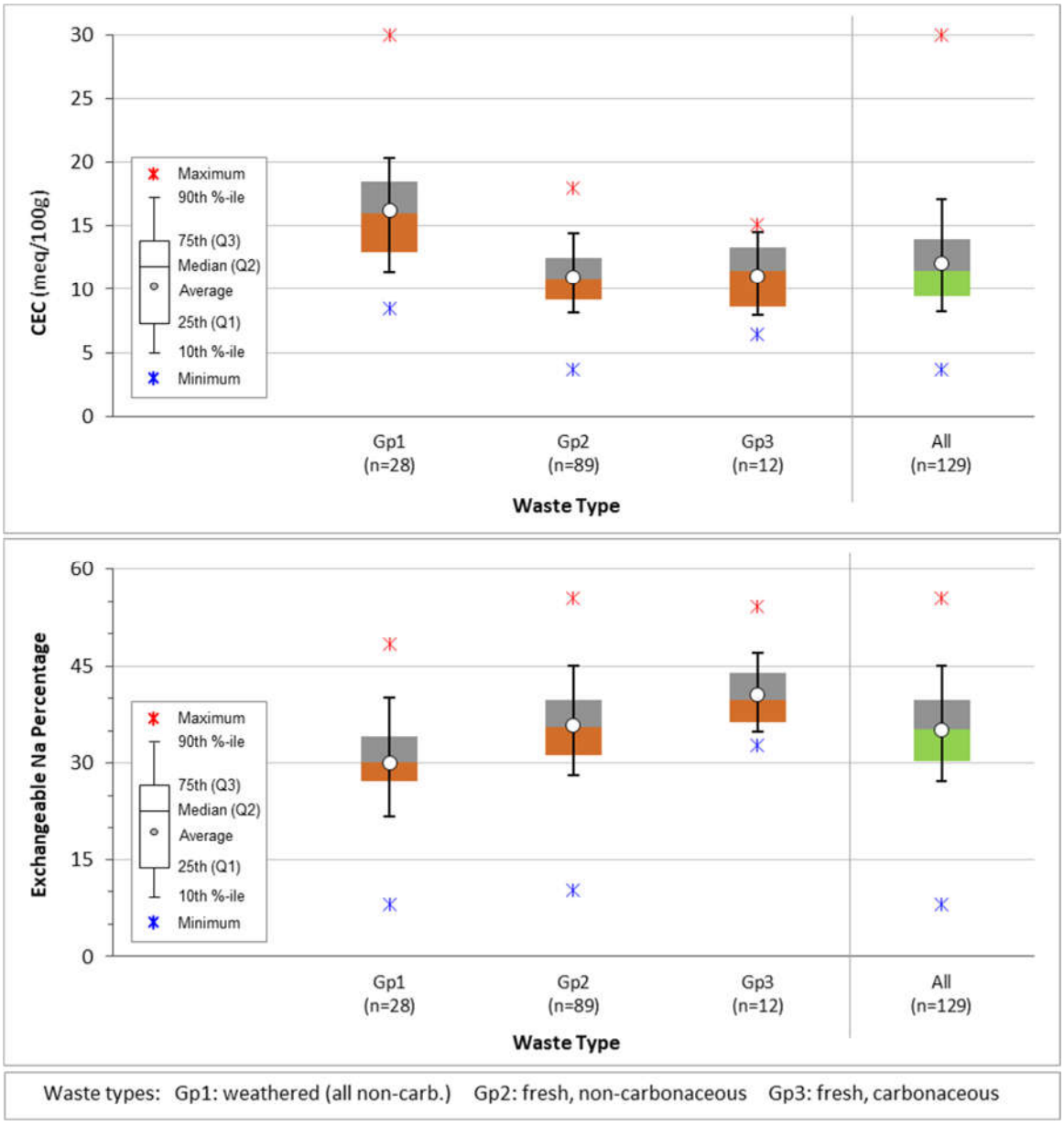
To put these results into context, an ESP value of six per cent or greater generally indicates that soil material is regarded as sodic and may be prone to dispersion (Isbell 2002) and soil with an ESP value greater than 14 per cent is regarded as strongly sodic (Northcote and Skene 1972). However, other important factors such as clay mineralogy, soil sodium concentration, soil salinity and irrigation water (rainwater) chemistry may enhance or limit that potential for soil to be sodic or become sodic over time. Therefore, sodicity ratings (based on the above general interpretation) are a general guide only and should not be taken as definitive.

All except two samples had ESP values greater than 14 per cent and, therefore, are regarded as being 'strongly sodic'. One sample each of the weathered and fresh non-carbonaceous samples had ESP values between six per cent and 14 per cent and are regarded as being 'sodic'. As essentially all of the samples are strongly sodic, mineral waste represented by these samples – which is essentially all of the mine spoil associated with the Project – can be expected to have potential for dispersion.

All 129 samples also underwent Emerson aggregate class tests to determine whether these samples were dispersive. Emerson aggregate class tests are a direct measure of soil dispersion, whereas ESP values are used as an indirect measure of the *potential* for a sample to have structural stability problems and hence *may be* dispersive. The results (**Appendix B**) show that all except one sample had some dispersion [slaking] (Class two); and one sample was dispersive [remoulded dispersion] (Class 3). These results are consistent with the dispersion predictions from the CEC and ESP results.

Based on the CEC, ESP and Emerson aggregate class test results, spoil associated with the Project is expected to be sodic to strongly sodic, and dispersive to varying degrees – with little distinction between lithology or degree of weathering.

Figure 3-12. Cation Exchange Capacity (CEC) and Exchangeable Sodium Percentage (ESP) of Potential Spoil



These exchangeable cation (and Emerson aggregate class) results are common (if not typical) for Bowen Basin Permian and Tertiary material based on Terrenus' significant experience in the region – and highlight that spoil is likely to have mixed sodicity and dispersion potential.

The environmental significance of exchangeable cation values and sodicity levels in spoil material in terms of potential erosion and dispersion is outlined in **Section 5**, however readers should consult the separate soils assessment undertaken as part of the environmental approvals for the Project for a detailed assessment of soil properties with regard to rehabilitation.

4 Geochemical Test Results – Coal, Tailings and Coarse Reject

The Project proposes to mine and process the same RoM coal as for the current northern pits at BWM. Therefore, existing (current) tailings and coarse reject samples are representative of tailings and coarse reject expected to be produced from Project. At BWM, tailings and coarse reject comprise about two per cent and three per cent, respectively, of all mineral waste (with spoil comprising 95 per cent).

Limited geochemical data is available for coarse reject samples, and what data is available is presented in this section, however the available coarse reject data (from 15 samples) is not statistically representative. As such, the discussion within this Section primarily focuses on the extensive coal and tailings geochemical data. Based on a detailed assessment undertaken by BHP (2020a) on a wide range of tailings and coarse reject samples from all of BHP's Permian-age coal operations (Qld and NSW), coarse reject materials universally have geochemical characteristics that fall within the range of geochemical characteristics of coal and tailings materials. The geochemical results for coal (drill-hole) samples are tabulated in **Appendix B** and for tailings and coarse reject samples in **Appendix C**.

4.1 Acid-Base Accounting (Potential for Acid Generation)

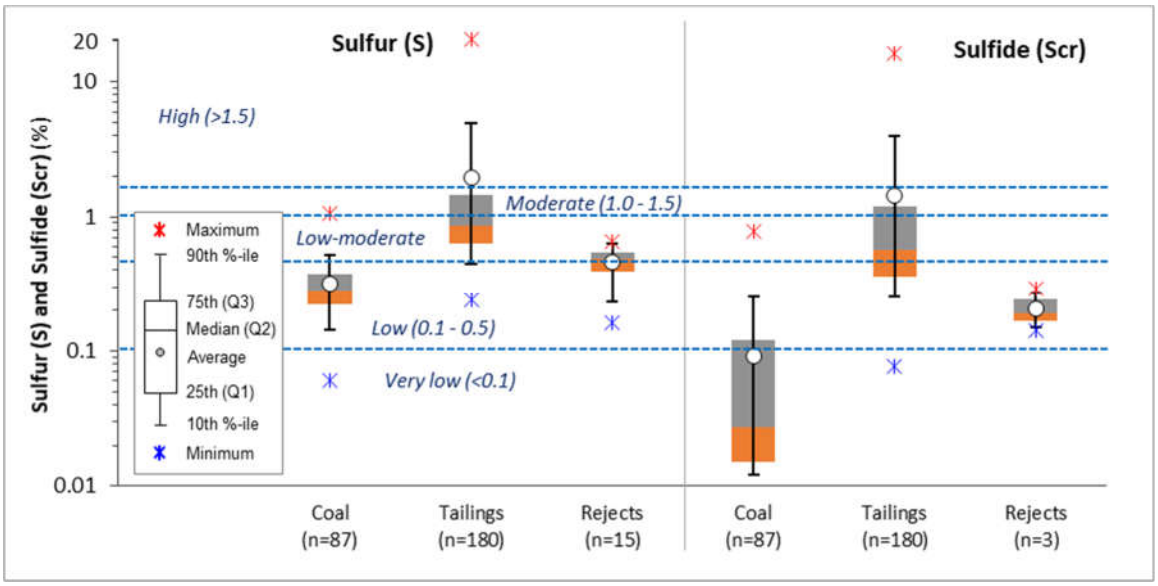
Sulfur and Sulfide

The distribution of total S and sulfide (Scr) is shown in **Figure 4-1**, which illustrates the differences in total S and Scr distribution between coal and tailings (and reject) – with tailings samples having greater sulfur and sulfide concentration to coal samples. Reject samples have total S and Scr concentrations within the range of coal and tailings samples.

Coal samples (n=87 samples) generally have low total S concentrations, with median, 75th and 90th percentile values of 0.28, 0.38 and 0.51 per cent, respectively. Comparatively, tailings samples (n=180) generally have low-moderate to high total S concentrations, with median, 75th and 90th percentile values of 0.86, 1.44 and 4.92 per cent, respectively.

To support the limited geochemical information available for reject samples, an assessment was undertaken of coal quality data from the BHP coal quality database for BWM (excluding south BWM area). Total S data is available for 5641 non-coal samples comprising seam roof, seam floor or seam partings – which are considered to be potentially representative of coarse reject materials. Total S values ranged from less than 0.01 to 8.92 per cent, with median, 75th and 90th percentile total S values of 0.09 per cent, 0.28 per cent and 1.08 per cent, respectively. As evident in **Figure 4-1**, total S in 15 reject samples ranged from 0.16 to 0.65 per cent, with a median of 0.49 per cent.

Figure 4-1. Distribution of Total Sulfur (S) and Sulfide (Scr) of Coal, Tailings and Coarse Reject



Of the 5641 roof/parting/floor samples, 301 samples (about 5.3 per cent of samples) had total S values greater than 1 per cent.

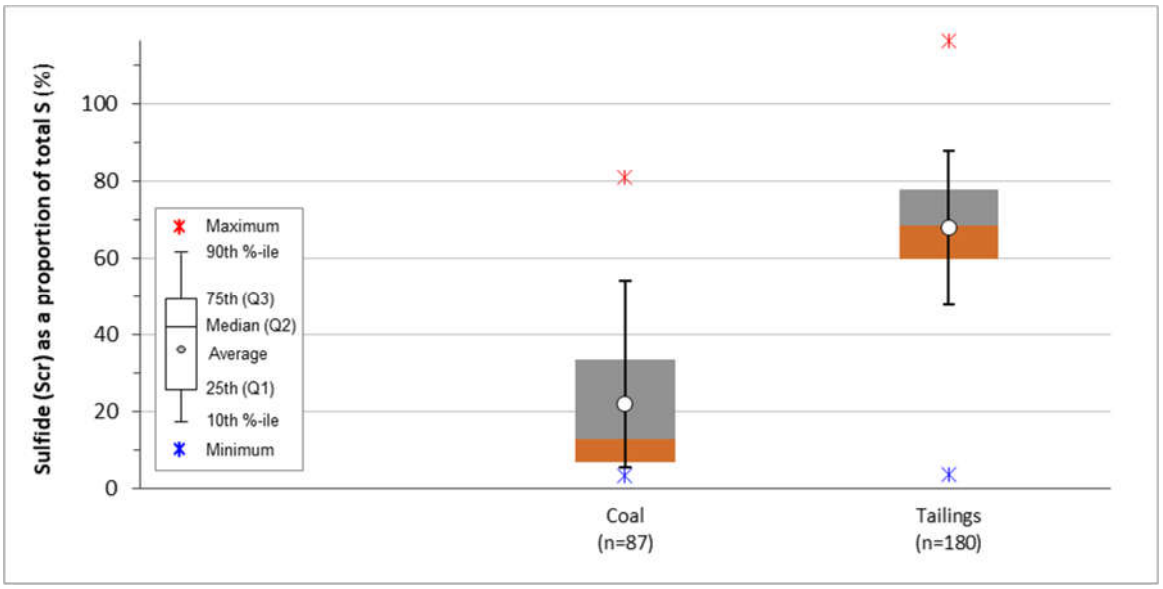
At BWM, all (or almost all) RoM coal is blended (*ie*. single seams are rarely processed on their own), as such, tailings samples are from a variety of coal seam blends and from different pit areas, depending upon what blends/pits are being processed at the time of sample collection.

As evident in **Figure 4-1**, the sulfide (Scr) concentration is much lower in the coal samples compared to the tailings samples and sulfide comprises a much lower proportion of total S in coal samples compared to tailings samples (**Figure 4-2**). In coal samples, Scr generally comprises less than 40 per cent of total S (median 13 per cent; 75th percentile 34 per cent), with the remainder likely present as organic sulfur. In tailings samples, Scr generally comprises between 50 and 90 per cent of total S (median 68 per cent; 75th percentile 78 per cent). Note: three tailings samples had Scr values greater than 100 per cent of total S, which is likely due to the nature of the Scr analysis being undertaken on a separate sample split to the total S analysis.

An assessment of total S distribution of coal from the BHP coal quality database for BWM (excluding south BWM area) was undertaken. Total S data are available for 16,501 samples, of which 803 samples are from less than 20 m deep and are assumed to be oxidised. Therefore, total S data are available for 15,698 'fresh' coal samples from seams currently being mined or likely to be mined at BWM. Total S values ranged from less than 0.01 per cent to 10.9 per cent, with median, 75th and 90th percentile total S values of 0.44 per cent, 0.59 per cent and 1.25 per cent, respectively. Approximately 7.7 per cent of samples had total S values greater than one per cent.

For the 87 coal samples assessed herein, the median and 75th percentile total S concentration was 0.28 per cent and 0.38 per cent, respectively – lower, but generally consistent with the results from the coal quality database (>15,000 samples).

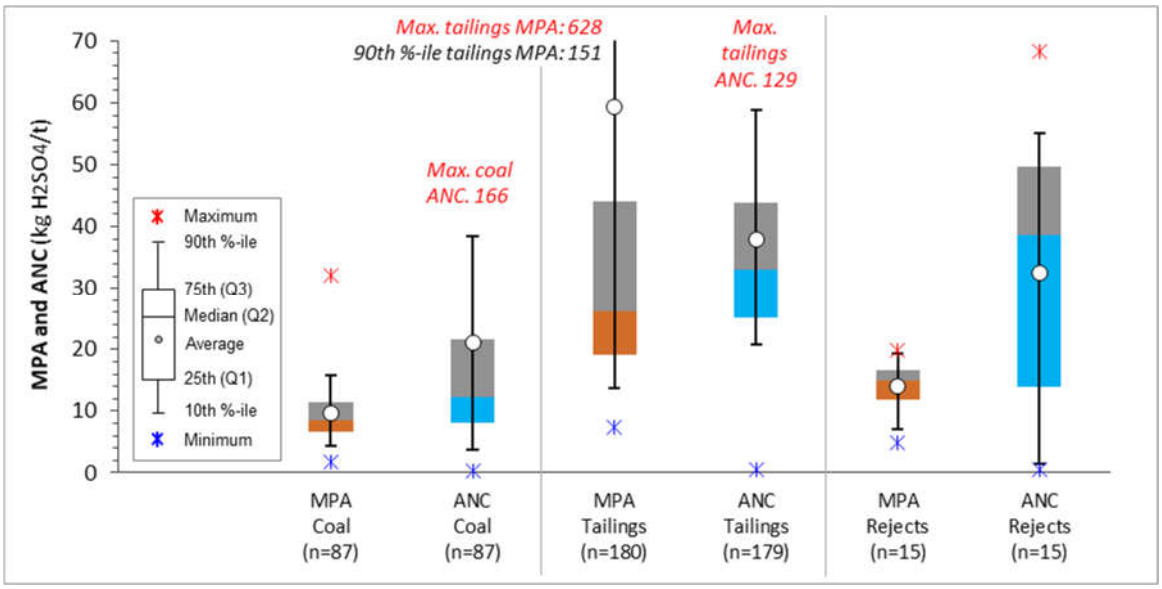
Figure 4-2. Sulfide (Scr) as a Proportion of Total Sulfur (S) of Coal and Tailings



Maximum Potential Acidity and Acid Neutralising Capacity

The distribution of MPA and ANC (**Figure 4-3**) shows that coal, generally, has significantly greater ANC compared to MPA, and from the discussion above, typically less than 40 per cent of total S is present as sulfide. MPA has been conservatively calculated from total S, which suggests that most coal has little or limited potential to generate acidity. Comparatively, there is significant overlap between the MPA and ANC distribution for tailings samples, with a significant proportion of tailings samples having greater (or similar) MPA compared to ANC, which suggests that a significant proportion of tailings samples have potential to generate acidity.

Figure 4-3. Distribution of Maximum Potential Acidity (MPA) and Acid Neutralising Capacity (ANC) for Coal, Tailings and Coarse Reject



Available Neutralising Capacity

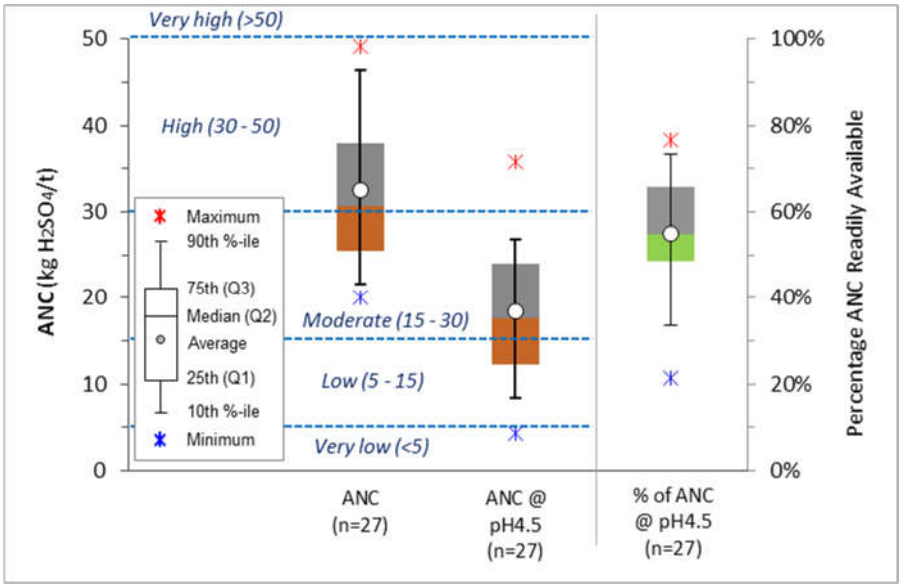
A variety of coal, tailings and reject samples underwent an ABCC test to assess the proportion of ANC that may be 'readily available' (*ie*. short-acting) in these materials and provide some indication of what carbonate minerals are providing the ANC. 'Ready availability' is regarded as the proportion of ANC that is available for buffering reaction at pH 4.5.

ABCC data is available for five coal samples and the results showed that the proportion of ANC likely available under field conditions was wide-ranging: from 5 per cent to nominally 100 per cent of the ANC[5].

For the 27 tailings samples where ABCC data is available, the results showed that the proportion of ANC likely available under field conditions ranged from 21 per cent to 77 per cent of the ANC, with 25th, median (50th) and 75th percentile values of 48 per cent, 55 per cent and 66 per cent, respectively (**Figure 4-4**). The ANC of tailings samples was generally moderate to high, however the available ANC under field conditions was generally low to moderate (**Figure 4-4**).

ABCC data for four reject samples showed that the proportion of ANC likely available under field conditions ranged from 17 per cent to 73 per cent of the Total ANC, with a median value of 38 per cent. The ANC of coarse reject samples ranged from very low to high.

Figure 4-4. Distribution of Acid Neutralising Capacity (ANC [total], ANC at pH4.5 and proportion (%) of ANC Expected to be Readily Available for Tailings



The shape of the ABCC curves (the reaction rate) can also be used to infer likely carbonate mineralogy based on standard curves/data for different carbonate minerals at varying ANC values. For the coal samples the dominant carbonate minerals were calcite/dolomite and iron-dolomite with lesser siderite – however the dominant carbonate mineral(s) differed between samples. For the

5 Because the ABCC test is a separate test to the ANC test – performed on different sample splits – it is possible to achieve results with greater than 100 per cent ANC being readily available for the same sample. Such a result effectively means that all of the ANC for that sample is in a readily available form (*ie*. a practical maximum of 100 per cent availability). Similarly, at the lower end, the lowest 'readily available' amount may actually be slightly greater.

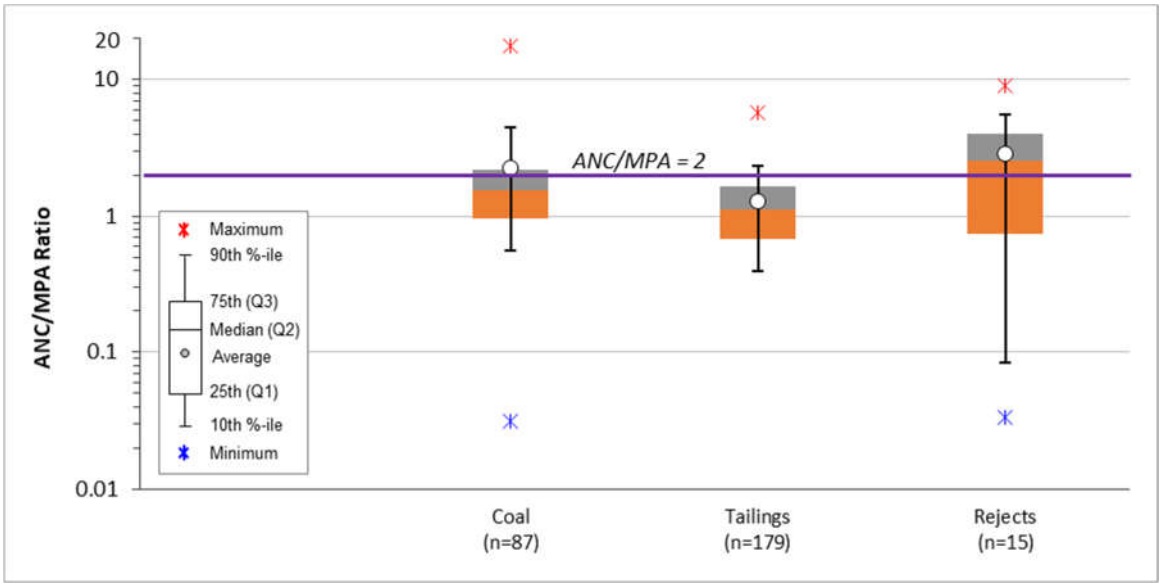
tailings samples the dominant carbonate minerals were iron-dolomite and dolomite/calcite, with lesser siderite. The four reject samples appear to have iron-dolomite and dolomite as the dominant carbonate minerals, which is consistent with the coal and tailings (and carbonaceous spoil) ABCC data. The mineralogy of coal, tailings and reject is discussed in **Section 4.2 - Mineralogy**.

ANC/MPA Ratios

Generally, those samples with an ANC/MPA mass ratio greater than two are considered to have a negligible/low risk of acid generation, as explained in **Section 3.1**. The results, illustrated in **Figure 4-5**, show that most of the coal and tailings samples have an ANC/MPA ratio less than two. The coal samples, generally, had ANC/MPA ratios greater than one (72 per cent of coal samples), indicating that most of the coal samples have similar or greater ANC compared to MPA (as shown in Figure 4-3). Comparatively, 44 per cent of tailings samples have an ANC/MPA ratios less than one.

Two thirds of the reject samples (10 samples) had ANC/MPA ratios greater than 2.3. The remaining five reject samples had ANC/MPA ratios less than one.

Figure 4-5. Distribution of Acid Neutralising Capacity (ANC) to Maximum Potential Acidity (MPA) Ratio of Coal, Tailings and Coarse Reject



Plots of ANC versus MPA are shown at **Figure 4-6** and **Figure 4-7** for coal and tailings samples, respectively. In both figures the ANC versus MPA results are plotted by final acid classification, which takes into account all available data used to classify the samples, such as NAG, Scr, ABCC, mineralogy and kinetic data.

Figure 4-6. Acid Neutralising Capacity (ANC) versus Maximum Potential Acidity (MPA) of Coal, Shown by Acid Classification

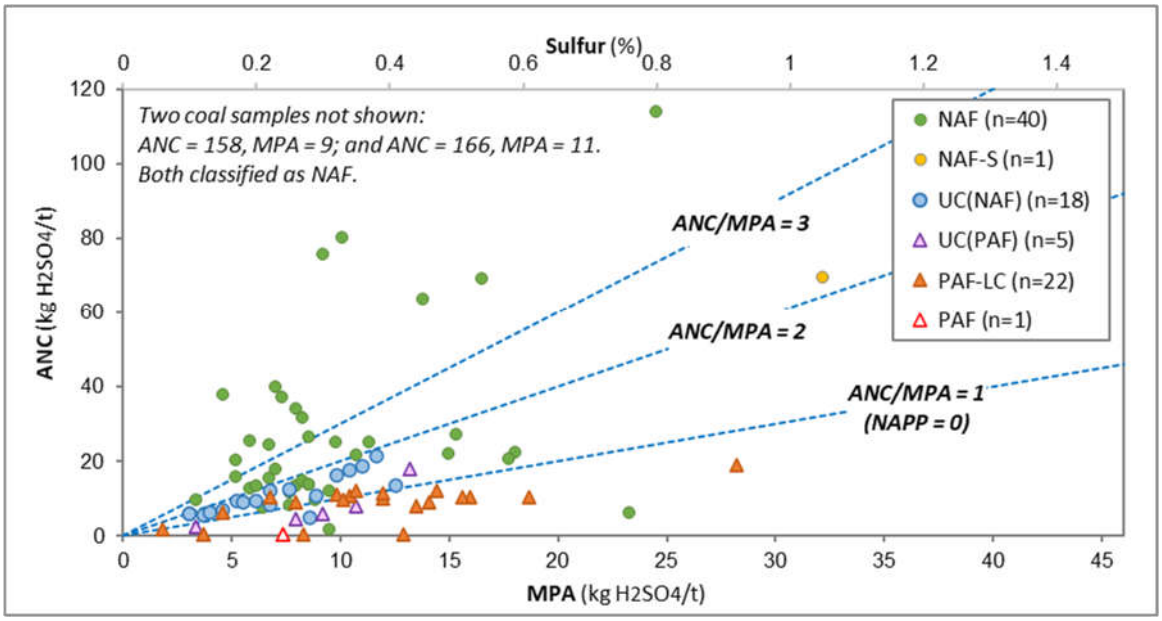
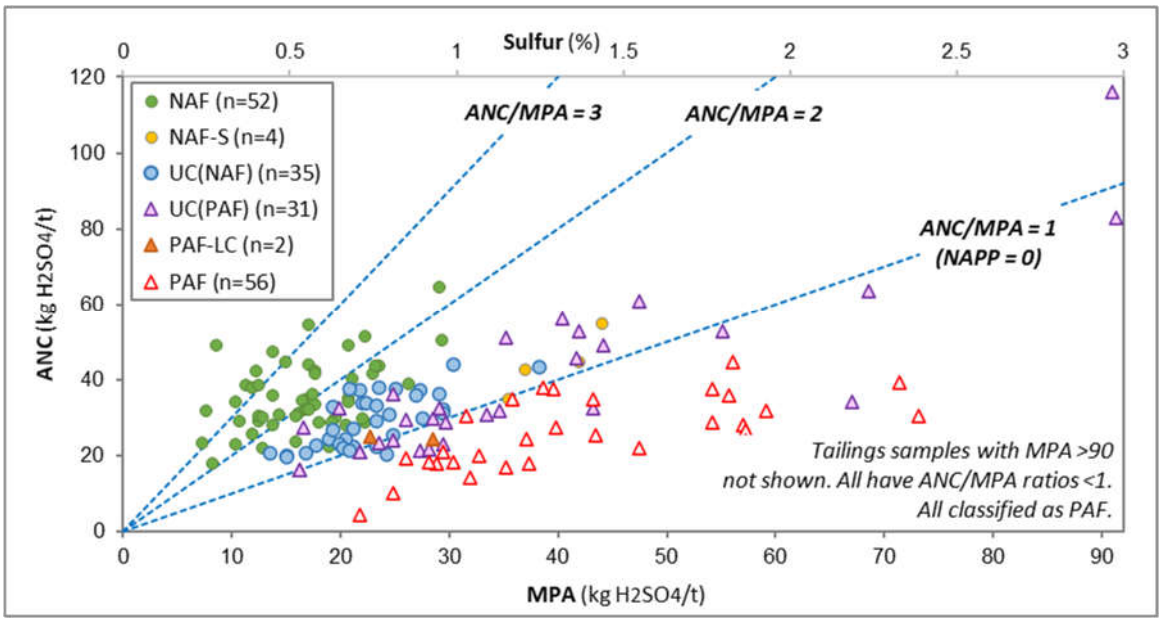


Figure 4-7. Acid Neutralising Capacity (ANC) versus Maximum Potential Acidity (MPA) of Tailings, Shown by Acid Classification



It is evident that coal samples with an ANC/MPA ratio greater than two and MPA less than approximately 15 kg H_2SO_4/t (approximately 0.5 per cent Total S) are NAF (**Figure 4-6**) and at higher sulfur concentrations (>0.5 per cent S) almost all coal samples classified as NAF had an ANC/MPA ratio greater than one.

For tailings samples (**Figure 4-7**) all PAF samples had ANC/MPA ratios of less than one, and most UC(PAF) samples had an ANC/MPA ratio less than 1.5. Most samples classified as UC(NAF) had ANC/MPA ratios between one and two. Therefore, for tailings materials, applying an ANC/MPA

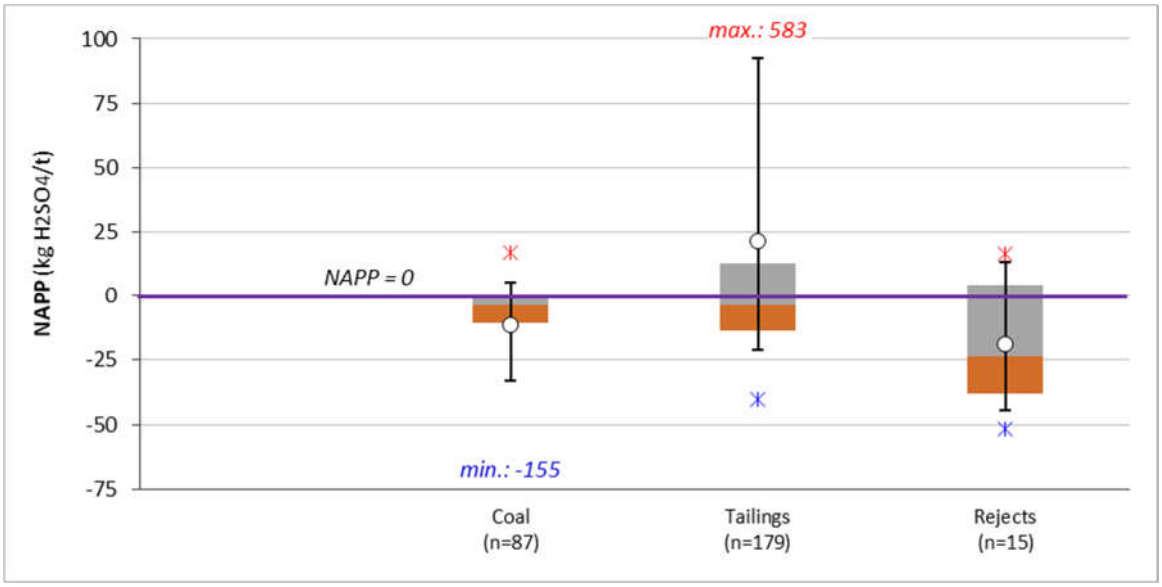
ratio of 1.5 to broadly (and conservatively) distinguish between NAF and PAF materials is valid using total S and ANC data.

Net Acid Producing Potential and Net Acid Generation Capacity

The distribution of NAPP values (calculated from total S) (**Figure 4-8**) reveals that coal samples have NAPP values that are generally low-negative, with relatively compact 10th and 90th percentile values of -33 and +5 kg H_2SO_4/t, respectively. The NAPP values for coal are reflective of the generally higher (but modest) ANC compared to relatively low MPA values. Comparatively – and as expected by the distribution of MPA and ANC values – tailings samples have a wide range of NAPP values, from -40 to +583 kg H_2SO_4/t, with 10th, 50th (median) and 90th percentile values of -21, -3 and +93 kg H_2SO_4/t, respectively.

Reject samples have NAPP values within the range of coal and tailings samples, with two-thirds of the samples (10 samples) producing moderately negative NAPP values ranging from -16 to -51 kg H_2SO_4/t.

Figure 4-8. Net Acid Producing Potential (NAPP) Distribution of Coal, Tailings and Coarse Reject



NAG tests were undertaken on all (180) tailings samples, with wide-ranging results. NAGpH values ranged from strongly acid (pH 1.8) to highly alkaline (pH 9.8) with 25th, 50th (median) and 75th percentile NAGpH values of 3.3, 4.4 and 7.9 – with 51 per cent of samples having a NAGpH <4.5. Sixteen (16) tailings samples also underwent extended NAG tests to resolve uncertainty around potential influence from organic acids.

The plots of NAGpH versus NAPP (**Figure 4-9**) and NAGpH versus total S (**Figure 4-10**) show the tailings results plotted by acid classification, which takes into account all available data used to classify the tailings samples, such as extended NAG, Scr, ABCC, mineralogy and kinetic data.

Figure 4-9. Net Acid Generation pH (NAGpH) versus Net Acid Producing Potential (NAPP) of Tailings

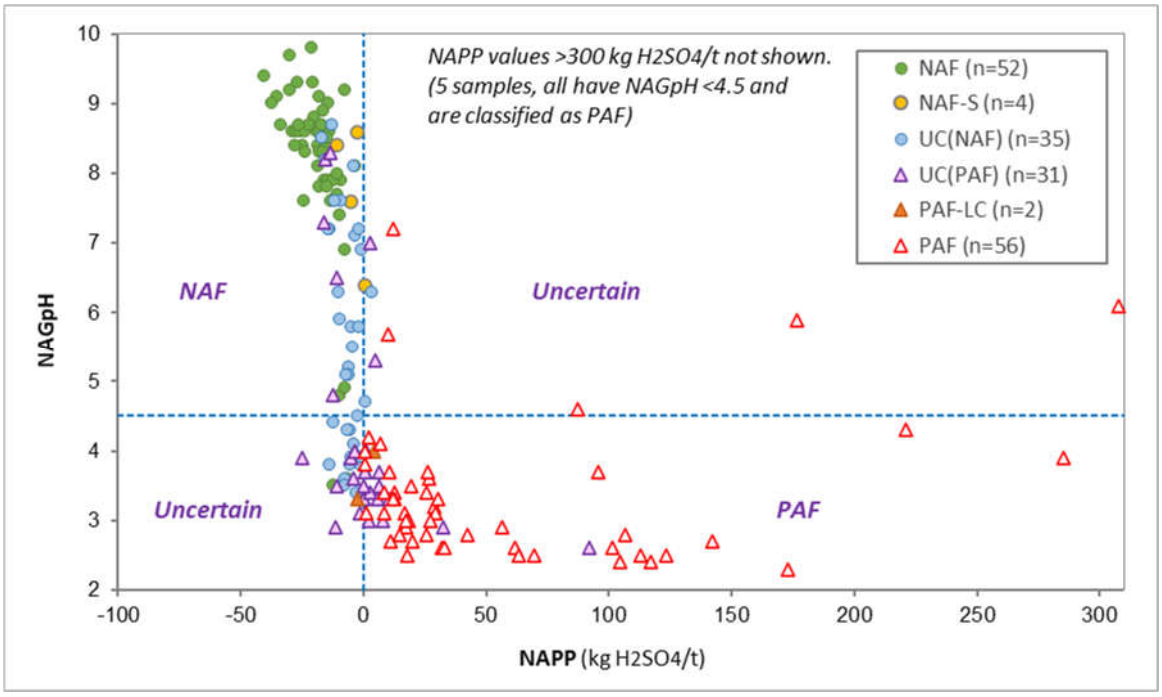
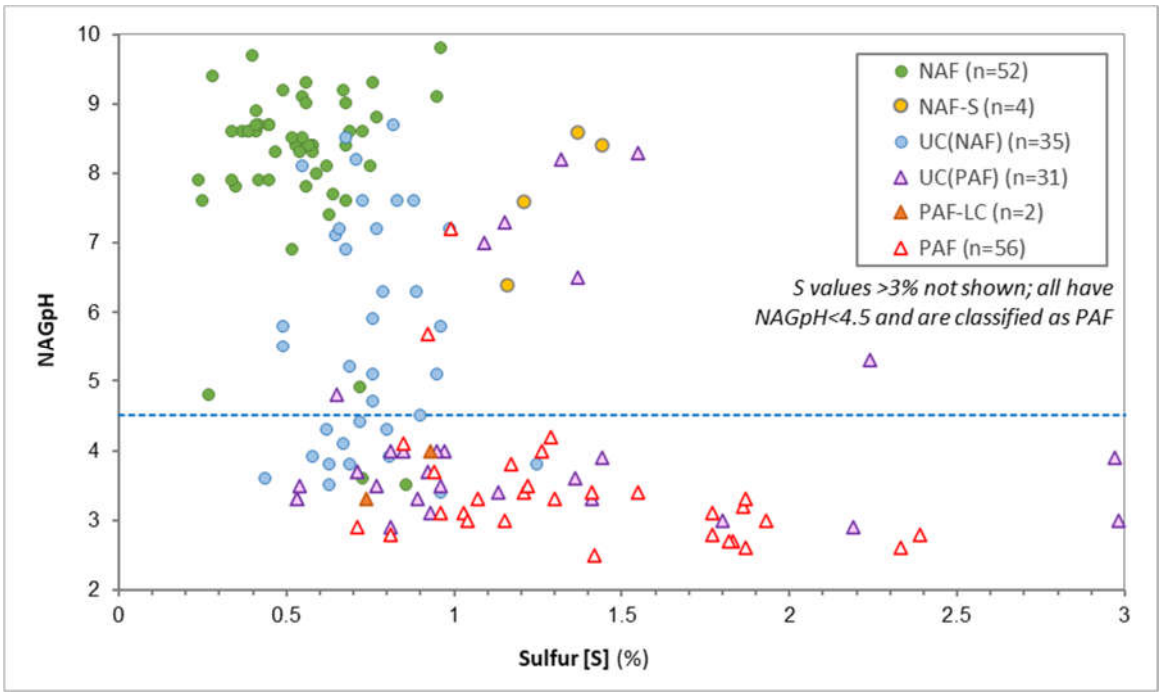


Figure 4-10. Net Acid Generation pH (NAGpH) versus Sulfur (S) of Tailings



The NAGpH versus NAPP results (**Figure 4-9**) shows most tailings samples classified as NAF or PAF plot in their respective NAF or PAF quarters. There is some 'uncertainty' within the NAPP range of approximately -20 to +20 kg H_2SO_4/t, which is where most UC(NAF) and UC(PAF) samples reside.

The plot of NAGpH versus total S (**Figure 4-10**) [for tailings samples with total S values less than three per cent] shows that samples with total S values greater than approximately one percent total S

have NAGpH values less than 4.5 and are classified as PAF or UC(PAF), with few exceptions. A similar plot of NAGpH versus sulfide (Scr) [not shown] reveals that tailings samples with Scr values greater than 0.6 per cent are classified as PAF or UC(PAF).

Kinetic Net Acid Generation (K-NAG)

Kinetic NAG (K-NAG) data is available for three tailings samples (from the CHPP) plus an additional tailing sample collected from the tailings storage facility (TSF) at the CHPP (called the NCPP TSF). K-NAG testing was undertaken by EGi (2021). K-NAG testing is undertaken to estimate the rate of potential acid generation (if at all) and to assess how reactive the sample may be should it generate acid.

Based on the static test data, three of the samples were classified as PAF and one sample classified as PAF-LC. The results confirmed the acid classifications for all samples.

The pH of all four samples dropped below pH 4.5 within minutes of the test commencing. Two of the samples also had sharp temperature 'spikes' typical of fast oxidation reactions. The remaining two samples had more subdued temperature profiles. The K-NAG test results for the four samples suggested pyrite oxidation reaction times of several weeks (rapid) to several months (moderate). Given that tailings are deposited into the TSF in a saturated condition, tailings slurry is highly alkaline, the tailings 'beach' is covered relatively quickly (within weeks to a couple of months) by new tailings deposition, and the oxygen diffusion rate through very fine-grained coal tailings is very low (*ie*. the oxidation depth within a TSF is very shallow), the in-place (disposed) risks posed by highly reactive tailings are mitigated.

Geochemical Classification of Coal, Tailings and Coarse Reject Samples

The ABA results presented in this section have been used to classify the acid forming nature of the coal, tailings and coarse reject samples as shown in **Appendix B** (coal) and **Appendix C** (tailings and reject), following the classification criteria outlined in **Section 2.5** and taking into account all additional relevant data, such as Scr, extended NAG, kinetic NAG, NAG leachate and ABCC test results. The acid forming nature of these samples is summarised in **Table 4-1**.

Table 4-1. Geochemical Classification of Coal, Tailings and Coarse Reject

Waste Type	NAF	NAF-S	UC(NAF)	UC(PAF)	PAF-LC	PAF
	No. and % of samples					
Coal (n=87)	40 (46%)	1 (1%)	18 (21%)	5 (6%)	22 (25%)	1 (1%)
	59 (68%)			*28 (32%)*		
Tailings (n=180)	52 (29%)	4 (2%)	35 (19%)	31 (17%)	2 (1%)	56 (31%)
	91 (51%)			*89 (49%)*		
Coarse reject (n=15)	10 (67%)	0	0	1 (7%)	2 (13%)	2 (13%)
	10 (67%)			*5 (33%)*		

The results in **Table 4-1** show that about one-quarter of coal and coarse reject samples and about one-third of tailings samples were classified as PAF or PAF-LC, with a further 17 per cent of tailings samples and 6 per cent to seven per cent of coal and coarse reject samples classified as UC(PAF). That is, about one-third of coal and coarse reject samples and about half of the tailings samples were expected to generate some degree of acidity and resultant AMD.

The reject samples were clearly divided into two groups – two thirds of the reject samples (10 samples) were clearly NAF, with relatively high ANC and low total S values, producing moderate to strongly negative NAPP values. The remaining reject samples (five samples) had varying AMD classifications of PAF, PAF-LC and UC(PAF).

The level of 'uncertainty' [UC(NAF) and UC(PAF)] surrounding a significant proportion of the coal and tailings samples is due to conflicting NAPP and NAGpH data (for the tailings samples, and limited extended NAG data for these samples) and no NAGpH data being available for coal samples. In view of the potential limitations of the results (regarding 'UC' classification), the classification of the samples is conservative and classifying approximately one-third of coal and coarse reject samples and half of the tailings samples as PAF is likely an upper limit.

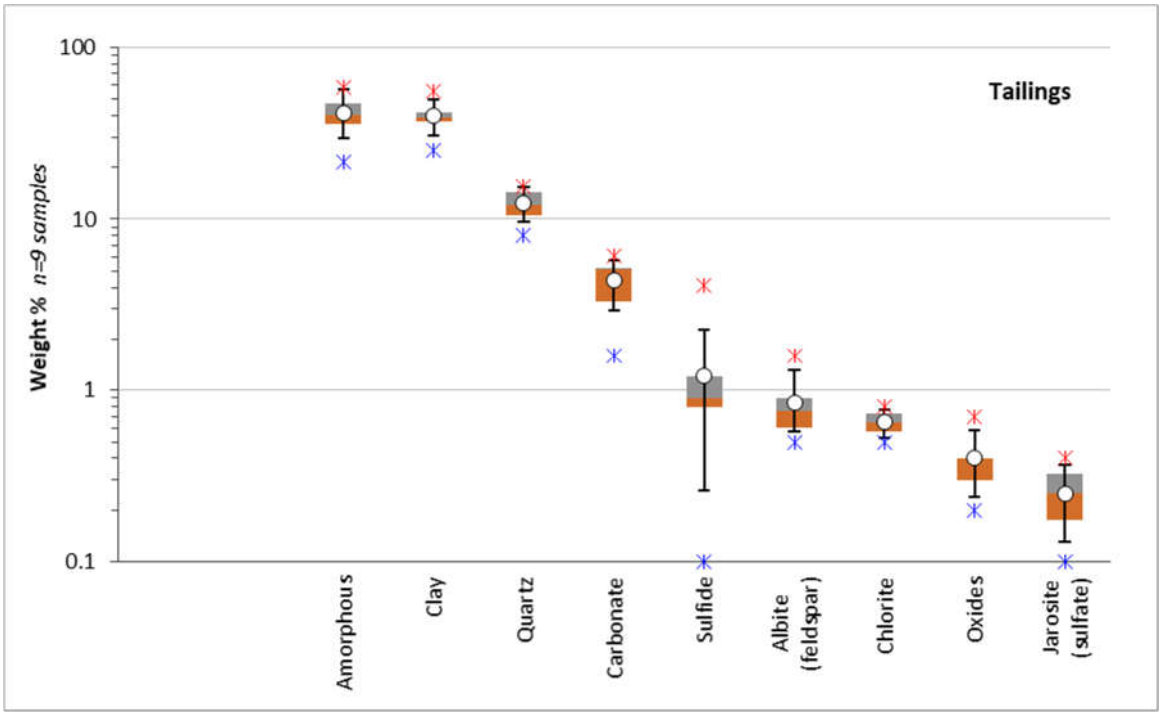
The results clearly indicate that a significant proportion of coal and coaly material at BWM (and also likely to be produced from the Project) is PAF, of varying capacity and, based on the seams predicted to be mined at the Project, the acid-forming nature of future RoM coal, tailings and reject would be expected to be comparable to present. This has implications for soluble metals/metalloids transport, as acidic materials (should they be allowed to generate acid) would increase the release of soluble metals/metalloids.

The generally low total S concentrations in coal samples and low to low-moderate total S concentrations in most coarse reject samples indicate that the sulfate concentration that could be generated in these materials from sulfide oxidation (in addition to any salinity unrelated to sulfide oxidation) would likely be relatively low. For a significant proportion of tailings, however, the sulfate concentration that could be generated from sulfide oxidation (in addition to any salinity unrelated to sulfide oxidation) would likely be moderate to high. This aspect is discussed in **Section 5**. Management measures are discussed in **Section 6**.

4.2 Mineralogy

Data is available for nine tailings samples that underwent mineralogical analysis by Quantitative X-Ray Diffraction (QXRD). The QXRD results (**Appendix B**, and summarised in **Figure 4-11**) show that tailings are dominated by non-crystalline (amorphous/coal) material and clay minerals – typical for coal tailings – with major contributions of quartz, carbonate and, for some samples, sulfide minerals.

Figure 4-11. Mineralogical Distribution within Tailings



The results show a wide range of sulfide concentrations, which supports the wide range of sulfur and sulfide concentration measured from geochemical test-work. Sulfide is present mostly as pyrite with minor marcasite (marcasite is another form of FeS_2, similar to pyrite). All samples have low sulfate concentrations, present as jarosite.

Carbonate group minerals comprise siderite, calcite, ankerite (dolomite) and rhodochrosite, in variable proportions. ABCC data for these samples (where available) indicated that iron-dolomite, dolomite and siderite were the likely dominant carbonate minerals, which is broadly consistent with the mineralogy data.

4.3 Metals and Metalloids

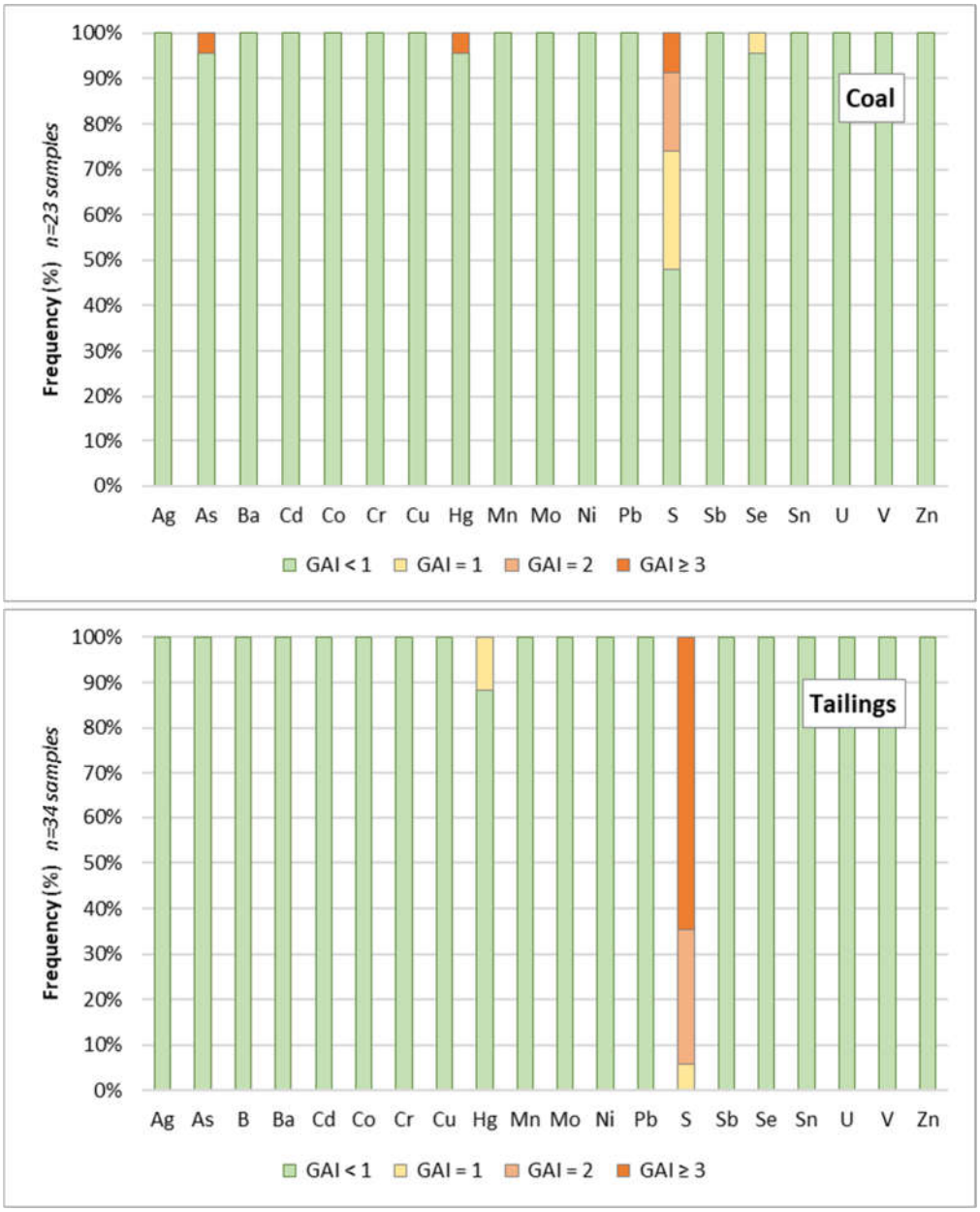
Assay (metal and metalloid) data is available for 23 coal (drill-hole) samples and 34 tailings samples. The results are compared to background concentrations for each element, based on average elemental abundance in soil in the earth's crust. The comparison is determined by the GAI, as outlined in **Section 2.4**. GAI values of two are regarded as 'slightly to moderately' enriched (with respect to average elemental abundance), GAI values of three or more are regarded as 'significantly' enriched.

For GAI values are presented in **Appendix B** (coal) and **Appendix C** (tailings) alongside the assay data. The degree of enrichment with respect to elements potentially of environmental interest is shown in **Figure 4-12**.

The GAI values show that two coal samples (about 10 per cent of samples) and 22 tailings samples (about 65 per cent of samples) were significantly enriched (GAI ≥ three) with regard to sulfur (S), which is consistent with the ABA data showing a small number of coal samples and a significant number of tailings samples having moderate (for coal) to high (for tailings) total S concentrations.

One coal sample was also significantly enriched (GAI ≥ three) with regard to arsenic (As) and mercury (Hg). Half of the coal samples and all of the tailings samples had some degree of enrichment (GAI = one or two) with regard to S. Four tailings samples had minor enrichment (GAI=1) with regard to Hg. There was no correlation found between AMD classification of the tailings or coal samples compared to elemental enrichment.

Figure 4-12. Frequency Distribution of Geochemical Abundance Indices (GAI) of Selected Elements in Coal and Tailings



Overall, the results suggest that coal and tailings material represented by these samples at BWM and the Project area has relatively low levels of metal and metalloid enrichment (excluding S, for tailings), which is consistent with Permian-age coal measures throughout eastern Australia. The elevated enrichment in some samples (with respect to some elements) does indicate that under low pH (acid/acidic) conditions these 'enriched' samples may be predisposed to release soluble metals

and metalloids, and/or sulfate, in higher concentrations than would otherwise be released under pH-neutral conditions.

Low-resolution assay data is available from the BHP geochemical database for an additional 129 tailings samples and six composite coarse reject samples. This data has not been included in the discussion above (nor included in Figure 4-12) due to these samples being analysed at a much lower resolution (less precision) compared to the 34 tailings and 23 coal samples. Additionally, the data available for these samples is limited to a small number of elements.

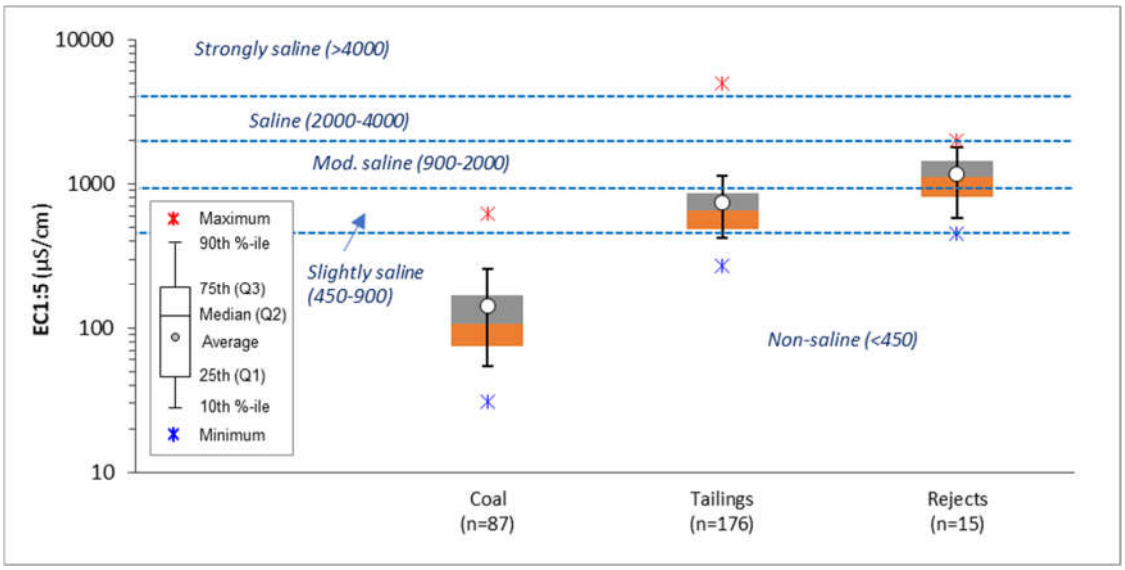
4.4 Fresh Water Solubility of Coal, Tailings and Coarse Reject

To evaluate the initial solubility of multi-elements in samples, water extract test results for pH and EC are available for 278 samples, comprising 87 coal samples, 176 tailings samples and 15 coarse reject samples. Test results for soluble metals/metalloids are available for 55 samples. All samples underwent a 1:5 w:v (solid:water) water extract procedure on pulps. Water extract tests provide an indication of the potential quality of surface water run-off or seepage from these materials during or shortly after a rainfall event, shortly after the material has been exposed by mining or processing.

Salinity and pH

The $EC_{1:5}$ of the samples ranged from 31 to 2020 μS/cm, with the coal samples having lower $EC_{1:5}$ values compared to the tailings and coarse reject (**Figure 4-13**). Coal samples are regarded as being non-saline, whereas tailings and coarse reject samples are regarded as being slightly to moderately saline. Coarse reject samples had slightly higher $EC_{1:5}$ values compared to the tailings samples, however the coarse reject results are from a much smaller dataset. These EC results are common (if not typical) for Bowen Basin coal and tailings based on Terrenus' significant experience in the region.

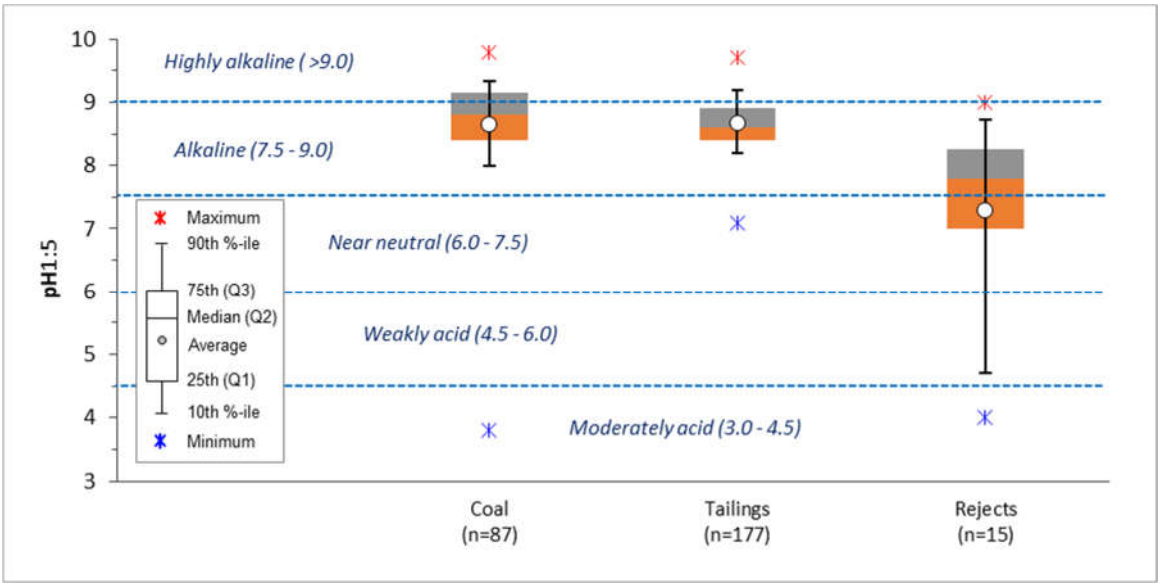
Figure 4-13. Electrical Conductivity (EC) Distribution of Coal, Tailings and Coarse Reject



The pH distribution by material type are plotted in **Figure 4-14**, which shows the coal and tailings samples to be alkaline to highly alkaline, with a median pH of 8.7 and 10th percentile pH of 8.1 – indicating no readily soluble acidity from these coal and tailings samples. The coarse reject samples

had a much wider pH distribution compared to the coal and tailings samples, however were generally pH neutral to alkaline – albeit from a small number of samples. These pH results are also common for Bowen Basin Permian coal, tailings and reject material based on Terrenus' significant experience in the region.

Figure 4-14. Soil pH Distribution of Coal, Tailings and Coarse Reject



Metals and Metalloids

Deionised water extract (leaching) data for major ions and metals/metalloids is available for 23 coal samples, 26 tailings samples and 6 composite coarse reject samples. All samples underwent a 1:5 w:v (solid:water) water extract procedure on pulps.

The samples were collected under different sampling programs with different objectives and, as such, the coal and tailings samples were analysed by a higher resolution method (ICP-MS) compared to the coarse reject samples (ICP-AES). As such, the samples analysed by ICP-AES have laboratory LOR values that are generally greater than the laboratory LOR for samples analysed by ICP-MS. The solubility information from the coarse reject samples (six samples from the BHP database) is relatively limited, as the analysis resolution is low (*ie*. the laboratory LOR is typically an order of magnitude higher than for the coal and tailings samples). As such, most elements from the coal reject samples have soluble concentrations below the laboratory LOR.

The results from these tests are provided in **Appendix B** (coal) and **Appendix C** (tailings and reject) and summarised in **Figure 4-15** for the coal and tailings samples. The median concentrations of major ions and environmentally important metals/metalloids in water extracts from coal and tailings samples are shown in **Table 4-2**.

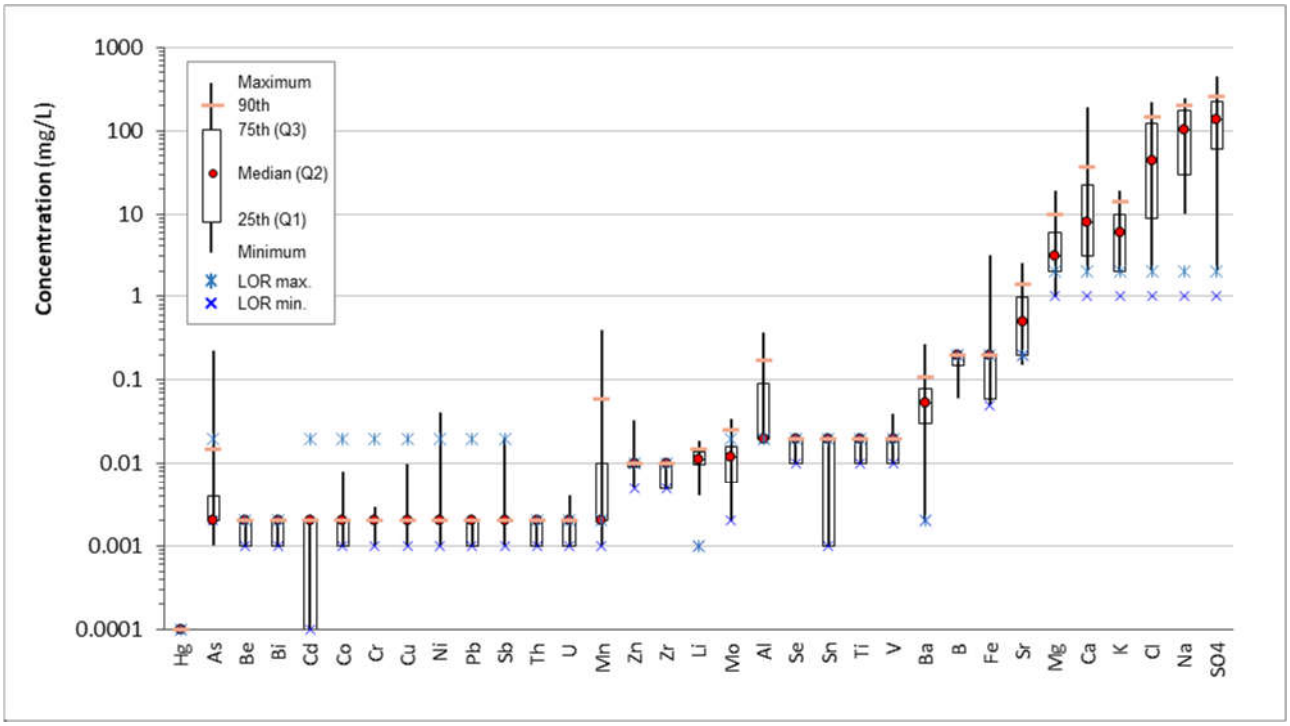
For most samples for most elements the soluble element concentrations were very low – at or close to the laboratory limit of reporting LOR, as shown in **Figure 4-15** – and generally similar to the potential spoil samples. The metals/metalloids present in many samples at concentrations greater than the laboratory LOR were Al, As, B, Cu and Mn (in about half of the tailings samples); Mn (in about half of the coal and tailings samples); and Mo and Ba in almost all samples – and the concentrations for these elements were still low.

Table 4-2. Median concentrations of Major Ions and Selected Elements in Freshwater Extracts from Coal and Tailings

Median Concentration (mg/L)	**Coal** *(n=23)*	**Tailings** *(n=26)*
≤ 0.0001	Hg (<LOR)	Cd (<LOR), Hg (<LOR)
≤ 0.001	-	Co (<LOR), Pb (<LOR)
≤ 0.01	As, Cd (<LOR), Co, Cr, Cu, Mn, Mo, Ni, Pb (<LOR), Sb, Zn)	As, Cr, Cu, Mn, Ni, Sb, Se, Sn, V, Zn
≤ 0.1	Al, Ba, Se, Sn (<LOR), V	Al, Ba, Fe, Mo
≤ 1.0	B (<LOR), Fe (<LOR)	B
≤ 10	Cl, K, Mg	Ca, K, Mg
≤ 100	Ca, Na, SO4	-
≤ 1000	-	Cl, Na, SO4

For most samples for most elements the soluble element concentrations were very low – at or close to the laboratory limit of reporting LOR, as shown in **Figure 4-15** – and generally similar to the potential spoil samples. The metals/metalloids present in many samples at concentrations greater than the laboratory LOR were Al, As, B, Cu and Mn (in about half of the tailings samples); Mn (in about half of the coal and tailings samples); and Mo and Ba in almost all samples – and the concentrations for these elements were still low.

Figure 4-15. Distribution of Element and Major Ion Concentrations in Water Extracts of Coal and Tailings



No comparison has been made between bottle leachate results and water quality guideline values, such as ANZG (2018), as such a comparison is inappropriate. The guideline values provided in ANZG (2018) are for receiving water environments (eg. creeks and rivers), whereas the soluble element data in this assessment is 'point source' obtained from a finely pulped sample subjected to rigorous and artificial extraction to obtain a concentration approaching 'near maximum'. Furthermore, as contact water reports to the receiving environments a number of geochemical reactions will take place, including: retardation, adsorption and precipitation – and also likely dilution, which will attenuate the concentration as seepage/contact water migrates from the source. These processes are not accounted for in a laboratory setting.

The environmental significance of identified soluble metal/metalloid concentrations in mineral waste material in terms of risk is discussed in Section 5.

4.5 Brackish and Saline Water Solubility of Tailings

Fifteen tailings samples underwent two 1:5 w:v (solid:water) 'saline' water extract procedures on pulps: one leach using a two g/L sodium chloride (NaCl) leaching solution and the other at 10 g/L. These leaches were undertaken to determine the solubility of metals and metalloids under brackish (two g/L) and saline (10 g/L) conditions – which better simulate the normal (brackish) and upper end (saline) water quality of the CHPP process water.

The results from these tests are provided in Appendix C and found that the soluble metals and metalloid concentrations were very low and very similar to the concentrations from the deionised water leaching tests for these same samples, with some differences.

As expected with these brackish to saline water leachates, the EC of the leachates was approximately an order of magnitude higher than the 'fresh water' leachate, for the same samples, ranging from 3990 to 4870 μS/cm for the 'brackish' (two g/L) solution to 15,800 to 18,200 μS/cm for the 'saline' (10 g/L) solution. Soluble barium (Ba) and strontium (Sr) concentrations were higher in both leachate solutions compared to the 'fresh water' leachate for the same samples – a trend that has been observed in similar 'brackish' and 'saline' leaches of tailings solutions from other Permian coal mines in the Bowen Basin. Several elements, notably aluminium (Al), arsenic (As) and antimony (Sb) had marginally lower concentrations in the 'brackish' leachate solution compared to the 'fresh water' leachate, at the same LOR – a trend that has also been observed in 'saline leaches' of tailings solutions from other Permian coal mines in the Bowen Basin. Soluble element concentrations in the 'saline' (10 g/L) leachate were generally below the laboratory LOR – recognising that the laboratory LORs for the saline leachate was higher compared to the 'brackish' leachate.

Overall, the results have shown that the solubility of tailings is low under 'brackish' and 'saline' leaching conditions.

4.6 Solubility of Oxidised Tailings – NAG Leachate Solutions

NAG leachate data is available for 23 tailings samples with different acid classifications (NAF, PAF and Uncertain). NAG leachate is the solution remaining from the NAG test after the sample has been oxidised with peroxide to encourage oxidation [and encourage acid generation if available neutralising capacity has been exhausted]. Of the 'PAF' samples, eight were classified as PAF, two

as PAF-LC and three as UC(PAF). Of the 'NAF' samples, eight were classified as NAF, one as NAF-S (*ie*. NAF with total S > one per cent) and the remaining sample was classified as UC(NAF).

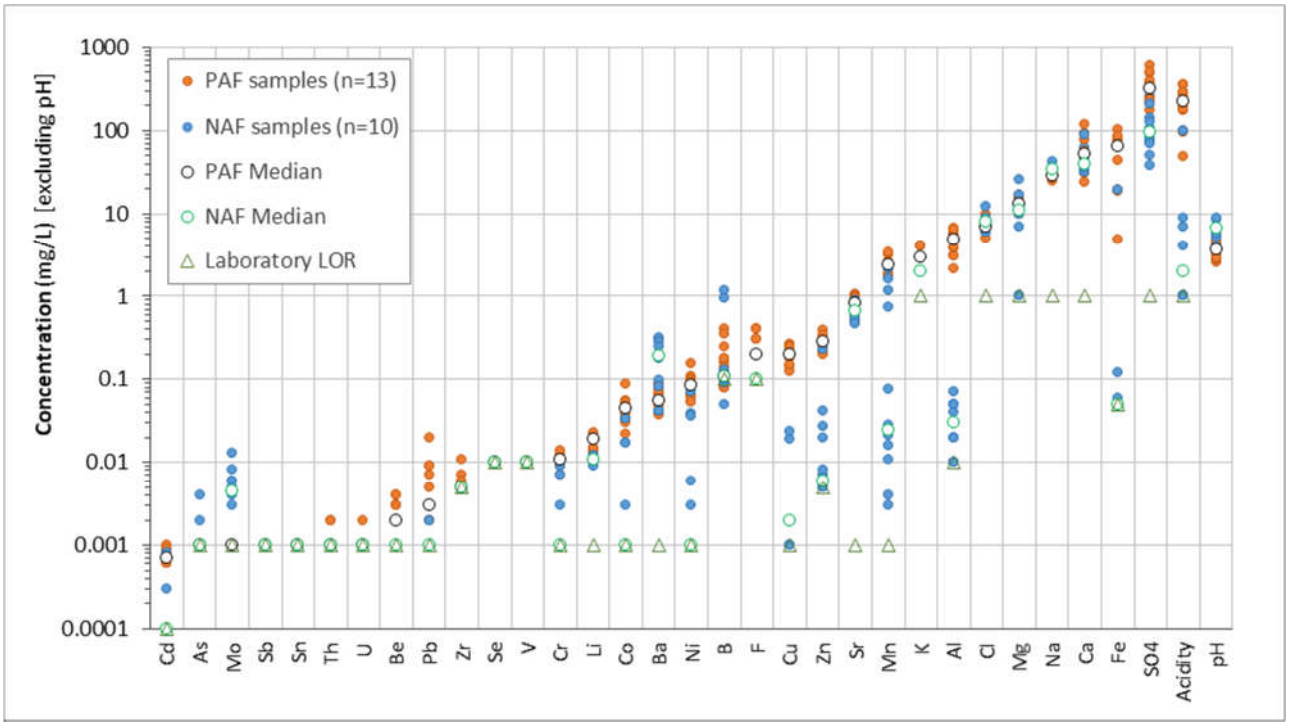
The results from these tests are provided in **Appendix C** and summarised in **Figure 4-16**, on the basis of PAF samples [including UC(PAF)] versus NAF samples [including UC(NAF)]. The median concentrations of environmentally important elements and major ions in NAG leachate from PAF samples were as follows:

- ≤ 0.001 mg/L antimony (Sb), arsenic (As), cadmium (Cd), mercury (Hg), molybdenum (Mo), tin (Sn)
- ≤ 0.01 mg/L lead (Pb), selenium (Se), vanadium (V)
- ≤ 0.1 mg/L cobalt (Co), chromium (Cr), nickel (Ni), fluoride (F)
- ≤ 1.0 mg/L boron (B), copper (Cu), fluoride (F), zinc (Zn)
- ≤ 10 mg/L aluminium (Al), chloride (Cl), manganese (Mn)
- ≤ 100 mg/L calcium (Ca), iron (Fe), magnesium (Mg), sodium (Na)
- ≤ 1000 mg/L sulfate (SO_4), acidity [as $CaCO_3$]

The pH of NAG leachate of 'PAF' samples ranged from 2.57 to 4.63, with a median pH of 3.60 – clearly evident that 'PAF' samples were moderately acid. The pH of NAG leachate of 'NAF' samples ranged from 5.15 to 8.73, with a median pH of 6.68.

As evident by the results in **Figure 4-16**, the NAG leachate from PAF samples is significantly more concentrated in several elements and sulfate compared to the water extract and NAG leachate solutions from the NAF samples – showing that under acid/acidic conditions tailings will generate elevated metal and metalloid loads – and sulfate.

Figure 4-16. Distribution of Element and Major Ion Concentrations in NAG Leachate of Tailings



4.7 Sulfide Oxidation (OxCon) of Tailings

Kinetic testing (OxCon testing) to determine the sulfide oxidation rate under ideal and unmitigated oxidising conditions was undertaken by Earth Systems on five tailings samples. The OxCon test-work was undertaken on pulp samples at a gravimetric moisture content of 8.0 weight per cent, which approximates a fairly dry tailings condition, as a conservative approach. Following the OxCon testing the sample was flushed with deionised water and the leachate analysed for major ions and soluble metals.

The sample were characterised by static geochemical testing methods comprising ABA, NAG tests, elemental concentrations of the NAG leachate and elemental assay of the solid. Two of the samples were expected to be PAF, one PAF-LC, one NAF-S and the remaining sample NAF.

The key static and kinetic geochemical results and findings, with respect to acid generation and neutralisation potential are summarised in **Appendix C**. The OxCon test-work confirmed the acid classifications of each sample predicted from the static test-work.

The PAF and PAF-LC samples were found to pose a moderate to moderate-high acid drainage (AD) risk and a low saline drainage (SD) risk – due to the relatively low total S concentrations of each sample – with the two PAF samples expected to provide buffering capacity (*ie*. time until all ANC is consumed) of four to nine years. For the PAF-LC sample the expected lag time until all ANC is consumed was less than one year.

The NAF-S sample was found to pose a negligible risk of developing AD and NMD and a low risk of producing SD. The NAF sample was found to pose no risk of developing AD and a negligible risk of developing NMD and/or SD.

All samples – including the PAF samples – maintained non-acid conditions throughout the test, producing leachate with pH values ranging from 7.9 to 8.7. As such, the soluble metals and metalloid concentrations in the post-OxCon leachate were low, including the sulfate concentration.

5 Geochemical Characteristics and Hazards of Mineral Waste Materials

The geochemical characteristics of potential spoil (overburden & interburden) and coal reject (tailings and reject) from the Project have been assessed – as have the characteristics of coal samples, which almost entirely report as RoM coal. The assessment was undertaken to understand the environmental geochemical characteristics of these samples, as being representative of their respective mineral waste types, such that appropriate management measures can be implemented (for the Project) during operations and post-closure.

Spoil currently comprises approximately 95 per cent of mineral waste at BWM and will continue to do so for the Project. Tailings and reject will comprise the remaining two per cent and three per cent, respectively, of all mineral waste over the life of the operation. Overburden and interburden (*ie*. excluding coal) is comprised of about 98 per cent non-carbonaceous material (of which about 15 per cent is weathered) and about two per cent carbonaceous material (mostly fresh/unweathered).

The environmental geochemical characteristics of the materials are summarised in the following sub-sections and relate to the characteristics of mineral waste materials likely to be mined/ produced by the Project.

5.1 AMD Potential

Potential Spoil – non-carbonaceous

Non-carbonaceous spoil (types Gp1 and Gp2) represents about 92 per cent of the total mineral waste and about 98 per cent of spoil. About 15 per cent of non-carbonaceous spoil is weathered material.

Non-carbonaceous overburden/interburden, as a bulk material, is expected to generate pH-alkaline to highly alkaline contact water (run-off and seepage), which is typical for Permian (and Tertiary) sedimentary materials in the Bowen Basin.

The total S concentration of non-carbonaceous spoil is very low, with a 90th percentile total S concentration of 0.06 per cent and similarly very low 90th percentile sulfide (Scr) concentration of 0.04 per cent. As such, and combined with high ANC values (median 44 kg H_2SO_4/t), which is significantly higher than the MPA (median 0.9 kg H_2SO_4/t), greater than 99 per cent of samples (634 out of 638 samples) were classified as NAF. Due to the very low total S concentration, this material has a negligible potential to generate saline drainage (SD) due to sulfide oxidation.

The test-work undertaken has demonstrated that the ANC for the non-carbonaceous spoil is expected to be about 50-60 per cent available under field conditions, with dolomite (ankerite) and iron-dolomite being the main carbonate minerals contributing to the acid buffering potential of the spoil. Siderite, present in minor quantity, does not provide any net ANC. Overall, non-carbonaceous spoil has excess acid neutralising capacity.

Total metal and metalloid concentrations from 122 samples tested are very low compared to average element abundance in soil in the earth's crust. That is to say, non-carbonaceous spoil has low enrichment in total metals and metalloids compared to unmineralised rocks.

Soluble multi-element results indicate that leachate from non-carbonaceous spoil is expected to contain low concentrations of soluble metals and metalloids.

Based on the results, non-carbonaceous spoil has a negligible potential to generate AMD as either AD and/or NMD and/or SD.

Potential Spoil – carbonaceous

Carbonaceous spoil [*ie*. Gp3] represents about two per cent of spoil material at BWM and – as a bulk material – is expected to generate pH-alkaline to highly alkaline contact water (run-off and seepage), similar to non-carbonaceous spoil.

The total S concentration of this material is generally low, with a relatively low 90th percentile total S concentration of 0.57 per cent and similarly low 90th percentile sulfide (Scr) concentration of 0.35 per cent. A small number of samples had moderate to high total S (and Scr) concentrations. Due to the generally low total S concentration, this material has a low potential to generate SD due to sulfide oxidation.

Combined with generally moderate ANC values (median 22 kg H_2SO_4/t) and relatively low MPA values (median 5.5 kg H_2SO_4/t), and NAGpH values generally greater than pH 4.5, 86 per cent of carbonaceous samples were classified as NAF, with a further nine per cent classified as NAF-S or UC(NAF). Three (out of 63 samples) were classified as PAF, PAF-LC or UC(PAF).

ANC is expected to be about 20-30 per cent available under field conditions, with iron-dolomite and dolomite (ankerite) being the main carbonate minerals contributing to the acid buffering potential of carbonaceous spoil. Siderite, present in minor quantity, does not provide any net ANC.

Total metal and metalloid concentrations from 16 samples tested are generally low compared to average element abundance in soil in the earth's crust, with some exceptions. Seven of the 16 samples assayed had minor (GAI = two) or significant (GAI ≥ three) enrichment with respect to S (consistent with the geochemical data) and/or As and/or Hg.

Soluble multi-element results indicate that leachate from carbonaceous spoil is expected to generally contain low concentrations of soluble metals and metalloids – similar to non-carbonaceous spoil. Of the seven samples described above that had minor to significant enrichment with respect to S and/or As and/or Hg, five were classified as NAF/NAF-S and two were classified as PAF/PAF-LC. All samples produced pH-alkaline leachate – most with low soluble metals and metalloid concentrations, including As and Hg. One PAF sample produced soluble SO_4, Ca, Mg and some metals (notably Mn) at moderate to high concentrations – evidence of AMD generation – and confirming the PAF classification of this sample.

Based on the results, carbonaceous spoil has a generally low potential to generate AD and/or NMD and/or SD. A very small proportion of this material type has some potential to generate low-level AD and/or NMD and/or SD.

Tailings

Tailings material is expected to generate pH-alkaline contact water (run-off and seepage).

The total S concentration of tailings ranges from low to high, but is generally low-moderate to high, with 75th and 90th percentile total S values of 1.44 per cent and 4.92 per cent, respectively. The proportion of total S as sulfide was highly varied in the tailings samples, ranging from four per cent to 100 per cent of total S. The generally low-moderate to high total S concentration of tailings suggests some tailings may have some potential to generate SD due to sulfide oxidation.

The ANC of samples spanned a wide range, from less than one to 129 kg H_2SO_4/t, with the median ANC (33 kg H_2SO_4/t) being only slightly higher than the median MPA (26 kg H_2SO_4/t). These results, combined with half of the tailings samples having NAGpH values below pH4.5, resulted in 31 per cent of tailings samples being classified as PAF or PAF-LC and 17 per cent classified as UC(PAF). That is, about half of 180 tailings samples were classified as PAF, PAF-LC or UC(PAF). Of the remaining samples, 31 per cent were classified as NAF and 19 per cent as UC(NAF).

Kinetic NAG test-work undertaken by EGi (2021) and OxCon test-work undertaken by Earth Systems on low-moisture tailings samples suggests relatively moderate to rapid pyrite oxidation rates of PAF tailings, with lag times until potential acidification (under oxidising conditions) ranging from less than one month to several years.

There is a level of uncertainty surrounding the AMD classification of 36 per cent of the tailings samples and, as such, these samples have been tentatively classified as UC(NAF) or UC(PAF) based on comparing the data available for these samples with the results from tailings samples where extensive geochemical test-work has been undertaken. In view of the potential limitations of the results, the classification of the samples is conservative and classifying approximately half of the tailings samples as PAF is likely an upper limit.

ANC is expected to be about 55-65 per cent available under field conditions, with ANC availability expected to range from about 20-75 per cent, with iron-dolomite and dolomite (ankerite) as the main neutralising minerals contributing to the acid buffering of carbonaceous spoil. Siderite, present in minor quantity, does not provide any net ANC.

With some exceptions, the total metal and metalloid concentrations from 34 samples tested are generally low compared to average element abundance in soil in the earth's crust. About 65 per cent of tailings samples tested were significantly enriched (GAI ≥3) with regard to S and all tailings samples had some degree of enrichment (GAI = one or two) with regard to S – consistent with the geochemical data. Four tailings samples had minor enrichment (GAI=1) with regard to Hg. There was no correlation found between AMD classifications of the tailings samples compared to elemental enrichment.

Solubility data indicates that leachate from tailings under freshwater and saline water leaching conditions is expected to contain low concentrations of soluble metals and metalloids. Leachate from PAF tailings after oxidation (from NAG leachate analysis and OxCon test-work) has the potential to generate low pH leachate (AD) or NMD with elevated sulfate and soluble metal and metalloid concentrations. Under brackish and saline leaching conditions mobilisation of soluble metals and metalloids is also expected to be low.

Based on the results, a significant proportion (up to half) of tailings currently reporting to the NCPP TSF (and also expected to be representative of tailings to be produced by the Project) have a moderate to high potential to generate AMD as either AD and/or NMD and/or SD.

Coal

Coal is not regarded as waste and RoM coal would remain at BWM for a relatively short period of time. However, some minor coal seams/plys will report directly as waste. Additionally, the environmental geochemical characteristics of RoM coal (temporarily stored on a RoM pad) should still be assessed for environmental management purposes.

Coal represents about six per cent of all lithological material at BWM and, assuming almost all of this will report as RoM coal, it is conservatively assumed that coal will represent a very small proportion of mineral waste. Most waste 'coal' will report as tailings or coarse reject.

RoM coal, as a bulk material, is expected to generate pH-alkaline to highly alkaline contact water (run-off and seepage).

The total S concentration of this material is generally low, with 90th percentile total S and Scr values of 0.51 per cent and 0.25 per cent, respectively.

Coal samples have a wide range of ANC values from less than 0.5 to 166 kg H_2SO_4/t, however the median ANC is low (12 kg H_2SO_4/t) and, as such, 47 per cent of samples were classified as NAF

with a further 21 per cent classified as UC(NAF) – with the remaining 32 per cent classified as PAF, PAF-LC or UC(PAF).

There is a level of uncertainty surrounding the AMD classification of 27 per cent of the coal samples and, as such, these samples have been tentatively classified as UC(NAF) or UC(PAF) based on comparing the data available for these samples with the results from samples where extensive geochemical test-work has been undertaken. In view of the potential limitations of this extrapolation of the results, the classification of the samples is conservative and classifying approximately one-third of coal samples as PAF (to some degree) is likely an upper limit. The generally low sulfur concentrations in coal samples indicate that the sulfate loads from sulfide oxidation would likely be low.

Total metal and metalloid concentrations from 23 samples tested are generally low compared to average element abundance in soil in the earth's crust. One sample (classified as NAF-S) was significantly enriched (GAI ≥ three) with regard to As, Hg and S. Half of the coal samples had some minor to moderate enrichment (GAI = one or two) with regard to S.

Soluble multi-element results from 23 samples tested indicate that contact water (run-off and seepage) from coal is expected to contain low concentrations of soluble metals and metalloids.

Based on the results, and as a bulk material, RoM coal is assessed as having a low potential to generate AMD as either AD, NMD and/or SD.

The environmental management of coal (RoM coal and/or product coal) will be focused on surface water run-off and seepage collection and dust control, which are 'standard' management practices for RoM and product coal stockpiles, and are outlined in Section 6 below. Surface water run-off from RoM coal and product coal stockpiles would be managed as part of the mine water management system.

Coarse Reject

Limited coarse reject sampling and analysis has been undertaken and, as such, the data is not statistically valid. Two thirds of the reject samples (10 samples) were clearly NAF, with relatively high ANC and low total S values, producing moderate to strongly negative NAPP values. The remaining reject samples (five samples) had varying AMD classifications of PAF, PAF-LC and UC(PAF).

The available data (from the BHP geochemical database) suggests that coarse reject is expected to have environmental geochemical characteristics potentially more similar to coal and carbonaceous spoil than to tailings – a finding that is consistent with the geochemical characteristics of coarse reject – generally – from similar Permian coal mining operations with the Bowen Basin, based on Terrenus' significant experience working in the region – and generally consistent with 'non-coal' roof/parting/floor samples from the BWM coal quality database.

5.2 Salinity, Sodicity and Dispersion Potential

Potential Spoil – non-carbonaceous

Non-carbonaceous spoil (Gp1 and Gp2) has EC values (from 683 samples) ranging from 137 to 1670 μS/cm, with median and 90th percentile values of 387 and 502 μS/cm, and has very low total

S concentrations. On this basis, contact water (run-off and seepage) is expected to be non-saline, either as a result of dissolution of geogenic salts and/or from sulfide oxidation (sulfate salinity).

Non-carbonaceous spoil samples (n=117) had modest CEC values and high ESP values, resulting in all except two samples being classified as 'strongly sodic'. As such, non-carbonaceous spoil is expected to be strongly sodic with potential for dispersion (based on the high sodicity values). These samples also underwent Emerson aggregate class testing to directly measure dispersion, which found that all samples displayed 'some dispersion'. The management of this material is discussed in Section 6.

Potential Spoil – carbonaceous

Carbonaceous spoil samples (n=63) have similar EC values to non-carbonaceous spoil – ranging from 110 to 1260 µS/cm, with median and 90th percentile values of 367 and 509 µS/cm, and has generally low total S concentrations. On this basis, contact water (run-off and seepage) is expected to be non-saline, either as a result of dissolution of geogenic salts and/or from sulfide oxidation (sulfate salinity).

Carbonaceous spoil samples (n=12) had low CEC and high ESP values comparable to non-carbonaceous samples, resulting in all samples being classified as 'strongly sodic'. As such, carbonaceous spoil is expected to be strongly sodic with potential for dispersion (based on the high sodicity values). These samples also underwent Emerson aggregate class testing to directly measure dispersion, which found that all samples displayed 'some dispersion'. The management of this material is discussed in Section 6.

Tailings

Tailings samples (n=180) have EC values ranging from 274 to 4980 µS/cm, with median and 90th percentile values of 659 and 1135 µS/cm, respectively. On this basis, contact water (run-off and seepage) for most tailings is expected to be slightly to moderately saline. A small proportion of tailings are saline to strongly saline. Most tailings have low-moderate to moderate total S concentrations, however 38 per cent of samples have total S concentrations greater than one per cent, therefore the potential for SD (from sulfide oxidation) is moderate. The salinity characteristics of future tailings from the Project are expected to be comparable to existing tailings.

Coal

Coal samples (n=87) have EC values ranging from 31 to 623 µS/cm, with low median and 90th percentile values of 107 and 259 µS/cm, respectively, and has generally low total S concentrations. On this basis, contact water (run-off and seepage) is expected to be non-saline, either as a result of dissolution of geogenic salts and/or from sulfide oxidation (sulfate salinity).

Coarse Reject

Coarse reject has EC values (from 15 samples) ranging from 451 to 2020 µS/cm, with median and 90th percentile values of 1120 and 1806 µS/cm, respectively, and has generally low total S concentrations similar to coal. On this basis – and acknowledging the small dataset – contact water (run-off and seepage) is expected to be slightly to moderately saline, either as a result of dissolution of geogenic salts and/or from sulfide oxidation (sulfate salinity).

6 Management and Mitigation Measures

6.1 Spoil Management Strategy

The management of overburden and interburden (spoil) materials generated by the Project will be consistent with the current approved mine waste management strategy – comprising the disposal of overburden and interburden into in-pit spoil dumps, then progressively rehabilitated – with run-off and seepage captured by the mine water management system.

Spoil is overwhelmingly NAF with excess ANC and has a negligible risk of developing AMD, including AD, NMD or SD. Furthermore, surface water run-off and seepage from spoil is expected to be non-saline with relatively low soluble metal/metalloid concentrations. However, spoil is expected to be strongly sodic with potential for dispersion and erosion.

Where highly sodic and/or dispersive spoil is identified it should, wherever practicable, not report to final landform surfaces and should not be used in construction activities. Tertiary spoil has generally been found to be unsuitable for construction use or on final landform surfaces (Australian Coal Association Research Program [ACARP], 2004 and 2019).

It is unlikely that sodic and potentially dispersive spoil will be able to be selectively handled and emplaced during operation of the Project. Therefore, in the absence of such selective handling, spoil landforms would need to be constructed with short and low (shallow) slopes and progressively rehabilitated to minimise erosion, as per the BHP Landform Design Guideline (BHP, 2020b). Where practical, and where competent rock is available, armouring of slopes should be considered.

Where rock is used for construction activities, this should be limited to unweathered Permian sandstone, as this material has been generally found to be more suitable for construction and for use as embankment covering on final landform surfaces. Regardless of the rock type, especially where engineering or geotechnical stability is required, laboratory testing and rehabilitation field trials should be undertaken to determine the propensity for dispersion and erosion of spoil landforms.

Surface water run-off and seepage from spoil, including any rehabilitated areas, should be monitored for 'standard' water quality parameters including, but not limited to, pH, EC, major anions (SO_4, Cl and alkalinity/acidity), major cations (Ca, K, Mg, Na), total dissolved solids (TDS) and a broad suite of soluble metals/metalloids at high resolution analysis.

With the implementation of the proposed management and mitigation measures spoil is regarded as posing a low risk of environmental harm.

6.2 Tailings Management Strategy

Based on the current assessment, tailings are a mix of NAF and PAF materials, with geochemical properties controlled by the blend of coal seams being processed on the day. Potentially half of all tailings pose a moderate (to potentially high) AMD hazard with respect to generation of AD and/or NMD and/or SD, with lag times until potential AMD generation under relatively dry conditions of months to years. Under very moist or saturated conditions these lag times would be extended considerably (potentially indefinitely). Mineralogical analysis shows tailings to have a high clay content, comprising hydrophilic swelling clays (typical for Bowen Basin Permian coal tailings).

The management of tailings generated by the Project will be consistent with the current EA approved management strategies for tailings – comprising their disposal as a slurry into the TSF (or similar approved tailings disposal area).

6.3 Coarse Reject Management Strategy

Based on the current assessment, coarse reject materials are regarded as posing a generally low AMD hazard with respect to generation of acidity and/or sulfate, however some coarse reject materials are expected to have some potential to generate low-level AMD.

The management of coarse reject generated by the Project will be consistent with the current approved management strategies for coarse reject – comprising their disposal within in-pit spoil dumps at designated disposal areas. Seepage would be confined within the footprint of the open cut pit and would drain into/towards open cut pit areas (and therefore be captured by the mine water management system). Surface water run-off would drain into mine dams/drains and also be captured by the mine water system. Therefore, when buried deeply amongst alkaline NAF spoil the risk of environmental harm and health-risk that emplaced coarse reject poses is very low.

6.4 Validation of Tailings and Coarse Reject Characteristics

BMA will continue to undertake geochemical test-work of tailings and coarse reject samples during development of the Project. Test-work would, at minimum, comprise a broad suite of environmental geochemical parameters, such as pH, EC (salinity), ABA parameters, sulfur speciation, and total and soluble metals/metalloids analysis at high resolution.

6.5 RoM Stockpiles and CHPP

RoM coal is not mining waste, and surface water run-off and seepage from RoM stockpiles would not report off-site and would be managed as part of the mine water management system. The available information suggests that RoM coal generated by the Project is expected to have a low degree of risk associated with potential acid, salt and soluble metals generation. Surface water run-off from RoM coal and product coal stockpiles would also be assessed on a periodic basis.

RoM coal would be stored at BWM for a relatively short period of time (days to weeks) compared to mineral waste materials, which would be stored at BWM in perpetuity. Management practices are therefore different for RoM coal (compared to spoil) and would largely be based around the operational (day-to-day) management of surface water run-off from RoM coal stockpiles, as is currently accepted practice at coal mines in Australia.

Surface water run-off from RoM coal stockpiles would be monitored for 'standard' water quality parameters including, but not limited to, pH, EC, major anions (SO_4, Cl and alkalinity/acidity), major cations (Ca, K, Mg, Na), TDS, and a broad suite of soluble metals/metalloids at high resolution analysis.

7 References

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Appendix A

Drill-hole Information

Table A1. Drill-hole Information

Drill-hole ID	Easting (m)	Northing (m)	Collar RL (m)	Depth (m)	Number of Samples	Drilled & Sampled
BWM_EIS_05	685986.6	7384611	218.131	131.41	116	June 2020
BWM_EIS_09	685532.6	7379267	228.625	126.33	100	June 2020
BWM_EIS_11	685494.9	7376247	233.646	149.70	115	June 2020
BWM_EIS_13	685632.9	7374014	235.035	128.69	117	June 2020
BWM_EIS_15	687420.8	7372752	229.32	131.71	117	June 2020
BWM_EIS_17	689831.3	7370871	233.924	167.25	119	June 2020
BWM_EIS_19	691061.9	7368640	244.602	129.84	104	May 2020

* All drill-holes are vertical (dip = 90 degrees). Datum and projection = GDA94, zone 55. All samples were drill-core.

Appendix B

Geochemical Results Tables – Drill-hole Samples

- Table B1 – Acid-Base Characteristics of Drill-hole Samples
- Table B2 – Total Element Concentrations of Drill-hole Samples
- Table B3 – Geochemical Abundance Indices (GAI) of Drill-hole Samples
- Table B4 – Quantitative X-Ray Diffraction Results for Drill-hole Samples
- Table B5 – Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Fresh Water Extracts from Drill-hole Samples
- Table B6 – Exchangeable Cations and Emerson Class Test Results in Drill-hole Samples

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-05_0.7-0.88m	Gp1	Extremely	Fill; sub angular throughout	9.2	461	0.01	0.017	0.3	30	-30	99	-	-	-	-	-	NAF
BWM_EIS-05_1.7-1.86m	Gp1	Extremely	Sandstone, fine	8.2	927	0.02	0.007	0.6	19	-18	31	-	-	-	-	-	NAF
BWM_EIS-05_2.43-2.6m	Gp1	Extremely	Silt	8.4	788	0.02	0.014	0.6	36	-35	58	-	-	-	-	-	NAF
BWM_EIS-05_4.4-4.56m	Gp1	Extremely	Silt	7.3	861	0.01	0.01	0.3	10	-9	31	-	-	-	-	-	NAF
BWM_EIS-05_5.62-5.75m	Gp1	Extremely	Silt	7.5	720	0.35	0.008	10.7	12	-1	1.1	-	-	-	-	-	UC(NAF)
BWM_EIS-05_6.83-7.01m	Gp1	Distinctly	Sandstone, fine-medium; lithic	8.9	602	0.09	0.012	2.8	131	-128	48	-	-	-	-	-	NAF
BWM_EIS-05_8.13-8.27m	Gp1	Distinctly	Sandstone, fine-medium; lithic	9	576	<0.01	0.012	0.2	46	-46	301	-	-	-	-	-	NAF
BWM_EIS-05_9.04-9.16m	Gp1	Distinctly	Sandstone, fine-medium	8.2	401	0.01	0.009	0.3	13	-13	43	-	-	-	-	-	NAF
BWM_EIS-05_9.86-10.02m	Gp1	Distinctly	Siltstone	9.1	445	<0.01	0.01	0.2	64	-64	416	-	-	-	-	-	NAF
BWM_EIS-05_12.55-12.7m	Gp1	Extremely	Siltstone; sub angular	9	489	<0.01	0.01	0.2	47	-47	310	-	-	-	-	-	NAF
BWM_EIS-05_14.11-14.3m	Gp1	Extremely	Siltstone	8.9	628	0.07	0.01	2.1	57	-55	27	-	-	-	-	-	NAF
BWM_EIS-05_14.93-15.06m	Gp1	Distinctly	Sandstone, fine; lithic	9	475	0.02	0.016	0.6	95	-94	155	-	-	-	-	-	NAF
BWM_EIS-05_17.2-17.36m	Gp1	Distinctly	Sandstone, fine; minor silty laminae	9.2	430	0.01	0.008	0.3	100	-99	326	-	-	-	-	-	NAF
BWM_EIS-05_17.86-18.01m	Gp1	Weathered	Siltstone; sub angular near base of unit	8.8	656	0.03	0.011	0.9	33	-32	36	-	-	-	-	-	NAF
BWM_EIS-05_18.95-19.16m	Gp1	Weathered	Sandstone, fine; silty laminae	8.9	587	0.02	0.012	0.6	37	-37	61	-	-	-	-	-	NAF
BWM_EIS-05_19.96-20.11m	Gp1	Weathered	Siltstone; sub angular laminae throughout	8.8	631	0.02	0.01	0.6	28	-28	46	-	-	-	-	-	NAF
BWM_EIS-05_21.05-21.18m	Gp1	Weathered	Siltstone	8.9	589	0.03	0.012	0.9	27	-26	29	-	-	-	-	-	NAF
BWM_EIS-05_21.93-22.04m	Gp1	Weathered	Siltstone; sub angular throughout	8.9	568	0.02	0.011	0.6	24	-23	39	-	-	-	-	-	NAF
BWM_EIS-05_22.74-22.91m	Gp1	Weathered	Sandstone, fine	8.8	545	0.02	0.01	0.6	19	-19	32	-	-	-	-	-	NAF
BWM_EIS-05_23.71-23.85m	Gp1	Weathered	Siltstone; rare sub angular laminae	8.7	665	0.01	0.011	0.3	24	-24	79	-	-	-	-	-	NAF
BWM_EIS-05_24.7-24.85m	Gp1	Slightly	Siltstone	8.7	438	0.02	0.019	0.6	22	-21	36	-	-	-	-	-	NAF
BWM_EIS-05_26.21-26.35m	Gp1	Slightly	Sandstone, fine; silty in part	9	459	0.02	0.022	0.6	73	-73	120	-	-	-	-	-	NAF
BWM_EIS-05_28.27-28.41m	Gp1	Slightly	Siltstone; sub angular throughout	9	548	0.03	0.021	0.9	36	-35	39	-	-	-	-	-	NAF
BWM_EIS-05_29.21-29.4m	Gp1	Slightly	Siltstone	9	449	0.02	0.022	0.6	25	-24	40	-	-	-	-	-	NAF
BWM_EIS-05_31.6-31.72m	Gp1	Slightly	Siltstone; sub angular	9.1	557	0.04	0.034	1.2	95	-94	78	-	-	-	-	-	NAF
BWM_EIS-05_34-34.14m	Gp2	Fresh	Sandstone, fine-medium; silty laminae throughout	9.1	522	0.09	0.06	2.8	36	-33	13	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 11 kg H2SO4/t; % ANC readily avail. = 32%; Likely carb. mineral = Fe-dol + Sid.												
BWM_EIS-05_35-35.15m	Gp2	Fresh	Sandstone, fine-medium; silty in part lithic in part	9.1	510	0.04	0.035	1.2	60	-59	49	-	-	-	-	-	NAF
BWM_EIS-05_36.05-36.2m	Gp2	Fresh	Sandstone, fine	9.1	521	0.04	0.023	1.2	55	-53	44	-	-	-	-	-	NAF
BWM_EIS-05_37.24-37.38m	Gp2	Fresh	Siltstone	9.1	483	0.05	0.03	1.5	31	-30	20	-	-	-	-	-	NAF
BWM_EIS-05_39.4-39.55m	Gp2	Fresh	Sandstone, fine; silty in part	9.2	416	0.04	0.037	1.2	29	-28	24	-	-	-	-	-	NAF
BWM_EIS-05_40.18-40.33m	Gp2	Fresh	Sandstone, fine; minor silty laminae	9.2	401	0.02	0.022	0.6	51	-50	83	-	-	-	-	-	NAF
BWM_EIS-05_41.64-41.77m	Gp2	Fresh	Sandstone, fine; lithic	9.2	400	0.03	0.019	0.9	45	-44	49	-	-	-	-	-	NAF
BWM_EIS-05_43.1-43.25m	Gp2	Fresh	Sandstone, fine; lithic silty laminae	9.2	389	0.03	0.02	0.9	45	-44	49	-	-	-	-	-	NAF
BWM_EIS-05_44.33-44.5m	Gp2	Fresh	Sandstone, very fine	9.3	442	0.03	0.021	0.9	103	-102	112	-	-	-	-	-	NAF
BWM_EIS-05_46.32-46.48m	Gp2	Fresh	Sandstone, fine	9.3	431	0.03	0.019	0.9	205	-204	223	-	-	-	-	-	NAF
BWM_EIS-05_47.06-47.24m	Gp2	Fresh	Siltstone	9.2	410	0.07	0.032	2.1	30	-28	14	-	-	-	-	-	NAF
BWM_EIS-05_48.18-48.34m	Gp2	Fresh	Siltstone; cobbles laminae near base of unit	9.2	414	0.07	0.041	2.1	29	-27	13	-	-	-	-	-	NAF
BWM_EIS-05_49.3-49.45m	Gp2	Fresh	Sandstone, fine-medium; lithic	9.2	347	0.02	0.025	0.6	406	-405	663	-	-	-	-	-	NAF
BWM_EIS-05_50.06-50.21m	Gp2	Fresh	Sandstone, very fine; silty laminae	9.2	433	0.1	0.033	3.1	52	-49	17	-	-	-	-	-	NAF
BWM_EIS-05_51.3-51.44m	Gp2	Fresh	Sandstone, very fine	9.3	424	0.09	0.04	2.8	31	-29	11	-	-	-	-	-	NAF
BWM_EIS-05_52.35-52.5m	Gp2	Fresh	Siltstone	9	284	0.09	0.074	2.8	17	-14	6.2	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 5 kg H2SO4/t; % ANC readily avail. = 29%; Likely carb. mineral = Fe-dol + Sid.												
BWM_EIS-05_53.54-53.7m	Gp2	Fresh	Sandstone, very fine	9.2	356	0.02	0.016	0.6	22	-22	36	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-05_54.94-55.1m	Gp2	Fresh	Siltstone	9.1	334	0.02	0.02	0.6	22	-21	35	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 6 kg H2SO4/t; % ANC readily avail. = 26%; Likely carb. mineral = Fe-dol + Sid.												
BWM_EIS-05_55.87-56.08m	Gp2	Fresh	Sandstone, very fine; lithic	9.1	330	0.02	0.013	0.6	71	-70	115	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 53 kg H2SO4/t; % ANC readily avail. = 75%; Likely carb. mineral = Fe-dol												
BWM_EIS-05_56.76-56.9m	Gp2	Fresh	Sandstone, fine; abundant cobbles laminae	9.1	322	0.02	0.016	0.6	19	-18	30	-	-	-	-	-	NAF
BWM_EIS-05_57.7-57.81m	Gp2	Fresh	Siltstone	9.2	409	0.04	0.036	1.2	60	-58	49	-	-	-	-	-	NAF
BWM_EIS-05_57.95-58.25m	Coal	Fresh	Coal, 40-60% bright	8.8	131	0.17	0.009	5.2	9	-4	1.8	-	-	-	-	-	UC(NAF)
BWM_EIS-05_58.33-58.49m	Gp2	Fresh	Siltstone	9.1	324	0.03	0.019	0.9	18	-17	19	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 6 kg H2SO4/t; % ANC readily avail. = 31%; Likely carb. mineral = Fe-dol + Sid.												
BWM_EIS-05_58.75-58.89m	Gp3	Fresh	Carbonaceous Siltstone	9	313	0.13	0.048	4.0	19	-15	4.8	-	-	-	-	-	NAF
BWM_EIS-05_59.58-59.68m	Gp2	Fresh	Sandstone, very fine	9.4	390	0.05	0.042	1.5	38	-37	25	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 22 kg H2SO4/t; % ANC readily avail. = 59%; Likely carb. mineral = Fe-dol												
BWM_EIS-05_60.82-60.98m	Gp2	Fresh	Siltstone; minor Coal	9.2	458	0.07	0.061	2.1	77	-75	36	-	-	-	-	-	NAF
BWM_EIS-05_61.39-61.58m	Gp2	Fresh	Sandstone, very fine; cobbles laminae near base of unit	9.2	389	0.03	0.019	0.9	28	-27	30	-	-	-	-	-	NAF
BWM_EIS-05_61.95-62.04m	Gp3	Fresh	Carbonaceous Mudstone	9.3	481	0.12	0.095	3.7	74	-70	20	-	-	-	-	-	NAF
BWM_EIS-05_62.11-62.25m	Coal	Fresh	Coal, undifferentiated	9.5	175	0.38	0.034	11.6	22	-10	1.9	-	-	-	-	-	UC(NAF)
BWM_EIS-05_63.13-63.31m	Gp3	Fresh	Carbonaceous Mudstone	9.3	491	0.38	0.214	11.6	83	-72	7.2	-	-	-	-	-	NAF
BWM_EIS-05_64.01-64.15m	Gp2	Fresh	Siltstone; sub angular	9.5	437	0.05	0.029	1.5	37	-35	24	-	-	-	-	-	NAF
BWM_EIS-05_64.98-65.13m	Gp2	Fresh	Sandstone, fine; lithic minor silty laminae	9.5	443	0.12	0.098	3.7	44	-40	12	-	-	-	-	-	NAF
BWM_EIS-05_66.31-66.48m	Gp2	Fresh	Sandstone, fine-medium; lithic minor silty laminae	9.6	425	0.05	0.026	1.5	145	-143	95	-	-	-	-	-	NAF
BWM_EIS-05_68.49-68.65m	Gp2	Fresh	Sandstone, fine-medium; lithic cobbles laminae throughout	9.5	391	0.03	0.02	0.9	66	-65	71	-	-	-	-	-	NAF
BWM_EIS-05_70.45-70.58m	Gp2	Fresh	Sandstone, fine-medium; lithic	9.6	392	0.02	0.016	0.6	85	-85	139	-	-	-	-	-	NAF
BWM_EIS-05_73.06-73.2m	Gp2	Fresh	Sandstone, fine-medium; lithic	9.4	387	0.02	0.02	0.6	69	-68	112	-	-	-	-	-	NAF
BWM_EIS-05_75.25-75.39m	Gp2	Fresh	Sandstone, fine-medium; lithic	9.4	402	0.03	0.016	0.9	62	-61	68	-	-	-	-	-	NAF
BWM_EIS-05_78.33-78.46m	Gp2	Fresh	Sandstone, fine-medium; lithic	9.5	352	0.03	0.026	0.9	81	-80	88	-	-	-	-	-	NAF
BWM_EIS-05_79.25-79.39m	Gp2	Fresh	Sandstone, medium; lithic pebbly near base of unit	9.3	469	0.07	0.039	2.1	57	-55	26	-	-	-	-	-	NAF
BWM_EIS-05_79.39-79.61m	Gp3	Fresh	Carbonaceous Mudstone	9.2	383	0.35	0.178	10.7	31	-21	2.9	-	-	-	-	-	NAF
BWM_EIS-05_79.61-79.80m	Coal	Fresh	Coal, dull <1% bright; and Carbonaceous Mudstone	9.7	241	0.36	0.084	11.0	19	-8	1.7	-	-	-	-	-	UC(NAF)
BWM_EIS-05_80.45-80.59m	Gp2	Fresh	Siltstone	9.5	395	0.06	0.044	1.8	25	-23	13	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 10 kg H2SO4/t; % ANC readily avail. = 40%; Likely carb. mineral = Fe-dol												
BWM_EIS-05_81.29-81.43m	Gp2	Fresh	Sandstone, fine	9.5	380	0.05	0.034	1.5	36	-34	23	-	-	-	-	-	NAF
BWM_EIS-05_83.1-83.26m	Gp2	Fresh	Siltstone; sub angular laminae throughout	9.4	387	0.03	0.029	0.9	33	-32	35	-	-	-	-	-	NAF
BWM_EIS-05_84.07-84.26m	Gp3	Fresh	Carbonaceous Mudstone	9.4	406	0.21	0.095	6.4	73	-67	11	-	-	-	-	-	NAF
BWM_EIS-05_85.31-85.45m	Gp2	Fresh	Siltstone	9.5	395	0.02	0.02	0.6	28	-27	46	-	-	-	-	-	NAF
BWM_EIS-05_86.39-86.51m	Gp2	Fresh	Sandstone, fine	9.5	396	0.05	0.044	1.5	30	-28	19	-	-	-	-	-	NAF
BWM_EIS-05_87.35-87.48m	Gp2	Fresh	Sandstone, fine; silty laminae	9.5	403	0.04	0.032	1.2	38	-36	31	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 18 kg H2SO4/t; % ANC readily avail. = 48%; Likely carb. mineral = Fe-dol												
BWM_EIS-05_87.81-87.96m	Gp2	Fresh	Sandstone, medium; partly sideritic	9.6	396	0.02	0.024	0.6	134	-133	219	-	-	-	-	-	NAF
BWM_EIS-05_88.76-88.91m	Gp2	Fresh	Sandstone, medium; cobbles wisps near top of unit	9.6	425	0.02	0.021	0.6	84	-83	137	-	-	-	-	-	NAF
BWM_EIS-05_90.46-90.61m	Gp2	Fresh	Sandstone, very fine; cobbles wisps throughout near middle of unit	9.4	334	0.02	0.022	0.6	111	-110	181	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 91 kg H2SO4/t; % ANC readily avail. = 82%; Likely carb. mineral = Fe-dol + Dol.												
BWM_EIS-05_91.26-91.39m	Gp2	Fresh	Sandstone, medium-coarse; coaly near base of unit	9.6	458	0.02	0.02	0.6	84	-84	138	-	-	-	-	-	NAF
BWM_EIS-05_92.87-93.02m	Gp2	Fresh	Sandstone, medium-coarse; coaly near top of unit; penny bands	9.6	437	0.03	0.016	0.9	73	-72	80	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 41 kg H2SO4/t; % ANC readily avail. = 56%; Likely carb. mineral = Fe-dol												
BWM_EIS-05_93.82-93.97m	Gp2	Fresh	Sandstone, medium-coarse	9.6	434	0.03	0.019	0.9	112	-111	122	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t					kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-05_94.83-94.98m	Gp2	Fresh	Sandstone, very fine	9.5	322	0.03	0.027	0.9	28	-27	30	-	-	-	-	-	NAF
BWM_EIS-05_96.22-96.37m	Gp2	Fresh	Sandstone, very fine	9.4	445	0.03	0.024	0.9	78	-77	85	-	-	-	-	-	NAF
BWM_EIS-05_97.44-97.59m	Gp2	Fresh	Sandstone, very fine; coarser near base of unit	9.4	462	0.03	0.023	0.9	129	-128	140	-	-	-	-	-	NAF
BWM_EIS-05_97.59-97.74m	Gp3	Fresh	Carbonaceous Siltstone; minor Coal	9.1	384	0.11	0.076	3.4	27	-24	8.0	-	-	-	-	-	NAF
BWM_EIS-05_97.99-98.34m	Coal	Fresh	Coal, 10-40% bright	8.4	225	0.34	0.104	10.4	18	-7	1.7	-	-	-	-	-	UC(NAF)
BWM_EIS-05_98.97-99.12m	Coal	Fresh	Coal, 60-90% bright	3.8	395	0.52	0.276	15.9	11	5	0.7	-	-	-	3	1.2	PAF-LC
BWM_EIS-05_100.29-100.44	Coal	Fresh	Coal, 40-60% bright	4.7	201	0.39	0.192	11.9	10	2	0.9	-	-	-	2.7	2.7	PAF-LC
BWM_EIS-05_101.43-101.58	Coal	Fresh	Coal, 10-40% bright	8	131	0.34	0.191	10.4	11	0	1.0	-	-	-	2.8	1.6	PAF-LC
BWM_EIS-05_101.86-101.99	Coal	Fresh	Coal, >90% bright	7.7	99	0.46	0.25	14.1	9	5	0.6	-	-	-	2.7	1.9	PAF-LC
BWM_EIS-05_101.99-102.12	Gp2	Fresh	Siltstone	9.4	204	0.08	0.073	2.5	14	-11	5.6	-	-	-	-	-	NAF
BWM_EIS-05_102.26-102.42	Gp3	Fresh	Carbonaceous Siltstone	9.5	232	0.04	0.044	1.2	13	-11	10	-	-	-	-	-	NAF
BWM_EIS-05_103.04-103.19	Gp3	Fresh	Carbonaceous Sandstone; sub angular near base of unit	9.5	235	0.02	0.03	0.6	15	-15	25	-	-	-	-	-	NAF
BWM_EIS-05_103.92-104.06	Gp2	Fresh	Sandstone, fine; finer near base of unit	9.5	392	0.01	0.015	0.3	53	-52	172	-	-	-	-	-	NAF
BWM_EIS-05_104.97-105.09	Gp2	Fresh	Sandstone, medium-coarse; finer bands in part	9.6	402	0.01	0.016	0.3	41	-41	135	-	-	-	-	-	NAF
BWM_EIS-05_106.59-106.74	Gp2	Fresh	Sandstone, medium-coarse; sideritic near top of unit	9.7	380	<0.01	0.021	0.2	62	-62	404	-	-	-	-	-	NAF
BWM_EIS-05_107.62-107.77	Gp2	Fresh	Sandstone, medium-coarse	9.7	412	<0.01	0.019	0.2	104	-104	679	-	-	-	-	-	NAF
BWM_EIS-05_108.72-108.87	Gp2	Fresh	Sandstone, medium-coarse	9.7	414	<0.01	0.016	0.2	86	-86	560	-	-	-	-	-	NAF
BWM_EIS-05_110.67-110.82	Gp2	Fresh	Sandstone, medium-coarse; coaly wisps	9.6	363	0.02	0.022	0.6	87	-87	142	-	-	-	-	-	NAF
BWM_EIS-05_111.66-111.78	Gp3	Fresh	Carbonaceous Siltstone	9.6	271	0.02	0.023	0.6	22	-22	36	-	-	-	-	-	NAF
BWM_EIS-05_112.51-112.66	Gp2	Fresh	Sandstone, medium; finer bands in part	9.7	391	0.01	0.02	0.3	56	-56	184	-	-	-	-	-	NAF
BWM_EIS-05_113.51-113.66	Gp2	Fresh	Sandstone, medium; finer near top of unit	9.7	378	0.01	0.022	0.3	43	-42	140	-	-	-	-	-	NAF
BWM_EIS-05_115.12-115.22	Gp2	Fresh	Sandstone, medium	9.6	415	0.02	0.018	0.6	78	-78	128	-	-	-	-	-	NAF
BWM_EIS-05_117.12-117.27	Gp2	Fresh	Sandstone, medium; finer bands throughout	9.5	397	0.01	0.019	0.3	53	-53	174	-	-	-	-	-	NAF
BWM_EIS-05_117.73-117.88	Gp2	Fresh	Sandstone, medium; finer near top of unit; penny bands	9.7	406	0.01	0.018	0.3	68	-68	223	-	-	-	-	-	NAF
BWM_EIS-05_118.62-118.77	Gp2	Fresh	Sandstone, medium	9.6	395	<0.01	0.017	0.2	141	-141	921	-	-	-	-	-	NAF
BWM_EIS-05_119.46-119.66	Gp2	Fresh	Sandstone, very fine	9.6	334	0.01	0.018	0.3	39	-39	127	-	-	-	-	-	NAF
BWM_EIS-05_120.94-121.09	Gp2	Fresh	Sandstone, very fine; coaly bands	9.6	403	0.02	0.022	0.6	43	-43	71	-	-	-	-	-	NAF
BWM_EIS-05_121.98-122.12	Gp2	Fresh	Sandstone, very fine; coaly in part	9.6	404	0.02	0.026	0.6	39	-38	63	-	-	-	-	-	NAF
BWM_EIS-05_122.96-123.08	Gp2	Fresh	Siltstone	9.6	370	<0.01	0.016	0.2	23	-22	148	-	-	-	-	-	NAF
BWM_EIS-05_124.02-124.15	Coal	Fresh	Coal, 10-40% bright	9.3	82	0.24	0.01	7.4	37	-30	5.1	-	-	-	-	-	NAF
BWM_EIS-05_124.64-124.77	Gp3	Fresh	Carbonaceous Siltstone	8.5	110	0.18	0.011	5.5	18	-12	3.2	-	-	-	-	-	NAF
BWM_EIS-05_124.99-125.13	Coal	Fresh	Coal, 40-60% bright	8.6	37	0.29	0.01	8.9	11	-2	1.2	-	-	-	-	-	UC(NAF)
BWM_EIS-05_125.28-125.42	Gp3	Fresh	Carbonaceous Siltstone; clayey throughout	9.4	270	0.02	0.019	0.6	19	-18	30	-	-	-	-	-	NAF
BWM_EIS-05_126.2-126.35m	Gp2	Fresh	Sandstone, medium	9.7	437	0.01	0.022	0.3	90	-89	293	-	-	-	-	-	NAF
BWM_EIS-05_127.64-127.77	Gp2	Fresh	Sandstone, medium; coaly bands throughout	9.7	456	0.02	0.018	0.6	68	-68	112	-	-	-	-	-	NAF
BWM_EIS-05_128.57-128.72	Gp2	Fresh	Sandstone, medium; coaly bands throughout	9.7	400	0.01	0.019	0.3	71	-71	233	-	-	-	-	-	NAF
BWM_EIS-05_129.84-129.99	Gp2	Fresh	Sandstone, fine-medium; coaly wisps throughout	9.7	398	0.02	0.022	0.6	37	-37	61	-	-	-	-	-	NAF
BWM_EIS-09_0.7-0.85m	Gp1	Distinctly	Clay; pebbly	8.7	837	0.02	0.015	0.6	118	-117	193	-	-	-	-	-	NAF
BWM_EIS-09_1.61-1.75m	Gp1	Distinctly	Sandstone, very fine; abundant clayey throughout	8.8	502	0.02	0.016	0.6	24	-24	40	-	-	-	-	-	NAF
BWM_EIS-09_2.74-2.85m	Gp1	Distinctly	Sandstone, fine	8	403	0.02	0.019	0.6	10	-9	16	-	-	-	-	-	NAF
BWM_EIS-09_3.75-3.9m	Gp1	Distinctly	Sandstone, very fine; sparse disseminated in part	8.2	228	0.01	0.012	0.3	9	-9	31	-	-	-	-	-	NAF
BWM_EIS-09_5.54-5.65m	Gp1	Distinctly	Sandstone, fine-medium; finer bands	9	310	0.01	0.013	0.3	60	-60	197	-	-	-	-	-	NAF
BWM_EIS-09_9.02-9.16m	Gp1	Weathered	Sandstone, fine; finer bands throughout	8.8	291	0.02	0.013	0.6	114	-113	186	-	-	-	-	-	NAF
BWM_EIS-09_10.68-10.8m	Gp1	Weathered	Sandstone, fine; finer bands throughout	8.6	226	0.01	0.012	0.3	34	-34	111	-	-	-	-	-	NAF
BWM_EIS-09_12.68-12.82m	Gp1	Weathered	Sandstone, fine-medium; finer bands near top of unit	8.6	237	0.01	0.012	0.3	51	-51	167	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-09_14.39-14.53m	Gp1	Weathered	Siltstone; coarser bands in part	8.6	141	0.01	0.011	0.3	11	-10	35	-	-	-	-	-	NAF
BWM_EIS-09_14.66-14.77m	Gp1	Slightly	Sandstone, fine-medium	8.8	216	0.01	0.013	0.3	132	-132	431	-	-	-	-	-	NAF
BWM_EIS-09_16.53-16.66m	Gp2	Fresh	Sandstone, fine-medium; finer near top of unit	9.2	264	0.04	0.04	1.2	178	-177	145	-	-	-	-	-	NAF
BWM_EIS-09_18.47-18.6m	Gp2	Fresh	Sandstone, very fine	9.1	277	0.02	0.021	0.6	18	-18	30	-	-	-	-	-	NAF
BWM_EIS-09_19.41-19.54m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	9.2	280	0.02	0.023	0.6	24	-23	38	-	-	-	-	-	NAF
BWM_EIS-09_21.07-21.22m	Gp2	Fresh	Sandstone, fine-medium	9.3	313	0.02	0.02	0.6	24	-23	39	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 12 kg H2SO4/t; % ANC readily avail. = 52%; Likely carb. mineral = Fe-dol												
BWM_EIS-09_22.8-22.96m	Gp2	Fresh	Siltstone	9.3	277	0.02	0.022	0.6	19	-19	31	-	-	-	-	-	NAF
BWM_EIS-09_24.04-24.17m	Gp2	Fresh	Sandstone, very fine	9.3	313	0.03	0.025	0.9	23	-22	25	-	-	-	-	-	NAF
BWM_EIS-09_25.71-25.83m	Gp2	Fresh	Sandstone, very fine; coarser bands throughout	9.4	331	0.02	0.023	0.6	22	-21	36	-	-	-	-	-	NAF
BWM_EIS-09_26.75-26.89m	Gp2	Fresh	Sandstone, very fine; coarser bands throughout calcareous	9.3	381	0.03	0.029	0.9	34	-33	37	-	-	-	-	-	NAF
BWM_EIS-09_29.09-29.23m	Gp2	Fresh	Sandstone, fine-medium	9.3	381	0.04	0.03	1.2	50	-48	40	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 32 kg H2SO4/t; % ANC readily avail. = 64%; Likely carb. mineral = Fe-dol												
BWM_EIS-09_31.16-31.3m	Gp2	Fresh	Sandstone, fine-medium; finer bands near top of unit	9.4	381	0.02	0.019	0.6	106	-105	173	-	-	-	-	-	NAF
BWM_EIS-09_32.1-32.2m	Gp2	Fresh	Sandstone, very fine	9.4	384	0.06	0.059	1.8	22	-20	12	-	-	-	-	-	NAF
BWM_EIS-09_33.45-33.58m	Gp2	Fresh	Sandstone, medium; pebbles near base of unit	9.3	457	0.02	0.025	0.6	25	-24	41	-	-	-	-	-	NAF
BWM_EIS-09_35.17-35.29m	Gp2	Fresh	Sandstone, medium; finer bands	9.4	423	0.03	0.028	0.9	27	-26	29	-	-	-	-	-	NAF
BWM_EIS-09_37.06-37.21m	Gp2	Fresh	Sandstone, fine-medium	9.4	439	0.03	0.032	0.9	31	-30	34	-	-	-	-	-	NAF
BWM_EIS-09_38.94-39.05m	Gp2	Fresh	Sandstone, very fine	9.5	474	0.04	0.042	1.2	39	-37	32	-	-	-	-	-	NAF
BWM_EIS-09_40.95-41.1m	Gp2	Fresh	Sandstone, medium; abundant finer bands	9.4	453	0.03	0.031	0.9	33	-32	36	-	-	-	-	-	NAF
BWM_EIS-09_42.91-43.03m	Gp2	Fresh	Sandstone, medium; calcareous veins	9.4	439	0.03	0.03	0.9	91	-90	99	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 70 kg H2SO4/t; % ANC readily avail. = 77%; Likely carb. mineral = Dol. + Fe-dol.												
BWM_EIS-09_44.02-44.17m	Gp2	Fresh	Sandstone, fine; finer bands near top of unit	9.4	465	0.03	0.028	0.9	46	-45	50	-	-	-	-	-	NAF
BWM_EIS-09_46.06-46.17m	Gp2	Fresh	Sandstone, fine	9.5	435	0.03	0.026	0.9	62	-61	67	-	-	-	-	-	NAF
BWM_EIS-09_47.77-47.89m	Gp2	Fresh	Sandstone, fine-medium	9.5	460	0.02	0.024	0.6	67	-66	109	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 59 kg H2SO4/t; % ANC readily avail. = 89%; Likely carb. mineral = Dol. + Fe-dol.												
BWM_EIS-09_50-50.1m	Gp2	Fresh	Sandstone, fine-medium	9.6	440	0.02	0.022	0.6	101	-100	165	-	-	-	-	-	NAF
BWM_EIS-09_50.83-50.95m	Gp2	Fresh	Sandstone, very fine	9.4	427	0.03	0.029	0.9	28	-27	30	-	-	-	-	-	NAF
BWM_EIS-09_52.83-52.95m	Gp2	Fresh	Sandstone, fine; coaly wisps finer bands	9.6	406	0.03	0.03	0.9	24	-23	26	-	-	-	-	-	NAF
BWM_EIS-09_53.66-53.78m	Gp2	Fresh	Sandstone, very fine	9.5	418	0.02	0.025	0.6	25	-25	41	-	-	-	-	-	NAF
BWM_EIS-09_55.9-56m	Gp2	Fresh	Sandstone, very fine; coarser in part	9.5	408	0.03	0.027	0.9	27	-26	30	-	-	-	-	-	NAF
BWM_EIS-09_56.72-56.83m	Gp2	Fresh	Sandstone, very fine; coarser throughout	9.5	403	0.03	0.031	0.9	33	-32	36	-	-	-	-	-	NAF
BWM_EIS-09_58.65-58.75m	Gp2	Fresh	Sandstone, medium	9.6	429	0.03	0.025	0.9	75	-74	81	-	-	-	-	-	NAF
BWM_EIS-09_59.29-59.39m	Gp2	Fresh	Sandstone, medium	9.4	442	0.03	0.024	0.9	101	-100	110	-	-	-	-	-	NAF
BWM_EIS-09_60.3-60.43m	Gp2	Fresh	Sandstone, very fine; coarser bands near base of unit	9.5	412	0.04	0.032	1.2	24	-23	20	-	-	-	-	-	NAF
BWM_EIS-09_62.61-62.72m	Gp2	Fresh	Sandstone, very fine; coarser near top of unit	9.4	447	0.04	0.028	1.2	67	-66	55	-	-	-	-	-	NAF
BWM_EIS-09_63.63-63.75m	Gp2	Fresh	Sandstone, very fine; calcareous near base of unit	9.3	461	0.02	0.026	0.6	52	-51	84	-	-	-	-	-	NAF
BWM_EIS-09_64.85-64.97m	Gp2	Fresh	Conglomerate	9.2	418	0.05	0.031	1.5	103	-101	67	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 83 kg H2SO4/t; % ANC readily avail. = 81%; Likely carb. mineral = Dol. + minor Fe-dol.												
BWM_EIS-09_66.91-67.09m	Gp2	Fresh	Sandstone, fine; finer bands throughout	9.4	464	0.03	0.04	0.9	103	-102	112	-	-	-	-	-	NAF
BWM_EIS-09_68.41-68.55m	Coal	Fresh	Coal, 60-90% bright	8.7	100	1.05	0.776	32.2	69	-37	2.2	8.2	<0.1	<0.1	-	-	NAF-S
				ABCC ANC@pH4.5 = 129 kg H2SO4/t; % ANC readily avail. = >100%; Likely carb. mineral = Dolomite												
BWM_EIS-09_68.55-68.66m	Gp2	Fresh	Siltstone; carbonaceous	8.6	775	1.45	1.11	44.4	28	16	0.6	-	-	-	3.3	8	PAF
BWM_EIS-09_69.17-69.3m	Gp2	Fresh	Sandstone, fine; coaly wisps	9.2	537	0.05	0.051	1.5	30	-28	20	-	-	-	-	-	NAF
BWM_EIS-09_69.94-70.05m	Gp2	Fresh	Sandstone, fine; calcareous near base of unit	9.4	529	0.04	0.046	1.2	82	-81	67	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-09_70.7-70.84m	Gp3	Fresh	Carbonaceous Siltstone & Siltstone; coaly throughout; partly calcareous	9.4	511	0.35	0.34	10.7	79	-68	7.4	-	-	-	-	-	NAF
BWM_EIS-09_71.55-71.67m	Gp2	Fresh	Sandstone, very fine	9.3	482	0.04	0.026	1.2	23	-21	18	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 10 kg H2SO4/t; % ANC readily avail. = 46%; Likely carb. mineral = Fe-dol + Sid.													
BWM_EIS-09_72.38-72.48m	Gp2	Fresh	Sandstone, fine; coaly wisps	9.4	445	0.06	0.051	1.8	42	-40	23	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 26 kg H2SO4/t; % ANC readily avail. = 63%; Likely carb. mineral = Fe-dol													
BWM_EIS-09_72.67-72.79m	Gp2	Fresh	Sandstone, fine-medium	9.1	323	0.02	0.031	0.6	444	-443	725	-	-	-	-	-	NAF
BWM_EIS-09_74.26-74.36m	Gp2	Fresh	Sandstone, fine-medium; sideritic near top of unit	9.3	409	0.03	0.03	0.9	299	-298	325	-	-	-	-	-	NAF
BWM_EIS-09_76.15-76.28m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps near base of unit	9.4	464	0.02	0.026	0.6	246	-245	402	-	-	-	-	-	NAF
BWM_EIS-09_76.86-77m	Coal	Fresh	Coal, 10-40% bright	9.5	299	0.15	0.018	4.6	38	-33	8.2	-	-	-	-	-	NAF
BWM_EIS-09_77.59-77.74m	Coal	Fresh	Coal, <10% bright	9.3	163	0.22	0.012	6.7	15	-9	2.3	-	-	-	-	-	NAF
BWM_EIS-09_77.9-78.03m	Gp3	Fresh	Carbonaceous Siltstone	9.2	328	0.04	0.018	1.2	14	-13	12	-	-	-	-	-	NAF
BWM_EIS-09_78.17-78.3m	Gp2	Fresh	Siltstone	9.3	412	0.01	0.018	0.3	17	-16	54	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 5 kg H2SO4/t; % ANC readily avail. = 31%; Likely carb. mineral = Sid. + Fe-dol.													
BWM_EIS-09_78.71-78.82m	Gp2	Fresh	Siltstone; carbonaceous near top of unit	9.1	273	0.02	0.019	0.6	15	-14	24	-	-	-	-	-	NAF
BWM_EIS-09_80.05-80.15m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	9.6	441	0.02	0.026	0.6	46	-45	75	-	-	-	-	-	NAF
BWM_EIS-09_81.82-81.97m	Gp2	Fresh	Sandstone, very fine; calcareous veins coarser in part	9.5	457	0.02	0.021	0.6	108	-107	176	-	-	-	-	-	NAF
BWM_EIS-09_82.53-82.65m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	9.5	446	0.02	0.022	0.6	49	-48	80	-	-	-	-	-	NAF
BWM_EIS-09_84.63-84.74m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	9.4	439	0.02	0.027	0.6	45	-45	74	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 35 kg H2SO4/t; % ANC readily avail. = 79%; Likely carb. mineral = Fe-dol. (+ minor Mag.?)													
BWM_EIS-09_85.5-85.65m	Gp2	Fresh	Sandstone, very fine; coarser bands throughout	9.4	429	0.02	0.027	0.6	46	-45	74	-	-	-	-	-	NAF
BWM_EIS-09_86.31-86.43m	Gp2	Fresh	Sandstone, very fine	9.4	421	0.02	0.024	0.6	40	-39	65	-	-	-	-	-	NAF
BWM_EIS-09_87.14-87.27m	Gp2	Fresh	Sandstone, very fine	9.4	412	0.03	0.027	0.9	35	-34	39	-	-	-	-	-	NAF
BWM_EIS-09_88.88-89.03m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	8.8	621	2.58	1.79	79.0	100	-21	1.3	8.2	<0.1	<0.1	-	-	NAF-S
				ABCC ANC@pH4.5 = 76 kg H2SO4/t; % ANC readily avail. = 76%; Likely carb. mineral = Dolomite													
BWM_EIS-09_89.14-89.24m	Gp2	Fresh	Siltstone; sideritic near base of unit	9.1	522	0.24	0.207	7.4	113	-106	15	-	-	-	-	-	NAF
BWM_EIS-09_89.24-89.37m	Gp3	Fresh	Carbonaceous Siltstone; sparse disseminated near base of unit	9.2	523	0.12	0.078	3.7	23	-20	6.4	-	-	-	-	-	NAF
BWM_EIS-09_90.16-90.3m	Gp2	Fresh	Sandstone, very fine; coarser bands	9.5	459	0.05	0.05	1.5	51	-50	33	-	-	-	-	-	NAF
BWM_EIS-09_91.6-91.75m	Gp2	Fresh	Sandstone, fine-medium; finer bands in part	9.5	507	0.04	0.033	1.2	116	-115	95	-	-	-	-	-	NAF
BWM_EIS-09_93.3-93.45m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps throughout	9.4	476	0.07	0.035	2.1	78	-76	36	-	-	-	-	-	NAF
BWM_EIS-09_96.01-96.13m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps throughout	9.5	480	0.05	0.035	1.5	80	-78	52	-	-	-	-	-	NAF
BWM_EIS-09_96.46-96.61m	Gp2	Fresh	Sandstone, very fine; penny bands near top of unit sideritic bands	9.1	427	0.04	0.03	1.2	68	-66	55	-	-	-	-	-	NAF
BWM_EIS-09_98.78-98.92m	Gp2	Fresh	Sandstone, very fine; coarser in part sideritic bands	9.5	480	0.03	0.028	0.9	57	-56	62	-	-	-	-	-	NAF
BWM_EIS-09_101.05-101.2m	Gp2	Fresh	Sandstone, very fine	9.5	453	0.05	0.038	1.5	58	-57	38	-	-	-	-	-	NAF
BWM_EIS-09_103.05-103.17	Gp2	Fresh	Sandstone, very fine	9.5	471	0.08	0.069	2.5	64	-62	26	-	-	-	-	-	NAF
BWM_EIS-09_105.05-105.19	Gp2	Fresh	Sandstone, very fine; coarser near middle of unit sideritic near top of unit	9.5	496	0.05	0.038	1.5	72	-70	47	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 49 kg H2SO4/t; % ANC readily avail. = 68%; Likely carb. mineral = Fe-dol + Dol.													
BWM_EIS-09_106.91-107.06	Gp2	Fresh	Sandstone, very fine; coarser near top of unit	9.5	528	0.06	0.042	1.8	101	-99	55	-	-	-	-	-	NAF
BWM_EIS-09_108.99-109.14	Gp2	Fresh	Sandstone, fine; coarser throughout sideritic bands	9.5	510	0.06	0.043	1.8	74	-72	40	-	-	-	-	-	NAF
BWM_EIS-09_110.17-110.32	Gp2	Fresh	Sandstone, very fine; sideritic bands calcareous near base of unit	9.5	508	0.06	0.054	1.8	110	-108	60	-	-	-	-	-	NAF
BWM_EIS-09_111.76-111.9m	Gp2	Fresh	Sandstone, very fine	9.4	491	0.03	0.046	0.9	47	-46	51	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 41 kg H2SO4/t; % ANC readily avail. = 87%; Likely carb. mineral = Fe-dol + Sid.													
BWM_EIS-09_112.52-112.65	Coal	Fresh	Coal, 40-60% bright	9.3	280	0.36	0.203	11.0	166	-155	15	-	-	-	-	-	NAF
BWM_EIS-09_113.09-113.24	Coal	Fresh	Coal, 10-40% bright	8.1	623	0.61	0.444	18.7	10	8	0.6	-	-	-	-	-	PAF-LC
BWM_EIS-09_113.38-113.51	Gp3	Fresh	Carbonaceous Siltstone	9.5	388	0.03	0.022	0.9	20	-19	22	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 12 kg H2SO4/t; % ANC readily avail. = 59%; Likely carb. mineral = Fe-dol													

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-09_113.83-113.98	Coal	Fresh	Coal, <10% bright	9.3	136	0.15	0.017	4.6	7	-2	1.5	-	-	-	-	-	UC(NAF)
BWM_EIS-09_114.38-114.52	Coal	Fresh	Coal, <10% bright	7.9	43	0.06	0.019	1.8	2	0	1.0	-	-	-	3.9	<0.1	PAF-LC
BWM_EIS-09_114.81-114.93	Coal	Fresh	Coal, 10-40% bright	8.5	74	0.15	0.053	4.6	6	-2	1.3	-	-	-	2.7	<0.1	PAF-LC
BWM_EIS-09_115.26-115.38	Coal	Fresh	Coal, 10-40% bright	8.8	68	0.11	0.015	3.4	3	1	0.8	-	-	-	-	-	UC(PAF)
BWM_EIS-09_115.98-116.13	Coal	Fresh	Coal, 40-60% bright	8.7	77	0.1	0.013	3.1	6	-3	1.9	-	-	-	-	-	UC(NAF)
BWM_EIS-09_116.95-117.08	Coal	Fresh	Coal, 60-90% bright	8.3	64	0.1	0.013	3.1	6	-3	1.9	-	-	-	-	-	UC(NAF)
BWM_EIS-09_117.72-117.87	Coal	Fresh	Coal, <10% bright	8.1	33	0.12	0.013	3.7	<0.5	4	0.1	-	-	-	-	-	PAF-LC
BWM_EIS-09_118.29-118.44	Coal	Fresh	Coal, 40-60% bright	8.5	62	0.12	0.018	3.7	6	-2	1.6	-	-	-	-	-	UC(NAF)
BWM_EIS-09_118.82-118.97	Coal	Fresh	Coal, 60-90% bright	8.9	74	0.12	0.014	3.7	1	3	0.2	-	-	-	2.9	<0.1	PAF-LC
BWM_EIS-09_119.4-119.55m	Coal	Fresh	Coal, 60-90% bright	8.5	51	0.13	0.009	4.0	6	-2	1.6	-	-	-	-	-	UC(NAF)
BWM_EIS-09_119.95-120.08	Gp2	Fresh	Sandstone, fine; carbonaceous throughout finer throughout	9.5	202	<0.01	0.014	0.2	8	-8	54	-	-	-	-	-	NAF
BWM_EIS-09_120.57-120.72	Gp2	Fresh	Sandstone, fine-medium; abundant coaly wisps	9.3	201	0.02	0.028	0.6	7	-7	12	-	-	-	-	-	NAF
BWM_EIS-09_121.52-121.67	Gp2	Fresh	Sandstone, medium-coarse	9.6	409	0.02	0.023	0.6	27	-26	43	-	-	-	-	-	NAF
BWM_EIS-09_122.62-122.77	Gp2	Fresh	Sandstone, medium-coarse	9.6	507	0.03	0.022	0.9	62	-61	68	-	-	-	-	-	NAF
BWM_EIS-09_123.34-123.44	Gp2	Fresh	Sandstone, medium	9.7	518	0.02	0.018	0.6	173	-172	282	-	-	-	-	-	NAF
BWM_EIS-09_124.87-125m	Gp2	Fresh	Sandstone, fine; coarser in part	9.7	481	0.02	0.024	0.6	32	-32	53	-	-	-	-	-	NAF
BWM_EIS-11_1.59-1.76m	Gp1	Extremely	Siltstone; abundant clayey fractures	9.3	609	0.02	0.014	0.6	80	-80	131	-	-	-	-	-	NAF
BWM_EIS-11_2.38-2.53m	Gp1	Extremely	Sandstone, fine-medium; common siltstone bands throughout	8.8	595	0.02	0.015	0.6	20	-19	32	-	-	-	-	-	NAF
BWM_EIS-11_3.84-4.11m	Gp1	Extremely	Sandstone, medium; minor siltstone laminae throughout	9.1	430	0.01	0.014	0.3	26	-26	86	-	-	-	-	-	NAF
BWM_EIS-11_4.58-4.77m	Gp1	Extremely	Siltstone; minor sandstone laminae throughout	8.2	260	0.01	0.015	0.3	16	-15	52	-	-	-	-	-	NAF
BWM_EIS-11_5.21-5.32m	Gp1	Distinctly	Sandstone, medium	9	378	0.02	0.02	0.6	37	-36	61	-	-	-	-	-	NAF
BWM_EIS-11_6.22-6.39m	Gp1	Distinctly	Sandstone, medium; minor siltstone laminae throughout	9	423	0.02	0.018	0.6	22	-21	36	-	-	-	-	-	NAF
BWM_EIS-11_7.9-8.03m	Gp1	Distinctly	Sandstone, medium; minor siltstone laminae	9	402	0.01	0.013	0.3	38	-37	123	-	-	-	-	-	NAF
BWM_EIS-11_9.13-9.38m	Gp1	Distinctly	Siltstone; clayey; sandstone laminae throughout	8.6	289	0.01	0.015	0.3	18	-18	60	-	-	-	-	-	NAF
BWM_EIS-11_10.59-10.74m	Gp1	Distinctly	Sandstone, medium; abundant carbonaceous siltstone laminae	8.8	278	0.01	0.012	0.3	19	-19	63	-	-	-	-	-	NAF
BWM_EIS-11_12.66-12.77m	Gp2	Fresh	Siltstone; carbonaceous in part	8.8	144	0.03	0.031	0.9	20	-19	22	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 5 kg H2SO4/t; % ANC readily avail. = 24%; Likely carb. mineral = Sid. + Fe-dol.												
BWM_EIS-11_14.01-14.12m	Gp2	Fresh	Siltstone; common carbonaceous sandstone laminae	9.1	276	0.03	0.026	0.9	21	-20	23	-	-	-	-	-	NAF
BWM_EIS-11_14.88-15.03m	Gp2	Fresh	Sandstone, medium; minor Siltstone; common carbonaceous laminae	9.1	302	0.02	0.02	0.6	74	-73	121	-	-	-	-	-	NAF
BWM_EIS-11_15.95-16.08m	Gp2	Fresh	Sandstone, fine-medium; common siltstone laminae	8.8	146	0.02	0.018	0.6	27	-26	44	-	-	-	-	-	NAF
BWM_EIS-11_16.93-17.09m	Gp2	Fresh	Sandstone, medium	9.1	265	0.02	0.023	0.6	278	-277	454	-	-	-	-	-	NAF
BWM_EIS-11_17.73-17.87m	Gp2	Fresh	Sandstone, medium; abundant siltstone bands near top of unit	9.3	260	0.02	0.023	0.6	22	-22	37	-	-	-	-	-	NAF
BWM_EIS-11_18.56-18.71m	Gp2	Fresh	Sandstone, medium	9	294	0.03	0.02	0.9	122	-121	133	-	-	-	-	-	NAF
BWM_EIS-11_19.96-20.09m	Gp2	Fresh	Sandstone, medium	9	240	0.01	0.015	0.3	83	-82	270	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 71 kg H2SO4/t; % ANC readily avail. = 86%; Likely carb. mineral = Dolomite												
BWM_EIS-11_20.76-20.81m	Gp2	Fresh	Sandstone, fine; common carbonaceous laminae throughout	9	339	0.04	0.03	1.2	27	-25	22	-	-	-	-	-	NAF
BWM_EIS-11_21.59-21.71m	Gp2	Fresh	Sandstone, fine-medium; abundant carbonaceous laminae near top of unit	9	330	0.04	0.03	1.2	27	-26	22	-	-	-	-	-	NAF
BWM_EIS-11_22.79-22.93m	Gp2	Fresh	Sandstone, medium; finer in part; carbonaceous in part	9.1	276	0.02	0.02	0.6	25	-24	40	-	-	-	-	-	NAF
BWM_EIS-11_24.34-24.46m	Gp2	Fresh	Sandstone, medium; common siltstone bands throughout	8.8	281	0.02	0.021	0.6	23	-23	38	-	-	-	-	-	NAF
BWM_EIS-11_26.52-26.62m	Gp2	Fresh	Sandstone, fine-medium; carbonaceous in part	8.9	240	0.05	0.051	1.5	22	-20	14	-	-	-	-	-	NAF
BWM_EIS-11_27.69-27.79m	Gp2	Fresh	Claystone and Sandstone, medium; carbonaceous in part	8.8	320	0.02	0.025	0.6	35	-35	58	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 19 kg H2SO4/t; % ANC readily avail. = 54%; Likely carb. mineral = Fe-dol												
BWM_EIS-11_28.68-28.81m	Gp2	Fresh	Sandstone, medium; common siltstone laminae throughout	9	297	0.02	0.025	0.6	27	-27	45	-	-	-	-	-	NAF
BWM_EIS-11_30.77-30.92m	Gp2	Fresh	Siltstone	9	301	0.02	0.026	0.6	28	-27	46	-	-	-	-	-	NAF
BWM_EIS-11_32.21-32.31m	Gp2	Fresh	Siltstone; minor Calcrete	9	369	0.03	0.025	0.9	163	-162	177	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-11_32.84-32.94m	Gp2	Fresh	Siltstone	8.9	278	0.02	0.016	0.6	22	-22	36	-	-	-	-	-	NAF
BWM_EIS-11_33.1-33.97m	Gp2	Fresh	Sandstone, fine-medium	9.1	329	0.04	0.039	1.2	212	-211	173	-	-	-	-	-	NAF
BWM_EIS-11_35.22-35.36m	Gp2	Fresh	Sandstone, medium	9.1	300	0.02	0.017	0.6	326	-325	532	-	-	-	-	-	NAF
BWM_EIS-11_36.78-36.89m	Gp2	Fresh	Siltstone	9.1	354	0.02	0.022	0.6	21	-21	35	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 7 kg H2SO4/t; % ANC readily avail. = 32%; Likely carb. mineral = Sid. + Fe-dol.													
BWM_EIS-11_38.66-38.78m	Gp2	Fresh	Sandstone, fine; siltstone in part	9	330	0.03	0.032	0.9	23	-22	25	-	-	-	-	-	NAF
BWM_EIS-11_39.89-40.1m	Gp2	Fresh	Sandstone, fine; minor carbonaceous laminae throughout	9.1	336	0.02	0.024	0.6	24	-23	39	-	-	-	-	-	NAF
BWM_EIS-11_41.81-41.84m	Gp2	Fresh	Sandstone, very fine	9	360	0.03	0.03	0.9	291	-290	317	-	-	-	-	-	NAF
BWM_EIS-11_43.6-43.74m	Gp2	Fresh	Sandstone, fine	9.1	366	0.02	0.025	0.6	61	-60	99	-	-	-	-	-	NAF
BWM_EIS-11_45.27-45.4m	Gp2	Fresh	Sandstone, fine; common siltstone laminae throughout	8.9	360	0.03	0.028	0.9	25	-24	28	-	-	-	-	-	NAF
BWM_EIS-11_46.41-46.57m	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae throughout	9	346	0.03	0.026	0.9	27	-26	29	-	-	-	-	-	NAF
BWM_EIS-11_48.06-48.16m	Gp2	Fresh	Sandstone, medium	9	354	0.02	0.017	0.6	29	-29	48	-	-	-	-	-	NAF
BWM_EIS-11_49.67-49.82m	Gp2	Fresh	Claystone	9	395	0.02	0.027	0.6	21	-21	35	-	-	-	-	-	NAF
BWM_EIS-11_50.43-50.54m	Gp2	Fresh	Claystone, sideritic	9	392	0.03	0.029	0.9	214	-213	233	-	-	-	-	-	NAF
BWM_EIS-11_51.43-51.72m	Gp2	Fresh	Sandstone, medium; common siltstone laminae throughout	9	371	0.03	0.031	0.9	45	-44	49	-	-	-	-	-	NAF
BWM_EIS-11_53.5-53.64m	Gp2	Fresh	Sandstone, medium	9.2	342	0.02	0.019	0.6	55	-54	90	-	-	-	-	-	NAF
BWM_EIS-11_55.27-55.45m	Gp2	Fresh	Siltstone & Sandstone, medium; sideritic	9.1	356	0.02	0.023	0.6	40	-39	65	-	-	-	-	-	NAF
BWM_EIS-11_58-58.14m	Gp2	Fresh	Sandstone, medium; siltstone bands near base of unit	9.1	356	0.02	0.026	0.6	32	-31	51	-	-	-	-	-	NAF
BWM_EIS-11_60.61-60.76m	Gp2	Fresh	Sandstone, medium; common sideritic pebbly throughout	9.1	345	0.03	0.025	0.9	193	-192	210	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 145 kg H2SO4/t; % ANC readily avail. = 75%; Likely carb. mineral = Fe-dol + Dol.													
BWM_EIS-11_62.4-62.65m	Gp2	Fresh	Sandstone, medium; abundant siltstone pebbly throughout	9	330	0.02	0.026	0.6	465	-464	759	-	-	-	-	-	NAF
BWM_EIS-11_63.95-64.07m	Gp2	Fresh	Siltstone; common sandstone laminae throughout	9.2	366	0.01	0.021	0.3	30	-30	99	-	-	-	-	-	NAF
BWM_EIS-11_64.91-65.07m	Gp2	Fresh	Sandstone, medium; common siltstone laminae throughout	9.2	350	0.02	0.017	0.6	32	-32	53	-	-	-	-	-	NAF
BWM_EIS-11_66.85-66.93m	Gp2	Fresh	Siltstone, sideritic	9.2	354	0.02	0.017	0.6	40	-39	65	-	-	-	-	-	NAF
BWM_EIS-11_69.04-69.1m	Gp2	Fresh	Claystone; minor sandstone laminae throughout	9.2	339	0.02	0.019	0.6	100	-99	163	-	-	-	-	-	NAF
BWM_EIS-11_70-70.1m	Gp2	Fresh	Siltstone	9.2	337	0.01	0.012	0.3	22	-21	71	-	-	-	-	-	NAF
BWM_EIS-11_72.59-72.7m	Gp2	Fresh	Sandstone, fine; siltstone in part	9.2	350	0.02	0.024	0.6	28	-27	45	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 15 kg H2SO4/t; % ANC readily avail. = 54%; Likely carb. mineral = Fe-dol													
BWM_EIS-11_74.44-74.57m	Gp2	Fresh	Sandstone, fine; sideritic	9.2	352	0.03	0.03	0.9	110	-109	120	-	-	-	-	-	NAF
BWM_EIS-11_75.45-75.61m	Gp2	Fresh	Siltstone; rare sideritic laminae	9.2	347	0.02	0.022	0.6	28	-27	46	-	-	-	-	-	NAF
BWM_EIS-11_76.18-76.35m	Gp2	Fresh	Sandstone, medium; abundant siltstone sideritic laminae	9.1	360	0.03	0.032	0.9	53	-52	57	-	-	-	-	-	NAF
BWM_EIS-11_77.84-77.98m	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae	9.1	313	0.02	0.019	0.6	31	-30	50	-	-	-	-	-	NAF
BWM_EIS-11_78.78-78.87m	Gp2	Fresh	Claystone; common sandstone laminae throughout	9.1	335	0.03	0.025	0.9	23	-22	25	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 7 kg H2SO4/t; % ANC readily avail. = 30%; Likely carb. mineral = Fe-dol + Sid.													
BWM_EIS-11_80.1-80.2m	Gp2	Fresh	Sandstone, medium	9.1	375	0.44	0.376	13.5	95	-82	7.1	-	-	-	-	-	NAF
BWM_EIS-11_80.2-80.26m	Gp3	Fresh	Coal, inferior; abundant calcite veins throughout	8.5	298	0.68	0.398	20.8	181	-160	8.7	-	-	-	-	-	NAF
BWM_EIS-11_80.26-80.34m	Gp3	Fresh	Carbonaceous Siltstone	9.1	402	0.26	0.188	8.0	53	-45	6.7	-	-	-	-	-	NAF
BWM_EIS-11_81.37-81.48m	Gp2	Fresh	Sandstone, medium; minor sideritic grains throughout	9.3	370	0.03	0.02	0.9	185	-184	201	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 167 kg H2SO4/t; % ANC readily avail. = 90%; Likely carb. mineral = Dolomite													
BWM_EIS-11_82.39-82.51m	Gp2	Fresh	Sandstone, fine	9.2	382	0.02	0.019	0.6	28	-27	45	-	-	-	-	-	NAF
BWM_EIS-11_83.6-83.72m	Gp2	Fresh	Sandstone, fine-medium	9.3	399	0.03	0.022	0.9	62	-61	67	-	-	-	-	-	NAF
BWM_EIS-11_85.04-85.19m	Gp2	Fresh	Sandstone, fine-medium; carbonaceous in part	9.1	338	0.04	0.03	1.2	227	-226	185	-	-	-	-	-	NAF
BWM_EIS-11_85.96-86.06m	Gp2	Fresh	Sandstone, fine-medium; sideritic in part	9.1	308	0.03	0.022	0.9	138	-137	150	-	-	-	-	-	NAF
BWM_EIS-11_87.23-87.37m	Gp2	Fresh	Sandstone, medium; minor carbonaceous laminae throughout	9.3	378	0.05	0.022	1.5	86	-85	56	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 63 kg H2SO4/t; % ANC readily avail. = 73%; Likely carb. mineral = Fe-dol													

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-11_88.87-89.01m	Gp2	Fresh	Sandstone, medium	9.1	350	0.03	0.017	0.9	428	-427	466	-	-	-	-	-	NAF
BWM_EIS-11_90.59-90.71m	Gp2	Fresh	Siltstone; abundant carbonaceous laminae	9.2	364	0.07	0.05	2.1	24	-21	11	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 10 kg H2SO4/t; % ANC readily avail. = 43%; Likely carb. mineral = Fe-dol + Sid.													
BWM_EIS-11_91.76-91.87m	Gp2	Fresh	Sandstone, fine-medium; common carbonaceous siltstone laminae	9.3	373	0.07	0.035	2.1	49	-47	23	-	-	-	-	-	NAF
BWM_EIS-11_92.92-93.05m	Gp2	Fresh	Sandstone, fine-medium; abundant carbonaceous siltstone laminae	9.2	364	0.05	0.036	1.5	64	-62	42	-	-	-	-	-	NAF
BWM_EIS-11_94.42-94.52m	Gp2	Fresh	Siltstone; carbonaceous in part near base of unit	9.2	338	0.06	0.026	1.8	34	-32	18	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 15 kg H2SO4/t; % ANC readily avail. = 45%; Likely carb. mineral = Fe-dol + Sid.													
BWM_EIS-11_94.52-94.8m	Gp3	Fresh	Carbonaceous Siltstone	9.2	279	0.17	0.057	5.2	59	-54	11	-	-	-	-	-	NAF
BWM_EIS-11_94.89-95.36m	Coal	Fresh	Coal, 10-40% bright	8.5	141	0.43	0.118	13.2	18	-5	1.4	-	-	-	-	-	UC(PAF)
				ABCC ANC@pH4.5 = 2 kg H2SO4/t; % ANC readily avail. = 12%; Likely carb. mineral = Siderite													
BWM_EIS-11_95.36-95.68m	Coal	Fresh	Coal, 40-60% bright	8.8	96	0.35	0.031	10.7	22	-11	2.0	-	-	-	-	-	NAF
BWM_EIS-11_95.85-96.03m	Gp3	Fresh	Carbonaceous Siltstone; common coaly laminae	9.2	140	0.6	0.247	18.4	21	-3	1.2	-	-	-	-	-	UC(NAF)
				ABCC ANC@pH4.5 = 2 kg H2SO4/t; % ANC readily avail. = 8%; Likely carb. mineral = Siderite													
BWM_EIS-11_96.22-96.34m	Gp3	Fresh	Carbonaceous Siltstone; minor coaly laminae	9	135	0.2	0.022	6.1	17	-10	2.7	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 3 kg H2SO4/t; % ANC readily avail. = 17%; Likely carb. mineral = Sid. + Fe-dol.													
BWM_EIS-11_96.75-96.91m	Gp2	Fresh	Siltstone; abundant carbonaceous laminae	9	156	0.04	0.021	1.2	22	-21	18	-	-	-	-	-	NAF
BWM_EIS-11_97.21-97.32m	Gp2	Fresh	Siltstone	9.2	408	0.02	0.02	0.6	128	-127	209	-	-	-	-	-	NAF
BWM_EIS-11_97.64-97.73m	Gp2	Fresh	Sandstone, fine; abundant carbonaceous laminae throughout	9.4	341	0.03	0.026	0.9	25	-24	28	-	-	-	-	-	NAF
BWM_EIS-11_99.27-99.38m	Gp2	Fresh	Sandstone, fine-medium; siltstone in part; sideritic	9.2	325	0.03	0.023	0.9	186	-185	202	-	-	-	-	-	NAF
BWM_EIS-11_100.23-100.39	Gp2	Fresh	Siltstone; carbonaceous in part	9.4	376	0.06	0.045	1.8	33	-31	18	-	-	-	-	-	NAF
BWM_EIS-11_101.3-101.44m	Gp2	Fresh	Siltstone; common carbonaceous traces	9.1	447	0.11	0.068	3.4	29	-26	8.7	-	-	-	-	-	NAF
BWM_EIS-11_101.89-102.05	Gp2	Fresh	Siltstone	9.1	341	0.17	0.125	5.2	28	-23	5.4	-	-	-	-	-	NAF
BWM_EIS-11_103.65-103.81	Gp2	Fresh	Sandstone, fine	9.2	382	0.05	0.036	1.5	337	-335	220	-	-	-	-	-	NAF
BWM_EIS-11_105.41-105.56	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae throughout	9.2	411	0.06	0.032	1.8	56	-54	30	-	-	-	-	-	NAF
BWM_EIS-11_107.34-107.49	Gp2	Fresh	Siltstone	9.2	382	0.06	0.039	1.8	24	-23	13	-	-	-	-	-	NAF
BWM_EIS-11_109.26-109.42	Gp2	Fresh	Sandstone, fine; minor coaly wisps throughout	9.2	379	0.08	0.037	2.5	159	-157	65	-	-	-	-	-	NAF
BWM_EIS-11_110.79-110.91	Gp2	Fresh	Sandstone, fine; rare carbonaceous traces	9.4	402	0.04	0.028	1.2	56	-55	46	-	-	-	-	-	NAF
BWM_EIS-11_112.87-112.99	Gp2	Fresh	Sandstone, fine-medium	9.5	403	0.03	0.02	0.9	79	-78	86	-	-	-	-	-	NAF
BWM_EIS-11_115.5-115.62m	Gp2	Fresh	Sandstone, fine; common sideritic siltstone laminae	9.4	389	0.04	0.027	1.2	72	-71	59	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 36 kg H2SO4/t; % ANC readily avail. = 51%; Likely carb. mineral = Sid. + Fe-dol.													
BWM_EIS-11_116.94-117.09	Gp2	Fresh	Sandstone, fine-medium; sideritic in part carbonaceous laminae	9.4	360	0.03	0.025	0.9	39	-38	42	-	-	-	-	-	NAF
BWM_EIS-11_119.47-119.6m	Gp2	Fresh	Sandstone, medium	9.4	403	0.03	0.021	0.9	84	-83	92	-	-	-	-	-	NAF
BWM_EIS-11_122.34-122.47	Gp2	Fresh	Sandstone, medium; carbonaceous in part	9.3	376	0.03	0.018	0.9	112	-111	122	-	-	-	-	-	NAF
BWM_EIS-11_124.21-124.35	Gp2	Fresh	Sandstone, fine; abundant carbonaceous laminae throughout	9.4	376	0.04	0.029	1.2	52	-51	43	-	-	-	-	-	NAF
BWM_EIS-11_126.05-126.13	Gp2	Fresh	Sandstone, medium; abundant carbonaceous calcite laminae	9.4	330	0.05	0.023	1.5	160	-158	104	-	-	-	-	-	NAF
BWM_EIS-11_130.12-130.19	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae throughout	9.3	389	0.07	0.02	2.1	99	-97	46	-	-	-	-	-	NAF
BWM_EIS-11_131.4-131.6m	Gp2	Fresh	Sandstone, medium; common carbonaceous laminae throughout	9.4	428	0.04	0.021	1.2	83	-82	68	-	-	-	-	-	NAF
BWM_EIS-11_132.95-133.08	Gp2	Fresh	Sandstone, very fine; abundant carbonaceous laminae throughout	9.3	352	0.05	0.032	1.5	38	-36	25	-	-	-	-	-	NAF
BWM_EIS-11_133.98-134.1m	Gp2	Fresh	Siltstone	9.3	348	0.04	0.034	1.2	35	-34	28	-	-	-	-	-	NAF
BWM_EIS-11_135.02-135.17	Gp2	Fresh	Sandstone, medium	9.3	427	0.04	0.026	1.2	291	-290	238	-	-	-	-	-	NAF
BWM_EIS-11_135.61-135.85	Coal	Fresh	Coal, dull, conchoidal; abundant calcite veins	9.4	151	0.29	0.12	8.9	158	-149	18	-	-	-	-	-	NAF
BWM_EIS-11_136.42-136.77	Coal	Fresh	Coal, dull <1% bright	9.1	168	0.26	0.08	8.0	34	-26	4.3	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 23 kg H2SO4/t; % ANC readily avail. = 67%; Likely carb. mineral = Dol. + Fe-dol.													
BWM_EIS-11_137.25-137.41	Gp3	Fresh	Carbonaceous Siltstone; rare coaly wisps	8.8	117	0.14	0.027	4.3	300	-296	70	-	-	-	-	-	NAF
BWM_EIS-11_137.75-138.03	Coal	Fresh	Coal, <10% bright	9.2	129	0.19	0.016	5.8	13	-7	2.2	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-11_138.74-139.08	Coal	Fresh	Coal, 10-40% bright	9.2	132	0.19	0.016	5.8	26	-20	4.4	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 1 kg H2SO4/t; % ANC readily avail. = 5%; Likely carb. mineral = Siderite												
BWM_EIS-11_139.73-140.02	Coal	Fresh	Coal, 60-90% bright	9.1	94	0.2	0.029	6.1	13	-7	2.2	-	-	-	-	-	NAF
BWM_EIS-11_140.27-140.75	Coal	Fresh	Coal, undifferentiated	8.9	54	0.2	0.012	6.1	10	-3	1.6	-	-	-	-	-	UC(NAF)
BWM_EIS-11_141.04-141.28	Coal	Fresh	Coal, 10-40% bright; siltstone laminae near base of unit	8.8	55	0.18	0.015	5.5	9	-4	1.7	-	-	-	-	-	UC(NAF)
BWM_EIS-11_141.79-141.97	Coal	Fresh	Coal, undifferentiated	9.1	114	0.22	0.013	6.7	12	-6	1.8	-	-	-	-	-	UC(NAF)
BWM_EIS-11_142.5-142.93m	Coal	Fresh	Coal, 40-60% bright	8.2	31	0.22	0.014	6.7	9	-2	1.3	-	-	-	-	-	UC(NAF)
BWM_EIS-11_143.03-143.13	Gp2	Fresh	Sandstone, very fine [fault zone]	9.2	159	0.04	0.019	1.2	12	-11	10	-	-	-	-	-	NAF
BWM_EIS-11_143.13-143.31	Gp2	Fresh	Sandstone, fine; common carbonaceous laminae throughout	9.1	137	0.02	0.02	0.6	13	-12	21	-	-	-	-	-	NAF
BWM_EIS-11_144.4-144.54m	Gp2	Fresh	Sandstone, medium; carbonaceous siltstone laminae	9.4	237	0.04	0.03	1.2	15	-13	12	-	-	-	-	-	NAF
BWM_EIS-11_145.21-145.33	Gp2	Fresh	Sandstone, medium	9.4	445	0.02	0.02	0.6	22	-21	36	-	-	-	-	-	NAF
BWM_EIS-11_146.42-146.57	Gp2	Fresh	Sandstone, fine; abundant carbonaceous laminae throughout [fault zone]	9.4	256	0.04	0.03	1.2	15	-14	12	-	-	-	-	-	NAF
BWM_EIS-11_146.91-147.06	Gp2	Fresh	Sandstone, medium; minor carbonaceous laminae throughout	9.3	341	0.03	0.026	0.9	29	-28	31	-	-	-	-	-	NAF
BWM_EIS-13_1.47-1.63m	Gp1	Distinctly	Sandstone, medium	9	279	<0.01	0.008	0.2	72	-72	472	-	-	-	-	-	NAF
BWM_EIS-13_2.43-2.81m	Gp1	Distinctly	Siltstone; common sandstone bands throughout	8.8	366	<0.01	0.012	0.2	24	-23	154	-	-	-	-	-	NAF
BWM_EIS-13_3.22-3.5m	Gp1	Distinctly	Siltstone; common clayey fractures	8.4	211	<0.01	0.01	0.2	13	-13	85	-	-	-	-	-	NAF
BWM_EIS-13_4.27-4.48m	Gp1	Distinctly	Siltstone; common sandstone laminae throughout	8.9	366	<0.01	0.009	0.2	52	-51	336	-	-	-	-	-	NAF
BWM_EIS-13_5.2-5.34m	Gp1	Distinctly	Sandstone, medium; abundant clayey fractures	9.1	297	<0.01	0.014	0.2	331	-331	2162	-	-	-	-	-	NAF
BWM_EIS-13_6.22-6.39m	Gp1	Extremely	Siltstone; clayey in part	8.8	364	<0.01	0.009	0.2	17	-17	113	-	-	-	-	-	NAF
BWM_EIS-13_7.11-7.25m	Gp1	Distinctly	Siltstone	8.7	253	<0.01	0.012	0.2	13	-13	84	-	-	-	-	-	NAF
BWM_EIS-13_8.2-8.43m	Gp1	Slightly	Sandstone, medium; minor sparse disseminated laminae throughout	8.8	338	<0.01	0.009	0.2	20	-20	129	-	-	-	-	-	NAF
BWM_EIS-13_9.31-9.51m	Gp1	Slightly	Sandstone, fine	8.8	341	<0.01	0.009	0.2	29	-29	192	-	-	-	-	-	NAF
BWM_EIS-13_10.23-10.4m	Gp1	Slightly	Sandstone, medium; common siltstone laminae	8.8	355	<0.01	0.012	0.2	18	-17	115	-	-	-	-	-	NAF
BWM_EIS-13_10.95-11.15m	Gp1	Slightly	Siltstone	8.8	350	<0.01	0.009	0.2	19	-19	123	-	-	-	-	-	NAF
BWM_EIS-13_11.76-11.92m	Gp2	Fresh	Sandstone, medium; rare carbonaceous laminae	9.1	307	0.02	0.016	0.6	84	-83	137	-	-	-	-	-	NAF
BWM_EIS-13_13.28-13.5m	Gp2	Fresh	Sandstone, medium; minor carbonaceous siltstone laminae	9	345	0.02	0.019	0.6	24	-24	40	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 12 kg H2SO4/t; % ANC readily avail. = 50%; Likely carb. mineral = Fe-dol												
BWM_EIS-13_15.08-15.24m	Gp2	Fresh	Sandstone, fine; rare carbonaceous wisps	9	377	0.02	0.018	0.6	34	-33	55	-	-	-	-	-	NAF
BWM_EIS-13_17.13-17.4m	Gp2	Fresh	Sandstone, medium; rare carbonaceous traces	9.2	331	<0.01	0.014	0.2	129	-129	842	-	-	-	-	-	NAF
BWM_EIS-13_18.54-18.77m	Gp2	Fresh	Sandstone, medium; common carbonaceous laminae	9.1	333	0.02	0.016	0.6	29	-28	47	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 19 kg H2SO4/t; % ANC readily avail. = 65%; Likely carb. mineral = Fe-dol												
BWM_EIS-13_20.34-20.6m	Gp2	Fresh	Sandstone, fine; carbonaceous in part	9	310	<0.01	0.015	0.2	16	-16	104	-	-	-	-	-	NAF
BWM_EIS-13_22.23-22.33m	Gp2	Fresh	Sandstone, fine	9	378	0.02	0.017	0.6	24	-23	39	-	-	-	-	-	NAF
BWM_EIS-13_23.56-23.73m	Gp2	Fresh	Siltstone; siltstone in part	9	365	0.02	0.016	0.6	16	-16	27	-	-	-	-	-	NAF
BWM_EIS-13_25.92-26.1m	Gp2	Fresh	Siltstone; minor calcite veins near top of unit	9.1	492	0.02	0.016	0.6	24	-23	38	-	-	-	-	-	NAF
BWM_EIS-13_27.61-27.93m	Gp2	Fresh	Siltstone	9	346	<0.01	0.01	0.2	20	-20	131	-	-	-	-	-	NAF
BWM_EIS-13_30.07-30.35m	Gp2	Fresh	Sandstone, medium; common siltstone laminae; minor siderite	9.1	412	0.02	0.018	0.6	32	-32	53	-	-	-	-	-	NAF
BWM_EIS-13_31.58-31.76m	Gp2	Fresh	Siltstone; abundant sandstone laminae throughout; sideritic	9.2	403	0.02	0.023	0.6	31	-30	51	-	-	-	-	-	NAF
BWM_EIS-13_32.63-32.89m	Gp2	Fresh	Siltstone; common carbonaceous laminae	9.1	402	0.1	0.084	3.1	23	-20	8	-	-	-	-	-	NAF
BWM_EIS-13_33.81-34.04m	Gp2	Fresh	Sandstone, medium; common carbonaceous laminae	9.2	395	0.02	0.02	0.6	41	-41	68	-	-	-	-	-	NAF
BWM_EIS-13_35.3-35.55m	Gp2	Fresh	Sandstone, fine-medium	9.2	437	0.03	0.024	0.9	104	-103	113	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 88 kg H2SO4/t; % ANC readily avail. = 84%; Likely carb. mineral = Dolomite												
BWM_EIS-13_36.44-36.61m	Gp2	Fresh	Siltstone; chalky concretion	9.2	378	0.02	0.016	0.6	359	-358	586	-	-	-	-	-	NAF
BWM_EIS-13_37.33-37.5m	Gp2	Fresh	Siltstone	9.2	434	0.02	0.022	0.6	42	-41	68	-	-	-	-	-	NAF
BWM_EIS-13_38.05-38.36m	Gp2	Fresh	Sandstone, fine-medium	9.2	354	0.02	0.023	0.6	384	-383	627	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-13_39.03-39.28m	Gp2	Fresh	Sandstone, fine-medium; common siltstone laminae throughout	9.3	416	0.04	0.041	1.2	35	-34	28	-	-	-	-	-	NAF
BWM_EIS-13_40.93-41.14m	Gp2	Fresh	Sandstone, medium; common siltstone laminae throughout	9.3	408	0.02	0.017	0.6	142	-141	232	-	-	-	-	-	NAF
BWM_EIS-13_42.92-43.12m	Gp2	Fresh	Sandstone, medium; minor sandstone laminae throughout	9.2	403	0.02	0.018	0.6	52	-51	84	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 31 kg H2SO4/t; % ANC readily avail. = 60%; Likely carb. mineral = Fe-dol													
BWM_EIS-13_44.34-44.57m	Gp2	Fresh	Sandstone, medium	9.4	375	0.2	0.175	6.1	21	-15	3.5	-	-	-	-	-	NAF
BWM_EIS-13_45.93-46.12m	Gp2	Fresh	Sandstone, medium; common carbonaceous sideritic laminae	9.3	354	0.02	0.016	0.6	96	-95	156	-	-	-	-	-	NAF
BWM_EIS-13_47.39-47.58m	Gp2	Fresh	Sandstone, medium; rare carbonaceous traces throughout	9.3	366	0.02	0.018	0.6	40	-39	65	-	-	-	-	-	NAF
BWM_EIS-13_49.26-49.52m	Gp2	Fresh	Siltstone; minor sandstone laminae throughout	9.2	433	0.01	0.015	0.3	27	-26	87	-	-	-	-	-	NAF
BWM_EIS-13_49.92-50.16m	Gp2	Fresh	Siltstone, minor siderite	9.2	378	0.03	0.026	0.9	210	-209	229	-	-	-	-	-	NAF
BWM_EIS-13_50.58-50.81m	Gp2	Fresh	Sandstone, medium	9.3	341	0.01	0.011	0.3	187	-187	611	-	-	-	-	-	NAF
BWM_EIS-13_51.43-51.88m	Gp2	Fresh	Sandstone, medium; abundant siltstone sideritic nodules	9.3	366	0.02	0.019	0.6	39	-39	64	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 17 kg H2SO4/t; % ANC readily avail. = 42%; Likely carb. mineral = Fe-dol + Sid.													
BWM_EIS-13_53.86-54.19m	Gp2	Fresh	Siltstone; common sandstone sideritic laminae	9.2	383	0.03	0.023	0.9	32	-31	35	-	-	-	-	-	NAF
BWM_EIS-13_55.29-55.51m	Gp2	Fresh	Siltstone; common sandstone sideritic laminae	9.2	352	0.03	0.026	0.9	21	-20	23	-	-	-	-	-	NAF
BWM_EIS-13_56.34-56.6m	Gp2	Fresh	Sandstone, medium; abundant siltstone sideritic laminae	9.2	365	0.02	0.022	0.6	81	-80	132	-	-	-	-	-	NAF
BWM_EIS-13_57.7-57.86m	Gp2	Fresh	Sandstone, very fine; carbonaceous in part; minor siderite	9.2	388	0.03	0.028	0.9	48	-47	52	-	-	-	-	-	NAF
BWM_EIS-13_58.55-58.7m	Gp2	Fresh	Sandstone, fine; carbonaceous in part	9.2	360	0.03	0.026	0.9	28	-27	31	-	-	-	-	-	NAF
BWM_EIS-13_59.4-59.58m	Gp2	Fresh	Sandstone, medium; common carbonaceous laminae	9.2	385	0.02	0.024	0.6	33	-32	54	-	-	-	-	-	NAF
BWM_EIS-13_60.81-61m	Gp2	Fresh	Sandstone, medium; rare carbonaceous laminae	9.2	375	0.03	0.025	0.9	29	-28	31	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 16 kg H2SO4/t; % ANC readily avail. = 55%; Likely carb. mineral = Fe-dol													
BWM_EIS-13_61.81-62.05m	Gp2	Fresh	Sandstone, medium	9.2	378	0.02	0.017	0.6	214	-213	349	-	-	-	-	-	NAF
BWM_EIS-13_62.05-62.63m	Coal	Fresh	Coal, undifferentiated; common calcite veins	8.5	176	0.76	0.314	23.3	6	17	0.3	8.1	<0.1	<0.1	-	-	NAF
BWM_EIS-13_62.63-62.76m	Gp3	Fresh	Carbonaceous Siltstone; minor coaly wisps	8.9	533	0.29	0.194	8.9	13	-4	1.4	4.6	<0.1	7.1	-	-	NAF
BWM_EIS-13_63.05-63.25m	Gp3	Fresh	Carbonaceous Siltstone; minor sideritic laminae	8.6	200	0.25	0.189	7.7	18	-10	2.3	6.4	<0.1	1	-	-	NAF
				ABCC ANC@pH4.5 = 5 kg H2SO4/t; % ANC readily avail. = 27%; Likely carb. mineral = Fe-dol + Sid.													
BWM_EIS-13_63.6-63.79m	Gp2	Fresh	Sandstone, medium; sideritic cement	9.2	419	0.05	0.045	1.5	402	-400	263	-	-	-	-	-	NAF
BWM_EIS-13_64.56-64.77m	Gp2	Fresh	Siltstone; sandstone in part sideritic laminae	9.3	447	0.06	0.043	1.8	33	-31	18	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 21 kg H2SO4/t; % ANC readily avail. = 64%; Likely carb. mineral = Fe-dol													
BWM_EIS-13_65.56-65.67m	Gp2	Fresh	Sandstone, fine-medium; sideritic in part	9.4	471	0.03	0.028	0.9	184	-183	200	-	-	-	-	-	NAF
BWM_EIS-13_66.13-66.35m	Gp2	Fresh	Siltstone; abundant carbonaceous sideritic laminae	8.9	244	0.1	0.034	3.1	20	-17	6.4	-	-	-	-	-	NAF
BWM_EIS-13_66.35-66.53m	Gp3	Fresh	Carbonaceous Siltstone; common calcite veins	8.8	128	0.22	0.071	6.7	34	-27	5.1	-	-	-	-	-	NAF
BWM_EIS-13_66.53-66.87m	Coal	Fresh	Coal, 60-90% bright; common pyritic laminae; calcite in cleats	8.5	148	0.49	0.259	15.0	22	-7	1.5	8.3	<0.1	<0.1	-	-	NAF
BWM_EIS-13_66.87-66.95m	Gp3	Fresh	Carbonaceous Siltstone	8.7	397	0.26	0.177	8.0	11	-3	1.4	4.8	<0.1	6.9	-	-	NAF
BWM_EIS-13_66.95-67.13m	Gp2	Fresh	Sandstone, medium	8.8	318	0.06	0.048	1.8	17	-15	9.0	-	-	-	-	-	NAF
BWM_EIS-13_67.72-67.88m	Gp2	Fresh	Sandstone, medium; siltstone in part	9.3	198	0.03	0.027	0.9	14	-13	15	-	-	-	-	-	NAF
BWM_EIS-13_69.16-69.26m	Gp2	Fresh	Sandstone, fine; siltstone in part; sideritic	9.3	371	0.02	0.02	0.6	38	-37	61	-	-	-	-	-	NAF
BWM_EIS-13_69.89-70.09m	Gp2	Fresh	Sandstone, medium	9.4	443	0.02	0.018	0.6	88	-87	144	-	-	-	-	-	NAF
BWM_EIS-13_71.63-71.71m	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae throughout	9.4	403	0.04	0.018	1.2	98	-96	80	-	-	-	-	-	NAF
BWM_EIS-13_73.29-73.55m	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae throughout	9.4	390	0.06	0.016	1.8	41	-39	22	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 25 kg H2SO4/t; % ANC readily avail. = 60%; Likely carb. mineral = Fe-dol + Dol.													
BWM_EIS-13_74.35-74.53m	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae throughout	9.4	459	0.05	0.022	1.5	91	-89	59	-	-	-	-	-	NAF
BWM_EIS-13_74.61-74.82m	Coal	Fresh	Coal, undifferentiated; common calcite veins	9.4	167	0.28	0.009	8.6	27	-18	3.1	-	-	-	-	-	NAF
BWM_EIS-13_74.82-74.9m	Gp3	Fresh	Carbonaceous Siltstone; coaly bands near base of unit	9.3	367	0.21	0.016	6.4	36	-29	5.5	-	-	-	-	-	NAF
BWM_EIS-13_74.9-75.37m	Gp3	Fresh	Carbonaceous Siltstone; rare coaly laminae	8.8	173	0.05	0.025	1.5	13	-11	8.4	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-13_76.08-76.26m	Gp2	Fresh	Siltstone	9.3	386	0.03	0.021	0.9	19	-18	21	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 8 kg H2SO4/t; % ANC readily avail. = 40%; Likely carb. mineral = Fe-dol												
BWM_EIS-13_76.81-76.95m	Gp2	Fresh	Sandstone, medium; rare carbonaceous laminae	9.5	381	0.03	0.023	0.9	35	-34	38	-	-	-	-	-	NAF
BWM_EIS-13_78.26-78.42m	Gp2	Fresh	Sandstone, medium; minor carbonaceous laminae throughout	9.4	400	0.03	0.019	0.9	47	-46	52	-	-	-	-	-	NAF
BWM_EIS-13_80.51-80.67m	Gp2	Fresh	Sandstone, medium	9.4	409	0.02	0.012	0.6	265	-264	433	-	-	-	-	-	NAF
BWM_EIS-13_82.33-82.53m	Gp2	Fresh	Sandstone, medium	9.4	433	0.02	0.016	0.6	52	-51	84	-	-	-	-	-	NAF
BWM_EIS-13_83.42-83.6m	Gp2	Fresh	Sandstone, medium	9.4	435	0.04	0.013	1.2	112	-111	91	-	-	-	-	-	NAF
BWM_EIS-13_84.59-84.77m	Gp2	Fresh	Siltstone; rare coaly wisps	9.4	395	0.04	0.019	1.2	37	-36	30	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 21 kg H2SO4/t; % ANC readily avail. = 55%; Likely carb. mineral = Fe-dol												
BWM_EIS-13_85.85-86.08m	Gp2	Fresh	Siltstone; rare coaly wisps; sideritic	9.3	414	0.03	0.018	0.9	67	-66	73	-	-	-	-	-	NAF
BWM_EIS-13_86.93-87.18m	Gp2	Fresh	Siltstone; sandstone laminae throughout sideritic	9.3	409	0.04	0.027	1.2	52	-51	43	-	-	-	-	-	NAF
BWM_EIS-13_88.13-88.31m	Gp2	Fresh	Sandstone, medium; abundant coaly wisps throughout	9.2	468	0.09	0.046	2.8	53	-50	19	-	-	-	-	-	NAF
BWM_EIS-13_88.7-89.03m	Gp3	Fresh	Carbonaceous Siltstone	8.6	400	0.66	0.508	20.2	14	6	0.7	3.0	8.9	21.4	-	-	PAF
BWM_EIS-13_89.6-90.12m	Gp3	Fresh	Carbonaceous Siltstone; rare coaly laminae	9.3	411	0.06	0.033	1.8	27	-25	15	-	-	-	-	-	NAF
BWM_EIS-13_90.81-90.95m	Gp2	Fresh	Siltstone; sandstone in part carbonaceous laminae	9.2	445	0.06	0.043	1.8	61	-59	33	-	-	-	-	-	NAF
BWM_EIS-13_92.73-92.89m	Gp2	Fresh	Siltstone; sandstone in part carbonaceous laminae	9.1	414	0.09	0.071	2.8	31	-28	11	-	-	-	-	-	NAF
BWM_EIS-13_93.81-93.96m	Gp2	Fresh	Siltstone; sandstone in part carbonaceous laminae	9.1	434	0.04	0.028	1.2	41	-39	33	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 20 kg H2SO4/t; % ANC readily avail. = 49%; Likely carb. mineral = Fe-dol. (+ Sid.?)												
BWM_EIS-13_94.76-94.91m	Gp2	Fresh	Siltstone; sandstone laminae sideritic laminae	9.2	434	0.04	0.025	1.2	38	-37	31	-	-	-	-	-	NAF
BWM_EIS-13_96.16-96.36m	Gp2	Fresh	Sandstone, fine; carbonaceous laminae	9.2	444	0.05	0.028	1.5	28	-27	19	-	-	-	-	-	NAF
BWM_EIS-13_98.95-99.25m	Gp2	Fresh	Siltstone; minor calcite veins	9.3	426	0.05	0.03	1.5	33	-31	21	-	-	-	-	-	NAF
BWM_EIS-13_100.93-101.09m	Gp2	Fresh	Siltstone; common sandstone laminae	9.2	447	0.05	0.027	1.5	40	-38	26	-	-	-	-	-	NAF
BWM_EIS-13_101.89-102.04m	Gp2	Fresh	Sandstone, fine; common siltstone laminae	9.2	460	0.04	0.029	1.2	133	-132	109	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 126 kg H2SO4/t; % ANC readily avail. = 95%; Likely carb. mineral = Calc. + Dol.												
BWM_EIS-13_103.49-103.68m	Gp2	Fresh	Sandstone, fine; rare siltstone carbonaceous laminae	9.3	464	0.04	0.024	1.2	45	-43	36	-	-	-	-	-	NAF
BWM_EIS-13_105.42-105.53m	Gp2	Fresh	Sandstone, fine; rare siltstone carbonaceous laminae	9.3	439	0.04	0.027	1.2	38	-37	31	-	-	-	-	-	NAF
BWM_EIS-13_107.26-107.43m	Gp2	Fresh	Sandstone, fine-medium; rare carbonaceous laminae	9.3	452	0.05	0.025	1.5	44	-43	29	-	-	-	-	-	NAF
BWM_EIS-13_108.57-108.82m	Gp2	Fresh	Sandstone, fine; minor sideritic nodules throughout	9.3	417	0.04	0.032	1.2	27	-25	22	-	-	-	-	-	NAF
BWM_EIS-13_110.24-110.38m	Gp2	Fresh	Siltstone; sandstone in part	9.3	447	0.05	0.021	1.5	52	-50	34	-	-	-	-	-	NAF
BWM_EIS-13_111.18-111.4m	Gp2	Fresh	Siltstone; minor carbonaceous traces	9.1	453	0.07	0.058	2.1	17	-15	8.0	-	-	-	-	-	NAF
BWM_EIS-13_112.26-112.43m	Gp3	Fresh	Carbonaceous Siltstone; rare coaly laminae	9.1	456	0.1	0.046	3.1	18	-15	5.8	-	-	-	-	-	NAF
BWM_EIS-13_113.02-113.21m	Gp3	Fresh	Carbonaceous Siltstone; common coaly laminae; minor sandstone	9.3	418	0.16	0.034	4.9	129	-124	26	-	-	-	-	-	NAF
BWM_EIS-13_113.21-113.4m	Coal	Fresh	Coal, dull <1% bright	9	112	0.28	0.014	8.6	5	4	0.6	-	-	-	-	-	UC(NAF)
BWM_EIS-13_113.61-113.99m	Coal	Fresh	Coal, <10% bright	9.1	107	0.23	0.013	7.0	40	-33	5.7	-	-	-	-	-	NAF
BWM_EIS-13_114.62-115.06m	Coal	Fresh	Coal, 10-40% bright	9	58	0.24	0.013	7.4	0	7	0.1	-	-	-	2.2	4.4	PAF-LC
BWM_EIS-13_115.06-115.24m	Gp3	Fresh	Carbonaceous Siltstone	8.9	210	0.17	0.117	5.2	12	-7	2.3	-	-	-	-	-	NAF
BWM_EIS-13_115.24-115.69m	Coal	Fresh	Coal, undifferentiated	7.9	48	0.24	0.013	7.4	0	7	0.1	-	-	-	2.2	7.2	PAF
BWM_EIS-13_115.87-116.31m	Coal	Fresh	Coal, dull <1% bright	7.6	52	0.27	0.016	8.3	0	8	0.0	-	-	-	3.2	<0.1	PAF-LC
BWM_EIS-13_116.58-117.02m	Coal	Fresh	Coal, <10% bright	7.9	66	0.26	0.024	8.0	5	3	0.6	-	-	-	-	-	UC(PAF)
BWM_EIS-13_117.02-117.2m	Coal	Fresh	Coal, 40-60% bright	8.7	50	0.3	0.022	9.2	6	3	0.7	-	-	-	-	-	UC(PAF)
BWM_EIS-13_117.71-117.97m	Gp3	Fresh	Carbonaceous Siltstone	9	306	0.76	0.56	23.3	22	2	0.9	4.9	<0.1	23.6	-	-	NAF
				ABCC ANC@pH4.5 = 9 kg H2SO4/t; % ANC readily avail. = 43%; Likely carb. mineral = Fe-dol												
BWM_EIS-13_118.09-118.8m	Gp2	Fresh	Siltstone; carbonaceous in part sideritic laminae	9.1	380	0.09	0.045	2.8	36	-33	13	-	-	-	-	-	NAF
BWM_EIS-13_118.8-118.92m	Gp2	Fresh	Siltstone; carbonaceous in part sideritic laminae	9	414	0.06	0.031	1.8	33	-31	18	-	-	-	-	-	NAF
BWM_EIS-13_118.92-119.13m	Gp3	Fresh	Carbonaceous Siltstone	9.4	434	0.1	0.031	3.1	28	-25	9.0	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-13_119.13-119.33m	Coal	Fresh	Coal, <10% bright	8.8	72	0.37	0.021	11.3	25	-14	2.2	-	-	-	-	-	NAF
BWM_EIS-13_119.46-119.87m	Coal	Fresh	Coal, dull <1% bright	8.9	68	0.31	0.021	9.5	2	8	0.2	-	-	-	4.8	<0.1	NAF
BWM_EIS-13_119.87-120.11m	Coal	Fresh	Coal, 40-60% bright	8	79	0.35	0.056	10.7	8	3	0.7	-	-	-	-	-	UC(PAF)
BWM_EIS-13_120.38-120.72m	Coal	Fresh	Coal, 40-60% bright	8.2	55	0.42	0.055	12.9	0	12	0.0	-	-	-	3.1	5	PAF-LC
BWM_EIS-13_120.99-121.11m	Gp3	Fresh	Carbonaceous Siltstone; partly sideritic	8.6	318	0.13	0.111	4.0	18	-14	4.4	-	-	-	-	-	NAF
BWM_EIS-13_121.11-121.32m	Gp2	Fresh	Sandstone, fine-medium; abundant carbonaceous laminae	9.2	242	0.06	0.035	1.8	15	-13	7.9	-	-	-	-	-	NAF
BWM_EIS-13_121.5-121.63m	Gp2	Fresh	Siltstone; sandstone laminae throughout; minor siderite	9.2	359	0.03	0.03	0.9	33	-32	36	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 12 kg H2SO4/t; % ANC readily avail. = 35%; Likely carb. mineral = Fe-dol. (+ Sid.?)												
BWM_EIS-13_122.05-122.2m	Gp2	Fresh	Sandstone, medium; common carbonaceous laminae	9.3	344	0.03	0.029	0.9	33	-32	36	-	-	-	-	-	NAF
BWM_EIS-13_123.04-123.31m	Gp2	Fresh	Sandstone, fine-medium; abundant carbonaceous laminae	9.6	502	0.02	0.024	0.6	53	-53	87	-	-	-	-	-	NAF
BWM_EIS-13_124.03-124.19m	Gp2	Fresh	Sandstone, medium; abundant sideritic nodules	9.6	494	0.02	0.023	0.6	98	-98	160	-	-	-	-	-	NAF
BWM_EIS-15_1.1-1.25m	Gp1	Extremely	Siltstone; abundant clayey fractures	7.5	751	0.02	0.013	0.6	10	-9	16	-	-	-	-	-	NAF
BWM_EIS-15_2.45-2.58m	Gp1	Distinctly	Siltstone; minor sandstone bands throughout	8.2	378	0.01	0.01	0.3	17	-17	55	-	-	-	-	-	NAF
BWM_EIS-15_3.59-3.78m	Gp1	Distinctly	Siltstone; clayey fractures	8.1	331	0.01	0.013	0.3	15	-15	50	-	-	-	-	-	NAF
BWM_EIS-15_4.96-5.22m	Gp1	Distinctly	Sandstone, fine-medium; abundant clayey fractures	8.6	451	0.02	0.019	0.6	14	-14	24	-	-	-	-	-	NAF
BWM_EIS-15_7.04-7.18m	Gp1	Distinctly	Siltstone	8.3	220	0.01	0.013	0.3	9	-8	28	-	-	-	-	-	NAF
BWM_EIS-15_8.47-8.6m	Gp1	Distinctly	Siltstone; minor carbonaceous traces throughout	9.1	401	0.05	0.014	1.5	408	-406	266	-	-	-	-	-	NAF
BWM_EIS-15_10.26-10.4m	Gp1	Distinctly	Siltstone; common sandstone bands throughout	8.8	403	0.01	0.011	0.3	7	-6	22	-	-	-	-	-	NAF
BWM_EIS-15_11.77-11.9m	Gp1	Slightly	Sandstone, medium; carbonaceous traces near middle of unit	8.9	382	0.01	0.013	0.3	25	-25	82	-	-	-	-	-	NAF
BWM_EIS-15_12.92-13.1m	Gp1	Slightly	Sandstone, medium; minor siltstone laminae throughout	8.7	392	0.02	0.011	0.6	21	-20	34	-	-	-	-	-	NAF
BWM_EIS-15_13.77-14.02m	Gp1	Slightly	Sandstone, medium; minor siltstone laminae throughout	9.1	387	0.02	0.016	0.6	120	-119	196	-	-	-	-	-	NAF
BWM_EIS-15_14.63-14.81m	Gp1	Slightly	Sandstone, fine; minor carbonaceous	8.9	404	0.03	0.022	0.9	27	-26	30	-	-	-	-	-	NAF
BWM_EIS-15_15.39-15.56m	Gp1	Slightly	Sandstone, fine-medium; oxidised fractures	9.1	355	0.02	0.021	0.6	38	-38	62	-	-	-	-	-	NAF
BWM_EIS-15_16.74-17m	Gp1	Slightly	Sandstone, fine-medium; common siltstone laminae throughout	9	377	0.02	0.013	0.6	31	-30	50	-	-	-	-	-	NAF
BWM_EIS-15_18.18-18.34m	Gp2	Fresh	Sandstone, medium; common siltstone laminae throughout	9	394	0.04	0.027	1.2	98	-96	80	-	-	-	-	-	NAF
BWM_EIS-15_19.48-19.59m	Gp2	Fresh	Siltstone; carbonaceous in part sandstone laminae	9	381	0.13	0.04	4.0	34	-30	8.6	-	-	-	-	-	NAF
BWM_EIS-15_20.92-20.99m	Gp2	Fresh	Siltstone; abundant carbonaceous fragments	8.8	412	0.04	0.025	1.2	27	-26	22	-	-	-	-	-	NAF
BWM_EIS-15_22.59-22.73m	Gp2	Fresh	Siltstone	9.2	333	0.02	0.023	0.6	26	-26	43	-	-	-	-	-	NAF
BWM_EIS-15_23.66-23.8m	Gp2	Fresh	Sandstone, medium	9.2	292	0.02	0.019	0.6	352	-351	575	-	-	-	-	-	NAF
BWM_EIS-15_25.63-25.86m	Gp2	Fresh	Sandstone, medium; abundant siltstone laminae throughout	9.2	327	0.02	0.023	0.6	37	-36	61	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 19 kg H2SO4/t; % ANC readily avail. = 51%; Likely carb. mineral = Fe-dol												
BWM_EIS-15_26.41-26.49m	Gp2	Fresh	Sandstone, medium	9.2	329	0.02	0.021	0.6	272	-271	444	-	-	-	-	-	NAF
BWM_EIS-15_27.99-28.19m	Gp2	Fresh	Sandstone, medium	9.1	308	0.02	0.015	0.6	61	-60	99	-	-	-	-	-	NAF
BWM_EIS-15_29.6-29.7m	Gp2	Fresh	Sandstone, medium	9.2	335	0.02	0.014	0.6	37	-37	61	-	-	-	-	-	NAF
BWM_EIS-15_31.49-31.62m	Gp2	Fresh	Siltstone; common sandstone laminae throughout	9.2	330	0.06	0.053	1.8	8	-6	4.1	8.1	<0.1	<0.1	-	-	NAF
BWM_EIS-15_32.93-33.08m	Gp2	Fresh	Sandstone, medium; common siltstone laminae throughout	9.2	337	0.03	0.029	0.9	6	-5	6.9	-	-	-	-	-	NAF
BWM_EIS-15_34.87-34.98m	Gp2	Fresh	Siltstone	9.2	355	0.02	0.024	0.6	6	-5	9.5	-	-	-	-	-	NAF
BWM_EIS-15_36.94-37.08m	Gp2	Fresh	Siltstone; minor sandstone laminae	9.2	354	0.02	0.018	0.6	29	-28	47	-	-	-	-	-	NAF
BWM_EIS-15_38.05-38.21m	Gp2	Fresh	Siltstone; abundant sandstone laminae throughout	9.4	320	0.02	0.019	0.6	26	-25	42	-	-	-	-	-	NAF
BWM_EIS-15_39.15-39.32m	Gp2	Fresh	Sandstone, fine; carbonaceous in part	9.2	345	0.03	0.029	0.9	27	-26	29	-	-	-	-	-	NAF
BWM_EIS-15_40.07-40.27m	Gp2	Fresh	Claystone; sandstone fragments throughout	9.3	366	0.02	0.019	0.6	52	-51	84	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 28 kg H2SO4/t; % ANC readily avail. = 53%; Likely carb. mineral = Fe-dol												
BWM_EIS-15_42.39-42.54m	Gp2	Fresh	Sandstone, fine; carbonaceous laminae throughout	9.2	335	0.04	0.035	1.2	28	-27	23	-	-	-	-	-	NAF
BWM_EIS-15_42.93-43.05m	Gp2	Fresh	Sandstone, fine; carbonaceous in part sideritic nodules	9.2	327	0.04	0.026	1.2	33	-32	27	-	-	-	-	-	NAF
BWM_EIS-15_44.35-44.5m	Gp2	Fresh	Siltstone	9.3	351	0.03	0.027	0.9	29	-28	32	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-15_46.26-46.39m	Gp2	Fresh	Sandstone, medium; common siltstone laminae throughout	9.4	346	0.04	0.029	1.2	118	-117	96	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 100 kg H2SO4/t; % ANC readily avail. = 85%; Likely carb. mineral = Dolomite												
BWM_EIS-15_46.99-47.1m	Gp2	Fresh	Siltstone; sideritic nodules throughout	9.1	341	0.03	0.028	0.9	38	-37	41	-	-	-	-	-	NAF
BWM_EIS-15_48.29-48.44m	Gp2	Fresh	Sandstone, medium; common sideritic nodules	9.2	363	0.03	0.031	0.9	66	-65	72	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 38 kg H2SO4/t; % ANC readily avail. = 57%; Likely carb. mineral = Fe-dol												
BWM_EIS-15_50.48-50.67m	Gp2	Fresh	Sandstone, medium	9.2	392	0.06	0.022	1.8	67	-65	36	-	-	-	-	-	NAF
BWM_EIS-15_51.57-51.7m	Gp2	Fresh	Sandstone, fine; rare sideritic nodules	9.2	342	0.03	0.027	0.9	33	-32	36	-	-	-	-	-	NAF
BWM_EIS-15_52.48-52.62m	Gp2	Fresh	Siltstone; sandstone laminae throughout	9.1	357	0.03	0.028	0.9	36	-35	39	-	-	-	-	-	NAF
BWM_EIS-15_53.11-53.28m	Gp2	Fresh	Siderite	9	345	0.12	0.023	3.7	504	-500	137	-	-	-	-	-	NAF
BWM_EIS-15_53.78-53.97m	Gp2	Fresh	Siltstone; carbonaceous in part sandstone laminae	9.2	353	0.04	0.034	1.2	51	-49	41	-	-	-	-	-	NAF
BWM_EIS-15_55.3-55.46m	Gp2	Fresh	Sandstone, medium; common carbonaceous siltstone laminae	9.4	305	0.02	0.029	0.6	40	-40	66	-	-	-	-	-	NAF
BWM_EIS-15_56.21-56.31m	Gp2	Fresh	Sandstone, fine-medium; common carbonaceous siltstone laminae	9.4	282	0.03	0.028	0.9	26	-25	28	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 7 kg H2SO4/t; % ANC readily avail. = 27%; Likely carb. mineral = Mag. (+ Fe-dol.?)												
BWM_EIS-15_57.41-57.55m	Gp2	Fresh	Sandstone, fine; sideritic bands throughout	9.4	311	0.02	0.031	0.6	158	-157	258	-	-	-	-	-	NAF
BWM_EIS-15_58.06-58.28m	Gp2	Fresh	Sandstone, medium; rare carbonaceous laminae	9.4	342	0.68	0.562	20.8	182	-161	8.7	-	-	-	-	-	NAF
BWM_EIS-15_58.28-58.88m	Coal	Fresh	Coal, undifferentiated	8.8	168	0.45	0.111	13.8	64	-50	4.6	-	-	-	-	-	NAF
BWM_EIS-15_58.88-59.1m	Gp3	Fresh	Carbonaceous Siltstone; minor coaly wisps	9.2	391	0.15	0.075	4.6	19	-14	4.1	-	-	-	-	-	NAF
BWM_EIS-15_59.1-59.2m	Gp2	Fresh	Sandstone, fine	9.4	220	0.03	0.023	0.9	22	-21	24	-	-	-	-	-	NAF
BWM_EIS-15_60.16-60.3m	Gp2	Fresh	Siltstone	9.5	321	0.02	0.027	0.6	24	-24	40	-	-	-	-	-	NAF
BWM_EIS-15_60.95-61.12m	Gp2	Fresh	Sandstone, medium; common siltstone carbonaceous laminae	9.4	348	0.04	0.033	1.2	51	-50	42	-	-	-	-	-	NAF
BWM_EIS-15_61.46-61.66m	Gp3	Fresh	Carbonaceous Siltstone	9.2	249	0.23	0.166	7.0	23	-16	3.3	4.6	<0.1	12.5	-	-	NAF
				ABCC ANC@pH4.5 = 4 kg H2SO4/t; % ANC readily avail. = 19%; Likely carb. mineral = Mag. (+ Fe-dol.?)												
BWM_EIS-15_62.01-62.13m	Gp2	Fresh	Siltstone; carbonaceous in part	9.5	314	0.05	0.034	1.5	27	-25	18	-	-	-	-	-	NAF
BWM_EIS-15_62.13-62.31m	Gp3	Fresh	Carbonaceous Siltstone	9	187	0.14	0.041	4.3	27	-23	6.3	-	-	-	-	-	NAF
BWM_EIS-15_62.31-62.9m	Coal	Fresh	Coal, <10% bright	8.6	60	0.41	0.031	12.6	14	-1	1.1	-	-	-	-	-	UC(NAF)
BWM_EIS-15_62.9-63m	Gp2	Fresh	Siltstone	9.1	243	0.1	0.036	3.1	24	-21	7.8	-	-	-	-	-	NAF
BWM_EIS-15_63-63.14m	Gp3	Fresh	Carbonaceous Siltstone	9.3	272	0.35	0.046	10.7	18	-7	1.6	-	-	-	-	-	UC(NAF)
BWM_EIS-15_63.34-63.51m	Gp2	Fresh	Siltstone	9.3	216	0.08	0.04	2.5	20	-18	8.2	-	-	-	-	-	NAF
BWM_EIS-15_63.75-63.91m	Gp3	Fresh	Carbonaceous Siltstone	9.3	371	0.14	0.056	4.3	17	-12	3.9	-	-	-	-	-	NAF
BWM_EIS-15_65.41-65.56m	Gp2	Fresh	Sandstone, very fine; rare carbonaceous traces	9.4	391	0.18	0.161	5.5	27	-22	4.9	-	-	-	-	-	NAF
BWM_EIS-15_65.68-65.83m	Gp2	Fresh	Siltstone, sideritic	9.2	354	0.07	0.066	2.1	58	-55	27	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 16 kg H2SO4/t; % ANC readily avail. = 28%; Likely carb. mineral = Mag. (+ Fe-dol.?)												
BWM_EIS-15_66.64-66.74m	Gp2	Fresh	Sandstone, fine; common siltstone laminae throughout	9.6	330	0.04	0.034	1.2	35	-33	28	-	-	-	-	-	NAF
BWM_EIS-15_67.51-67.71m	Gp2	Fresh	Siltstone; carbonaceous in part	9.5	317	0.05	0.043	1.5	27	-25	18	-	-	-	-	-	NAF
BWM_EIS-15_67.96-68.12m	Gp2	Fresh	Sandstone, medium; common carbonaceous laminae throughout	9.6	373	0.04	0.028	1.2	78	-76	63	-	-	-	-	-	NAF
BWM_EIS-15_69.27-69.4m	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae throughout	9.4	316	0.02	0.027	0.6	50	-49	81	-	-	-	-	-	NAF
BWM_EIS-15_70.25-70.46m	Gp2	Fresh	Sandstone, medium; abundant siltstone pebbly throughout; trace coal	9.4	325	0.02	0.024	0.6	122	-121	199	-	-	-	-	-	NAF
BWM_EIS-15_70.99-71.19m	Gp2	Fresh	Sandstone, medium; rare carbonaceous calcite wisps; trace siderite	9.4	350	0.19	0.036	5.8	117	-111	20	-	-	-	-	-	NAF
BWM_EIS-15_71.65-71.9m	Gp2	Fresh	Sandstone, medium; abundant siltstone sideritic cobbles	9.6	326	0.04	0.036	1.2	42	-41	34	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 23 kg H2SO4/t; % ANC readily avail. = 55%; Likely carb. mineral = Fe-dol												
BWM_EIS-15_73.62-73.77m	Gp2	Fresh	Sandstone, medium; rare carbonaceous traces	9.6	342	0.05	0.022	1.5	112	-110	73	-	-	-	-	-	NAF
BWM_EIS-15_74.69-74.9m	Gp2	Fresh	Siderite; some sandstone	9.4	283	0.02	0.02	0.6	59	-58	96	-	-	-	-	-	NAF
BWM_EIS-15_76.29-76.4m	Gp2	Fresh	Sandstone, medium	9.6	347	0.02	0.024	0.6	58	-57	95	-	-	-	-	-	NAF
BWM_EIS-15_77.7-77.82m	Gp2	Fresh	Sandstone, medium; abundant carbonaceous traces throughout	9.5	297	0.07	0.047	2.1	71	-68	33	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-15_78.95-79.08m	Gp2	Fresh	Sandstone, medium	9.6	299	0.03	0.02	0.9	101	-100	110	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 84 kg H2SO4/t; % ANC readily avail. = 83%; Likely carb. mineral = Dolomite													
BWM_EIS-15_80.66-80.87m	Gp2	Fresh	Sandstone, medium; common carbonaceous traces near middle of unit	9.6	327	0.02	0.022	0.6	64	-63	105	-	-	-	-	-	NAF
BWM_EIS-15_81.67-81.95m	Gp2	Fresh	Sandstone, medium	9.5	306	<0.01	0.018	0.2	471	-471	3076	-	-	-	-	-	NAF
BWM_EIS-15_83.49-83.63m	Gp2	Fresh	Sandstone, medium	9.6	311	0.02	0.017	0.6	66	-66	108	-	-	-	-	-	NAF
BWM_EIS-15_85.29-85.49m	Gp2	Fresh	Sandstone, medium; common carbonaceous laminae throughout	9.5	302	0.09	0.08	2.8	89	-86	32	-	-	-	-	-	NAF
BWM_EIS-15_87.23-87.36m	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae throughout	9.5	297	0.03	0.022	0.9	67	-66	73	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 46 kg H2SO4/t; % ANC readily avail. = 68%; Likely carb. mineral = Fe-dol + Dol.													
BWM_EIS-15_88.3-88.43m	Gp2	Fresh	Sandstone, medium	9.4	300	0.01	0.025	0.3	346	-346	1130	-	-	-	-	-	NAF
BWM_EIS-15_89.6-89.73m	Gp2	Fresh	Sandstone, fine; abundant siltstone carbonaceous laminae	9.6	303	0.03	0.03	0.9	34	-33	37	-	-	-	-	-	NAF
BWM_EIS-15_90.77-90.92m	Gp2	Fresh	Sandstone, fine-medium; common siltstone carbonaceous laminae	9.4	337	0.03	0.027	0.9	39	-38	42	-	-	-	-	-	NAF
BWM_EIS-15_92.52-92.68m	Gp2	Fresh	Sandstone, fine-medium; common siltstone carbonaceous laminae	9.6	364	0.03	0.025	0.9	102	-101	111	-	-	-	-	-	NAF
BWM_EIS-15_93.8-93.95m	Gp2	Fresh	Sandstone, fine-medium; common siltstone carbonaceous laminae	9.4	373	0.04	0.025	1.2	72	-70	58	-	-	-	-	-	NAF
BWM_EIS-15_96.16-96.29m	Gp2	Fresh	Sandstone, fine-medium; common siltstone carbonaceous laminae	9.5	303	0.03	0.023	0.9	36	-35	40	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 19 kg H2SO4/t; % ANC readily avail. = 52%; Likely carb. mineral = Fe-dol													
BWM_EIS-15_97.83-98.01m	Gp2	Fresh	Sandstone, fine-medium; common siltstone carbonaceous laminae	9.6	325	0.03	0.025	0.9	39	-38	43	-	-	-	-	-	NAF
BWM_EIS-15_99.11-99.26m	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae	9.5	362	0.03	0.023	0.9	111	-110	121	-	-	-	-	-	NAF
BWM_EIS-15_101.38-101.53	Gp2	Fresh	Sandstone, medium; common siltstone carbonaceous laminae	9.5	352	0.04	0.029	1.2	65	-63	53	-	-	-	-	-	NAF
BWM_EIS-15_103.37-103.53	Gp2	Fresh	Sandstone, medium; common carbonaceous laminae throughout	9.3	338	0.01	0.021	0.3	372	-372	1215	-	-	-	-	-	NAF
BWM_EIS-15_104.45-104.59	Gp2	Fresh	Sandstone, fine-medium; abundant siltstone carbonaceous laminae	9.4	356	0.03	0.023	0.9	73	-72	80	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 46 kg H2SO4/t; % ANC readily avail. = 63%; Likely carb. mineral = Fe-dol													
BWM_EIS-15_106.05-106.18	Gp2	Fresh	Sandstone, fine; abundant siltstone carbonaceous laminae	9.5	337	0.03	0.026	0.9	49	-48	54	-	-	-	-	-	NAF
BWM_EIS-15_107.69-107.83	Gp2	Fresh	Sandstone, fine; abundant siltstone carbonaceous laminae	9.5	337	0.03	0.028	0.9	51	-50	55	-	-	-	-	-	NAF
BWM_EIS-15_109.83-109.94	Gp2	Fresh	Sandstone, fine-medium; abundant siltstone carbonaceous laminae	9.6	363	0.03	0.021	0.9	90	-89	98	-	-	-	-	-	NAF
BWM_EIS-15_111.28-111.41	Gp2	Fresh	Sandstone, fine-medium; abundant siltstone carbonaceous laminae	9.4	370	0.04	0.028	1.2	64	-63	52	-	-	-	-	-	NAF
BWM_EIS-15_111.91-112.17	Gp3	Fresh	Carbonaceous Siltstone	9.1	316	0.32	0.044	9.8	14	-4	1.4	-	-	-	-	-	UC(NAF)
BWM_EIS-15_112.17-112.75	Coal	Fresh	Coal, <10% bright	9.3	107	0.25	0.022	7.7	13	-5	1.6	-	-	-	-	-	UC(NAF)
BWM_EIS-15_112.78-112.92	Coal	Fresh	Coal, <10% bright	9.3	125	0.23	0.027	7.0	18	-11	2.5	-	-	-	-	-	NAF
BWM_EIS-15_112.92-113.32	Coal	Fresh	Coal, <10% bright	8.6	250	0.54	0.306	16.5	69	-52	4.2	-	-	-	-	-	NAF
BWM_EIS-15_113.71-113.94	Coal	Fresh	Coal, 10-40% bright; minor siltstone	8.1	263	0.92	0.612	28.2	19	9	0.7				3.5	<0.1	PAF-LC
				ABCC ANC@pH4.5 = 11 kg H2SO4/t; % ANC readily avail. = 58%; Likely carb. mineral = Fe-dol + Dol.													
BWM_EIS-15_114.46-114.68	Coal	Fresh	Coal, 40-60% bright	9.1	104	0.33	0.09	10.1	80	-70	7.9	-	-	-	-	-	NAF
BWM_EIS-15_114.68-115.12	Coal	Fresh	Coal, 40-60% bright; minor siltstone	9.3	103	0.3	0.059	9.2	76	-67	8.2	-	-	-	-	-	NAF
BWM_EIS-15_115.12-115.27	Gp3	Fresh	Carbonaceous Siltstone, coaly	9.3	272	0.25	0.101	7.7	86	-79	11	-	-	-	-	-	NAF
BWM_EIS-15_115.27-115.46	Gp2	Fresh	Siltstone; abundant carbonaceous wisps	9.5	300	0.1	0.047	3.1	24	-20	7.7	-	-	-	-	-	NAF
BWM_EIS-15_115.64-115.94	Gp2	Fresh	Siltstone; abundant carbonaceous traces throughout	9.5	326	0.04	0.027	1.2	28	-27	23	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 12 kg H2SO4/t; % ANC readily avail. = 43%; Likely carb. mineral = Fe-dol													
BWM_EIS-15_116.69-116.79	Gp3	Fresh	Carbonaceous Siltstone; common siltstone laminae throughout	8.5	264	1.5	1.13	45.9	89	-43	1.9	9.2	<0.1	<0.1	-	-	NAF-S
BWM_EIS-15_117.14-117.43	Coal	Fresh	Coal, <10% bright; trace siltstone	8.9	159	0.47	0.224	14.4	12	2	0.8	-	-	-	3.4	<0.1	PAF-LC
BWM_EIS-15_117.43-117.63	Coal	Fresh	Coal, <10% bright	8.6	105	0.32	0.124	9.8	11	-1	1.1	-	-	-	3.7	<0.1	PAF-LC
BWM_EIS-15_118.02-118.18	Coal	Fresh	Coal, undifferentiated	7.7	96	0.51	0.287	15.6	10	5	0.7	-	-	-	3.2	1.9	PAF-LC
BWM_EIS-15_118.42-118.68	Coal	Fresh	Coal, undifferentiated	8.8	135	0.33	0.178	10.1	10	0	1.0	-	-	-	3.5	<0.1	PAF-LC
BWM_EIS-15_119.18-119.68	Coal	Fresh	Coal, 40-60% bright	8.7	63	0.39	0.152	11.9	11	1	1.0	-	-	-	4	<0.1	PAF-LC
BWM_EIS-15_119.86-120.19	Gp3	Fresh	Carbonaceous Siltstone	9.3	201	0.24	0.201	7.4	18	-11	2.5	5.7	<0.1	3.2	-	-	NAF
				ABCC ANC@pH4.5 = 4 kg H2SO4/t; % ANC readily avail. = 23%; Likely carb. mineral = Sid. + Fe-dol.													

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-15_120.43-120.8m	Coal	Fresh	Coal, 10-40% bright	8.8	127	0.35	0.129	10.7	12	-1	1.1	-	-	-	3.8	<0.1	PAF-LC
BWM_EIS-15_121.89-121.93	Gp3	Fresh	Carbonaceous Siltstone; pyritic	6.4	1260	1.59	1.15	48.7	24	25	0.5	5.0	<0.1	10.2	-	-	UC(PAF)
				ABCC ANC@pH4.5 = 4 kg H2SO4/t; % ANC readily avail. = 15%; Likely carb. mineral = Siderite												
BWM_EIS-15_122.79-123.12	Coal	Fresh	Coal, 40-60% bright	8.6	85	0.44	0.074	13.5	8	5	0.6	-	-	-	2.8	3.1	PAF-LC
BWM_EIS-15_123.12-123.25	Gp2	Fresh	Sandstone, fine-medium; common carbonaceous siltstone laminae	8.8	332	1.84	1.67	56.4	13	44	0.2	2.6	45.6	57.6	-	-	PAF
BWM_EIS-15_123.25-123.41	Gp2	Fresh	Sandstone, fine	9	298	0.18	0.15	5.5	12	-7	2.2	2.7	12	20.2	-	-	UC(PAF)
BWM_EIS-15_123.89-123.97	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae	9.3	285	0.09	0.033	2.8	16	-13	5.8	-	-	-	-	-	NAF
BWM_EIS-15_125.34-125.49	Gp2	Fresh	Sandstone, medium	9.7	366	0.01	0.022	0.3	65	-65	214	-	-	-	-	-	NAF
BWM_EIS-15_126.91-127.06	Gp2	Fresh	Sandstone, medium; rare carbonaceous traces	9.7	349	0.01	0.024	0.3	60	-59	194	-	-	-	-	-	NAF
BWM_EIS-15_128.5-128.6m	Gp2	Fresh	Sandstone, medium; common carbonaceous traces near top of unit	9.7	342	0.02	0.022	0.6	59	-58	96	-	-	-	-	-	NAF
BWM_EIS-17_0.57-1.08m	Gp1	Extremely	Clay	8.0	1020	0.02	0.011	0.6	19	-18	31	-	-	-	-	-	NAF
BWM_EIS-17_1.08-2.48m	Gp1	Extremely	Silt; clayey bands	5.8	990	0.03	0.011	0.9	7	-6	7.4	-	-	-	-	-	NAF
BWM_EIS-17_2.48-4m	Gp1	Extremely	Silt	5.6	710	0.02	0.013	0.6	9	-8	15	-	-	-	-	-	NAF
BWM_EIS-17_4-5.53m	Gp1	Extremely	Silt	6.6	682	<0.01	0.011	0.2	12	-11	76	-	-	-	-	-	NAF
BWM_EIS-17_5.53-7.5m	Gp1	Distinctly	Silt	8.8	707	<0.01	0.013	0.2	44	-44	290	-	-	-	-	-	NAF
BWM_EIS-17_7.5-9.49m	Gp1	Distinctly	Silt	9.0	706	<0.01	0.008	0.2	81	-81	528	-	-	-	-	-	NAF
BWM_EIS-17_9.49-10.8m	Gp1	Distinctly	Silt; clayey bands	9.0	570	<0.01	0.01	0.2	34	-34	225	-	-	-	-	-	NAF
BWM_EIS-17_10.8-13m	Gp1	Distinctly	Silt	8.9	580	0.01	0.013	0.3	22	-22	72	-	-	-	-	-	NAF
BWM_EIS-17_13-15.5m	Gp1	Distinctly	Siltstone; soft	9.0	567	<0.01	<0.005	0.2	26	-25	167	-	-	-	-	-	NAF
BWM_EIS-17_15.5-17.9m	Gp1	Weathered	Sandstone, fine	9.0	559	0.01	0.009	0.3	39	-38	126	-	-	-	-	-	NAF
BWM_EIS-17_17.9-18.75m	Gp1	Weathered	Siltstone	9.1	527	0.01	0.01	0.3	45	-44	146	-	-	-	-	-	NAF
BWM_EIS-17_18.75-19.38m	Gp1	Weathered	Sandstone, fine	9.2	488	<0.01	0.017	0.2	31	-31	203	-	-	-	-	-	NAF
BWM_EIS-17_19.38-20m	Gp1	Weathered	Sandstone, fine; silty bands in part	9.1	496	0.02	0.012	0.6	38	-37	61	-	-	-	-	-	NAF
BWM_EIS-17_20-21.52m	Gp1	Slightly	Sandstone, fine; silty bands	9.2	529	0.03	0.025	0.9	32	-31	35	-	-	-	-	-	NAF
BWM_EIS-17_21.52-23m	Gp2	Fresh	Sandstone, fine	9.3	483	0.02	0.02	0.6	75	-75	123	-	-	-	-	-	NAF
BWM_EIS-17_23-24.12m	Gp2	Fresh	Sandstone, fine; lithic in part	9.2	474	0.02	0.017	0.6	47	-46	76	-	-	-	-	-	NAF
BWM_EIS-17_24.12-24.91m	Gp2	Fresh	Sandstone, fine-medium	9.1	515	0.03	0.017	0.9	65	-64	71	-	-	-	-	-	NAF
BWM_EIS-17_24.91-26.45m	Gp2	Fresh	Siltstone	9.2	536	0.05	0.04	1.5	32	-31	21	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 13 kg H2SO4/t; % ANC readily avail. = 40%; Likely carb. mineral = Fe-dol												
BWM_EIS-17_26.45-27.52m	Gp2	Fresh	Siltstone; minor sandstone	9.1	488	0.03	0.02	0.9	23	-22	24	-	-	-	-	-	NAF
BWM_EIS-17_27.52-28.77m	Gp2	Fresh	Siltstone; sub angular	9.3	471	0.02	0.023	0.6	40	-40	66	-	-	-	-	-	NAF
BWM_EIS-17_28.77-30.54m	Gp2	Fresh	Sandstone, fine	9.2	444	0.02	0.02	0.6	43	-42	70	-	-	-	-	-	NAF
BWM_EIS-17_30.54-32.28m	Gp2	Fresh	Siltstone	9.4	442	0.02	0.021	0.6	20	-19	33	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 6 kg H2SO4/t; % ANC readily avail. = 32%; Likely carb. mineral = Fe-dol												
BWM_EIS-17_32.28-33.93m	Gp2	Fresh	Siltstone; sub angular	9.4	456	0.02	0.028	0.6	63	-62	103	-	-	-	-	-	NAF
BWM_EIS-17_33.93-35.27m	Gp2	Fresh	Sandstone, fine-medium; lithic	9.3	411	0.07	0.063	2.1	142	-140	66	-	-	-	-	-	NAF
BWM_EIS-17_35.27-37m	Gp2	Fresh	Sandstone, fine; silty bands	9.2	442	0.03	0.031	0.9	66	-65	71	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 53 kg H2SO4/t; % ANC readily avail. = 81%; Likely carb. mineral = Dol. + minor Fe-dol.												
BWM_EIS-17_37-38.94m	Gp2	Fresh	Sandstone, fine; lithic	9.5	405	0.01	0.024	0.3	71	-70	231	-	-	-	-	-	NAF
BWM_EIS-17_38.94-40.12m	Gp2	Fresh	Siltstone; with Sandstone, fine	9.4	402	0.02	0.018	0.6	36	-35	58	-	-	-	-	-	NAF
BWM_EIS-17_40.12-41.8m	Gp2	Fresh	Siltstone	9.5	376	0.02	0.031	0.6	23	-22	38	-	-	-	-	-	NAF
BWM_EIS-17_41.8-44.2m	Gp2	Fresh	Sandstone, fine; silty laminae throughout	9.4	393	0.02	0.021	0.6	37	-36	60	-	-	-	-	-	NAF
BWM_EIS-17_44.2-46.35m	Gp2	Fresh	Sandstone, fine; silty laminae in part	9.4	381	0.01	0.028	0.3	54	-54	176	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 33 kg H2SO4/t; % ANC readily avail. = 61%; Likely carb. mineral = Fe-dol + Dol.												

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-17_46.35-46.6m	Gp2	Fresh	Siltstone	9.4	365	0.03	0.041	0.9	23	-22	25	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 7 kg H2SO4/t; % ANC readily avail. = 29%; Likely carb. mineral = Fe-dol + Sid.												
BWM_EIS-17_46.6-47.8m	Gp2	Fresh	Siltstone; sub angular laminae	9.4	393	0.04	0.032	1.2	26	-25	21	-	-	-	-	-	NAF
BWM_EIS-17_47.8-49.38m	Gp2	Fresh	Siltstone; sub angular laminae	9.4	389	0.04	0.036	1.2	30	-29	25	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 10 kg H2SO4/t; % ANC readily avail. = 33%; Likely carb. mineral = Fe-dol + Sid.												
BWM_EIS-17_49.38-51.56m	Gp2	Fresh	Siltstone; sub angular near top of unit	9.5	397	0.03	0.027	0.9	42	-41	46	-	-	-	-	-	NAF
BWM_EIS-17_51.56-53.4m	Gp2	Fresh	Siltstone; sub angular in part	9.5	381	0.02	0.033	0.6	23	-22	37	-	-	-	-	-	NAF
BWM_EIS-17_53.4-55.5m	Gp2	Fresh	Sandstone, fine; lithic	9.6	341	0.02	0.024	0.6	57	-57	94	-	-	-	-	-	NAF
BWM_EIS-17_55.5-57.58m	Gp2	Fresh	Sandstone, fine; part silty	9.6	333	0.01	0.016	0.3	86	-86	281	-	-	-	-	-	NAF
BWM_EIS-17_57.58-58.8m	Gp2	Fresh	Siltstone; sub angular in part	9.5	355	0.03	0.029	0.9	28	-27	30	-	-	-	-	-	NAF
BWM_EIS-17_58.8-60.76m	Gp2	Fresh	Sandstone, very fine	9.5	369	0.01	0.022	0.3	77	-76	251	-	-	-	-	-	NAF
BWM_EIS-17_60.76-61.21m	Gp2	Fresh	Sandstone, fine; pyritic nodules; part carbonaceous	9.4	349	0.02	0.021	0.6	52	-51	84	-	-	-	-	-	NAF
BWM_EIS-17_61.21-62.72m	Gp2	Fresh	Siltstone	9.4	388	0.02	0.014	0.6	25	-24	41	-	-	-	-	-	NAF
BWM_EIS-17_62.72-64.77m	Gp2	Fresh	Siltstone; sideritic nodules near top of unit sub angular	9.4	385	0.02	0.014	0.6	43	-42	70	-	-	-	-	-	NAF
BWM_EIS-17_64.77-67.03m	Gp2	Fresh	Siltstone; sub angular in part	9.5	390	0.02	0.017	0.6	79	-78	129	-	-	-	-	-	NAF
BWM_EIS-17_67.03-68.94m	Gp2	Fresh	Siltstone; cobbles in part	9.5	361	0.03	0.025	0.9	42	-41	46	-	-	-	-	-	NAF
BWM_EIS-17_68.94-69.91m	Gp2	Fresh	Sandstone, very fine; silty bands near middle of unit	9.5	345	0.02	0.02	0.6	91	-90	148	-	-	-	-	-	NAF
BWM_EIS-17_69.91-71.92m	Gp2	Fresh	Sandstone, fine-medium; lithic	9.5	320	0.01	0.015	0.3	162	-162	529	-	-	-	-	-	NAF
BWM_EIS-17_71.92-73.59m	Gp2	Fresh	Sandstone, fine-medium; lithic	9.4	312	0.01	0.016	0.3	84	-83	273	-	-	-	-	-	NAF
BWM_EIS-17_73.59-74.15m	Gp3	Fresh	Carbonaceous Siltstone	9.3	396	0.05	0.031	1.5	30	-28	19	-	-	-	-	-	NAF
BWM_EIS-17_74.15-75.64m	Gp2	Fresh	Siltstone; some sandstone and siderite	9.3	412	0.07	0.051	2.1	51	-48	24	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 23 kg H2SO4/t; % ANC readily avail. = 46%; Likely carb. mineral = Fe-dol. + minor Sid.												
BWM_EIS-17_75.64-77.08m	Gp2	Fresh	Siltstone; with Sandstone, medium	9.4	377	0.03	0.022	0.9	65	-64	70	-	-	-	-	-	NAF
BWM_EIS-17_77.08-78.21m	Gp2	Fresh	Siltstone; sideritic	9.3	369	0.02	0.021	0.6	42	-41	68	-	-	-	-	-	NAF
BWM_EIS-17_78.21-79.86m	Gp2	Fresh	Sandstone, fine and siltstone; part sideritic	9.5	369	0.02	0.016	0.6	93	-92	151	-	-	-	-	-	NAF
BWM_EIS-17_79.86-81.14m	Gp2	Fresh	Sandstone, fine-medium; part silty; part sideritic	9.4	372	0.02	0.017	0.6	105	-104	171	-	-	-	-	-	NAF
BWM_EIS-17_81.14-83.13m	Gp2	Fresh	Siltstone; and Sandstone, very fine	9.4	362	0.02	0.024	0.6	55	-54	90	-	-	-	-	-	NAF
BWM_EIS-17_83.13-85.2m	Gp2	Fresh	Sandstone, very fine; silty laminae throughout	9.3	373	0.03	0.021	0.9	61	-60	67	-	-	-	-	-	NAF
BWM_EIS-17_85.2-87.62m	Gp2	Fresh	Sandstone, fine; silty	9.5	372	0.03	0.025	0.9	90	-89	98	-	-	-	-	-	NAF
BWM_EIS-17_87.62-89.65m	Gp2	Fresh	Siltstone; minor sandstone; trace siderite	9.4	375	0.03	0.03	0.9	47	-46	51	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 25 kg H2SO4/t; % ANC readily avail. = 53%; Likely carb. mineral = Fe-dol												
BWM_EIS-17_89.65-91.29m	Gp2	Fresh	Sandstone, fine; lithic silty bands in part	9.5	359	0.02	0.023	0.6	116	-115	189	-	-	-	-	-	NAF
BWM_EIS-17_91.29-93.04m	Gp2	Fresh	Sandstone, fine; silty laminae throughout	9.2	366	0.01	0.016	0.3	64	-64	209	-	-	-	-	-	NAF
BWM_EIS-17_93.04-94.52m	Gp2	Fresh	Sandstone, fine; silty throughout; minor siderite	9.2	375	0.02	0.017	0.6	45	-45	74	-	-	-	-	-	NAF
BWM_EIS-17_94.52-96.49m	Gp2	Fresh	Siltstone, sideritic	9.4	397	0.04	0.025	1.2	59	-58	48	-	-	-	-	-	NAF
BWM_EIS-17_96.49-97.85m	Gp2	Fresh	Siltstone, sideritic	9.4	414	0.04	0.031	1.2	58	-56	47	-	-	-	-	-	NAF
BWM_EIS-17_97.85-99.54m	Gp2	Fresh	Sandstone, fine; pebbly bands sporadic	9.6	392	0.04	0.02	1.2	126	-125	103	-	-	-	-	-	NAF
BWM_EIS-17_99.54-100.24n	Gp2	Fresh	Sandstone, fine; minor pebbles; minor siderite	9.6	394	0.03	0.017	0.9	135	-134	147	-	-	-	-	-	NAF
BWM_EIS-17_100.24-100.46	Gp2	Fresh	Sandstone, fine; minor pebbles; minor siderite	9.5	431	0.13	0.097	4.0	180	-176	45	-	-	-	-	-	NAF
BWM_EIS-17_100.46-101.24	Coal	Fresh	Coal	8.1	499	0.8	0.413	24.5	114	-90	4.7	11.1	<0.1	<0.1	-	-	NAF
BWM_EIS-17_101.35-101.65	Gp3	Fresh	Carbonaceous Mudstone	9.4	608	0.21	0.096	6.4	30	-23	4.6	8.4	<0.1	<0.1	-	-	NAF
BWM_EIS-17_101.65-102.47	Gp3	Fresh	Carbonaceous Shale	9.2	604	0.46	0.35	14.1	25	-11	1.8	7.2	<0.1	<0.1	-	-	NAF
				ABCC ANC@pH4.5 = 4 kg H2SO4/t; % ANC readily avail. = 18%; Likely carb. mineral = Siderite												
BWM_EIS-17_102.47-102.93	Gp2	Fresh	Siltstone, sideritic	9.6	453	0.05	0.021	1.5	30	-29	20	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-17_102.93-104.34	Gp2	Fresh	Sandstone, fine, partly sideritic	9.6	474	0.06	0.028	1.8	82	-80	44	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 63 kg H2SO4/t; % ANC readily avail. = 77%; Likely carb. mineral = Fe-dol + Dol.												
BWM_EIS-17_104.34-105.9m	Gp2	Fresh	Sandstone, fine-medium; lithic	9.6	455	0.06	0.026	1.8	122	-120	66	-	-	-	-	-	NAF
BWM_EIS-17_105.9-108.51m	Gp2	Fresh	Siltstone; minor cobbles; minor siderite	9.6	485	0.09	0.063	2.8	61	-59	22	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 40 kg H2SO4/t; % ANC readily avail. = 66%; Likely carb. mineral = Fe-dol												
BWM_EIS-17_108.51-109.43	Gp2	Fresh	Sandstone, very fine; silty throughout sideritic in part	9.7	452	0.06	0.033	1.8	89	-87	48	-	-	-	-	-	NAF
BWM_EIS-17_109.43-110.76	Gp2	Fresh	Siltstone; trace siderite	9.6	461	0.05	0.036	1.5	63	-62	41	-	-	-	-	-	NAF
BWM_EIS-17_110.76-113.06	Gp2	Fresh	Sandstone, very fine; coarser bands throughout; partly sideritic	9.7	457	0.07	0.041	2.1	89	-87	42	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 72 kg H2SO4/t; % ANC readily avail. = 80%; Likely carb. mineral = Dol. + Fe-dol.												
BWM_EIS-17_113.06-115.82	Gp2	Fresh	Sandstone, very fine; sideritic; minor coaly wisps	9.7	436	0.06	0.039	1.8	97	-95	53	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 83 kg H2SO4/t; % ANC readily avail. = 86%; Likely carb. mineral = Dol. + minor Fe-dol.												
BWM_EIS-17_115.82-116.19	Gp2	Fresh	Sandstone, fine-medium; coaly wisps near base of unit sideritic	9.5	457	0.04	0.02	1.2	231	-230	189	-	-	-	-	-	NAF
BWM_EIS-17_116.19-117.75	Coal	Fresh	Coal	9.5	244	0.32	0.02	9.8	25	-15	2.6	7.3	<0.1	<0.1	-	-	NAF
BWM_EIS-17_117.83-118.34	Gp2	Fresh	Siltstone; carbonaceous throughout	9.5	460	0.07	0.019	2.1	35	-32	16	-	-	-	-	-	NAF
BWM_EIS-17_118.34-118.77	Gp3	Fresh	Carbonaceous Siltstone; sparse disseminated bands throughout	9.6	372	0.07	0.024	2.1	16	-14	7.6	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 4 kg H2SO4/t; % ANC readily avail. = 26%; Likely carb. mineral = Sid. + Fe-dol.												
BWM_EIS-17_118.77-119.52	Coal	Fresh	Coal, 10-40% bright	9.1	105	0.26	0.009	8.0	9	-1	1.2	-	-	-	2.9	1.4	PAF-LC
BWM_EIS-17_119.52-121.06	Coal	Fresh	Coal, 40-60% bright; trace siltstone	8.4	96	0.22	0.01	6.7	10	-4	1.5	-	-	-	3.7	<0.1	PAF-LC
BWM_EIS-17_121.06-122.4m	Coal	Fresh	Coal	8.4	105	0.17	0.018	5.2	16	-11	3.1	-	-	-	7	<0.1	NAF
BWM_EIS-17_122.52-123.35	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	9.6	472	0.02	0.016	0.6	91	-90	148	-	-	-	-	-	NAF
BWM_EIS-17_123.35-123.77	Gp2	Fresh	Siltstone; coarser bands near top of unit	9.6	428	0.02	0.02	0.6	116	-115	189	-	-	-	-	-	NAF
BWM_EIS-17_123.77-124.22	Gp3	Fresh	Carbonaceous Siltstone	9.5	412	0.12	0.091	3.7	23	-20	6.3	-	-	-	-	-	NAF
BWM_EIS-17_124.22-125.81	Gp2	Fresh	Sandstone, very fine; coarser bands	9.8	408	0.02	0.019	0.6	56	-55	91	-	-	-	-	-	NAF
BWM_EIS-17_125.81-126.03	Gp3	Fresh	Carbonaceous Siltstone	9.4	330	0.19	0.122	5.8	20	-15	3.5	7.5	<0.1	<0.1	-		NAF
				ABCC ANC@pH4.5 = 3 kg H2SO4/t; % ANC readily avail. = 16%; Likely carb. mineral = Siderite												
BWM_EIS-17_126.03-126.8m	Coal	Fresh	Coal, 40-60% bright	9.2	115	0.29	0.02	8.9	10	-1	1.1	-	-	-	6.5	<0.1	NAF
BWM_EIS-17_126.8-128.72m	Coal	Fresh	Coal, 60-90% bright	8.7	89	0.26	0.023	8.0	13	-5	1.7	8.5	<0.1	<0.1	-	-	NAF
BWM_EIS-17_128.82-128.94	Gp3	Fresh	Carbonaceous Siltstone; coaly bands throughout	9.7	267	0.13	0.026	4.0	14	-10	3.4	4.4	0.4	11.4	-	-	UC(NAF)
BWM_EIS-17_128.94-130.05	Gp2	Fresh	Siltstone; part coaly and carbonaceous	9.7	297	0.03	0.011	0.9	13	-12	14	-	-	-	-	-	NAF
BWM_EIS-17_130.05-131.42	Gp2	Fresh	Siltstone	9.7	324	0.02	0.014	0.6	18	-17	29	-	-	-	-	-	NAF
BWM_EIS-17_131.42-132.33	Gp2	Fresh	Siltstone; sideritic	9.6	458	0.02	0.015	0.6	46	-46	75	-	-	-	-	-	NAF
BWM_EIS-17_132.33-133.84	Gp2	Fresh	Sandstone, fine	9.8	508	0.02	0.016	0.6	121	-120	198	-	-	-	-	-	NAF
BWM_EIS-17_133.84-135.83	Gp2	Fresh	Sandstone, very fine	9.9	492	0.03	0.019	0.9	68	-67	74	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 50 kg H2SO4/t; % ANC readily avail. = 73%; Likely carb. mineral = Dol. + Fe-dol.												
BWM_EIS-17_135.83-138.34	Gp2	Fresh	Sandstone, very fine	9.8	473	0.02	0.017	0.6	42	-41	68	-	-	-	-	-	NAF
BWM_EIS-17_138.34-140.28	Gp2	Fresh	Sandstone, very fine	9.9	461	0.02	0.021	0.6	39	-38	64	-	-	-	-	-	NAF
BWM_EIS-17_140.28-142.33	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	9.9	468	0.02	0.016	0.6	77	-76	125	-	-	-	-	-	NAF
BWM_EIS-17_142.33-144.35	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	9.8	478	0.02	0.015	0.6	74	-74	121	-	-	-	-	-	NAF
BWM_EIS-17_144.35-146.47	Gp2	Fresh	Sandstone, medium; sideritic bands	9.8	457	0.03	0.017	0.9	85	-84	92	-	-	-	-	-	NAF
BWM_EIS-17_146.47-148.97	Gp2	Fresh	Sandstone, very fine	9.8	482	0.06	0.036	1.8	35	-33	19	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 19 kg H2SO4/t; % ANC readily avail. = 54%; Likely carb. mineral = Fe-dol												
BWM_EIS-17_148.97-151.08	Gp2	Fresh	Sandstone, very fine; trace siderite	9.9	466	0.03	0.018	0.9	47	-46	51	-	-	-	-	-	NAF
BWM_EIS-17_151.08-151.94	Gp2	Fresh	Sandstone, fine; common finer bands	9.8	488	0.03	0.021	0.9	74	-73	81	-	-	-	-	-	NAF
BWM_EIS-17_151.94-154.29	Gp2	Fresh	Sandstone, very fine; sideritic	9.8	500	0.04	0.024	1.2	48	-47	39	-	-	-	-	-	NAF
BWM_EIS-17_154.29-156.53	Gp2	Fresh	Sandstone, very fine; trace siderite	9.8	495	0.03	0.021	0.9	52	-51	56	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM_EIS-17_156.53-157.06	Gp2	Fresh	Sandstone, very fine; coarser near base of unit	9.9	469	0.03	0.02	0.9	24	-23	26	-	-	-	-	-	NAF
BWM_EIS-17_157.06-157.44	Coal	Fresh	Coal, 40-60% bright; trace siltstone	9.8	220	0.32	0.085	9.8	16	-7	1.7	8.1	<0.1	<0.1	-	-	UC(NAF)
BWM_EIS-17_157.54-157.98	Gp2	Fresh	Sandstone, fine; finer bands	9.8	420	0.03	0.014	0.9	20	-19	22	-	-	-	-	-	NAF
BWM_EIS-17_157.98-158.22	Coal	Fresh	Coal, 40-60% bright; trace siltstone	9.8	336	0.22	0.078	6.7	24	-18	3.6	9.1	<0.1	<0.1	-	-	NAF
BWM_EIS-17_158.22-159.74	Coal	Fresh	Coal; trace siltstone	8.5	94	0.25	0.038	7.7	8	0	1.1	-	-	-	6.2	<0.1	NAF
BWM_EIS-17_159.74-160.75	Coal	Fresh	Coal; trace siltstone	9.0	103	0.21	0.018	6.4	7	-1	1.2	-	-	-	6.7	<0.1	NAF
BWM_EIS-17_160.76-161m	Coal	Fresh	Coal, <10% bright	9.6	210	0.11	0.016	3.4	10	-6	2.8	-	-	-	6.2	1	NAF
BWM_EIS-17_161-161.64m	Gp2	Fresh	Sandstone, medium-coarse; finer bands near base of unit	9.9	293	0.02	0.013	0.6	14	-13	23	-	-	-	-	-	NAF
BWM_EIS-17_161.64-163.2n	Gp2	Fresh	Sandstone, medium-coarse; finer bands near top of unit	9.9	497	0.02	0.017	0.6	60	-60	98	-	-	-	-	-	NAF
BWM_EIS-17_163.2-163.96n	Gp2	Fresh	Sandstone, medium-coarse; coaly near base of unit	9.9	501	0.02	0.017	0.6	77	-76	125	-	-	-	-	-	NAF
BWM_EIS-17_163.96-165.82	Gp2	Fresh	Sandstone, medium-coarse; pebbly near top of unit	10.0	494	0.01	0.012	0.3	85	-84	276	-	-	-	-	-	NAF
BWM_EIS-17_165.82-165.99	Gp3	Fresh	Tuff; and Coal	10.2	475	0.07	0.026	2.1	14	-12	6.5	-	-	-	-	-	NAF
BWM_EIS-17_165.99-167.25	Gp2	Fresh	Sandstone, medium; calcareous veins fractures	10.0	455	0.02	0.015	0.6	52	-51	85	-	-	-	-	-	NAF
BWM-EIS19_0-1.42m	Gp1	Extremely	Sand; clayey throughout	6.6	1210	0.02	0.012	0.6	12	-11	20	-	-	-	-	-	NAF
BWM-EIS19_1.55-3.1m	Gp1	Extremely	Clay; sub angular throughout	8.3	1670	0.05	0.014	1.5	32	-31	21	-	-	-	-	-	NAF
BWM-EIS19_3.1-4.5m	Gp1	Weathered	Sandstone, fine; clayey throughout	7.6	816	<0.01	0.012	0.2	13	-13	88	-	-	-	-	-	NAF
BWM-EIS19_4.5-6.14m	Gp1	Weathered	Sandstone, fine; clayey throughout	8.9	911	<0.01	0.01	0.2	48	-48	315	-	-	-	-	-	NAF
BWM-EIS19_6.14-8.08m	Gp1	Weathered	Sandstone, fine-medium	8.9	654	<0.01	0.009	0.2	74	-73	481	-	-	-	-	-	NAF
BWM-EIS19_8.08-9.04m	Gp1	Weathered	Sandstone, very fine; clayey in part	9.2	691	<0.01	0.009	0.2	78	-78	512	-	-	-	-	-	NAF
BWM-EIS19_9.07-9.3m	Gp1	Weathered	Claystone	9.1	711	<0.01	0.013	0.2	51	-51	334	-	-	-	-	-	NAF
BWM-EIS19_9.3-11.1m	Gp1	Weathered	Sandstone, fine-medium	9.0	606	<0.01	0.007	0.2	31	-31	201	-	-	-	-	-	NAF
BWM-EIS19_11.1-12.61m	Gp1	Weathered	Sandstone, fine-medium; sparse disseminated bands throughout	9.0	611	<0.01	0.012	0.2	20	-19	128	-	-	-	-	-	NAF
BWM-EIS19_12.61-13.92m	Gp1	Weathered	Sandstone, fine; sparse disseminated in part	8.4	413	<0.01	0.009	0.2	18	-18	120	-	-	-	-	-	NAF
BWM-EIS19_13.92-15.08m	Gp1	Weathered	Sandstone, medium; finer bands near top of unit	9.0	567	<0.01	0.012	0.2	45	-45	295	-	-	-	-	-	NAF
BWM-EIS19_15.08-17.13m	Gp1	Weathered	Sandstone, fine-medium	9.1	652	<0.01	0.01	0.2	67	-67	437	-	-	-	-	-	NAF
BWM-EIS19_17.13-19.1m	Gp1	Weathered	Sandstone, fine; finer bands in part calcareous	9.0	596	<0.01	0.009	0.2	35	-35	227	-	-	-	-	-	NAF
BWM-EIS19_19.1-21.13m	Gp1	Weathered	Sandstone, fine-medium	9.0	581	<0.01	0.008	0.2	41	-40	264	-	-	-	-	-	NAF
BWM-EIS19_21.14-23.29m	Gp1	Slightly	Sandstone, fine; sparse disseminated bands in part	9.0	595	0.01	0.008	0.3	24	-23	77	-	-	-	-	-	NAF
BWM-EIS19_23.29-24.53m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	9.4	577	0.02	0.017	0.6	39	-38	63	-	-	-	-	-	NAF
BWM-EIS19_24.53-26.1m	Gp2	Fresh	Sandstone, fine; trace carbonaceous	9.3	471	0.03	0.025	0.9	38	-37	42	-	-	-	-	-	NAF
BWM-EIS19_26.1-27.12m	Gp2	Fresh	Sandstone, fine-medium; coaly bands near base of unit	9.4	415	0.02	0.016	0.6	77	-76	125	-	-	-	-	-	NAF
BWM-EIS19_27.14-28.59m	Gp2	Fresh	Sandstone, medium; coaly near top of unit; minor calcareous veins	9.3	432	0.04	0.032	1.2	32	-31	26	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 39 kg H2SO4/t; % ANC readily avail. = >100%; Likely carb. mineral = Fe-dol.													
BWM-EIS19_28.59-30.12m	Gp2	Fresh	Sandstone, medium	9.2	424	0.13	0.021	4.0	159	-155	40	-	-	-	-	-	NAF
BWM-EIS19_30.14-31.6m	Gp2	Fresh	Sandstone, fine; carbonaceous bands in part	9.1	450	0.12	0.023	3.7	35	-31	9.5	-	-	-	-	-	NAF
BWM-EIS19_31.6-33.14m	Gp2	Fresh	Sandstone, fine; sparse disseminated bands throughout	9.3	432	0.03	0.027	0.9	32	-31	35	-	-	-	-	-	NAF
BWM-EIS19_33.14-33.63m	Gp2	Fresh	Siltstone; sandy bands in part	9.4	376	0.02	0.021	0.6	23	-23	38	-	-	-	-	-	NAF
BWM-EIS19_33.63-35.15m	Gp2	Fresh	Sandstone, fine; calcareous finer bands	9.3	375	0.02	0.019	0.6	27	-27	45	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 6 kg H2SO4/t; % ANC readily avail. = 23%; Likely carb. mineral = Sid. + Fe-dol.													
BWM-EIS19_35.15-36.67m	Gp2	Fresh	Sandstone, fine-medium; finer bands near top of unit	9.4	396	0.02	0.018	0.6	51	-50	83	-	-	-	-	-	NAF
BWM-EIS19_36.67-38.1m	Gp2	Fresh	Sandstone, medium-coarse; coaly wisps near base of unit calcareous	9.4	366	0.03	0.026	0.9	91	-90	99	-	-	-	-	-	NAF
BWM-EIS19_38.1-38.73m	Gp2	Fresh	Sandstone, very fine; medium-coarse at base; partly carbonaceous	9.4	377	0.01	0.014	0.3	48	-47	156	-	-	-	-	-	NAF
BWM-EIS19_38.73-39.45m	Gp2	Fresh	Sandstone, very fine; carbonaceous near base of unit	9.4	418	0.02	0.018	0.6	69	-68	112	-	-	-	-	-	NAF
BWM-EIS19_39.45-41.29m	Gp2	Fresh	Sandstone, fine-medium; finer bands in part	9.4	420	0.02	0.02	0.6	66	-65	107	-	-	-	-	-	NAF
BWM-EIS19_41.29-42.67m	Gp2	Fresh	Sandstone, fine-medium; finer in part	9.4	407	0.02	0.017	0.6	123	-122	201	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM-EIS19_42.67-44.19m	Gp2	Fresh	Sandstone, very fine; minor siltstone	9.4	394	0.02	0.012	0.6	33	-32	53	-	-	-	-	-	NAF
BWM-EIS19_44.19-45.18m	Gp2	Fresh	Sandstone, fine-medium; sparse disseminated bands in part	9.5	413	0.02	0.022	0.6	130	-129	212	-	-	-	-	-	NAF
BWM-EIS19_45.18-46.8m	Gp2	Fresh	Siltstone; minor sandstone	9.3	408	0.01	0.01	0.3	45	-44	146	-	-	-	-	-	NAF
BWM-EIS19_46.8-48.15m	Gp2	Fresh	Sandstone, fine; finer bands throughout	9.5	357	<0.01	0.014	0.2	41	-40	264	-	-	-	-	-	NAF
BWM-EIS19_48.16-49.05m	Gp2	Fresh	Sandstone, fine-medium; sparse disseminated in part	9.5	358	0.02	0.018	0.6	68	-68	111	-	-	-	-	-	NAF
BWM-EIS19_49.05-50.37m	Gp2	Fresh	Sandstone, fine-medium; finer bands in part	9.5	366	<0.01	0.012	0.2	81	-80	526	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 67 kg H2SO4/t; % ANC readily avail. = 83%; Likely carb. mineral = Dol. + minor Fe-dol.													
BWM-EIS19_50.37-51.57m	Gp2	Fresh	Sandstone, fine-medium	9.5	358	0.03	0.025	0.9	115	-114	125	-	-	-	-	-	NAF
BWM-EIS19_51.57-52.9m	Gp2	Fresh	Sandstone, fine-medium; sparse disseminated bands throughout	9.5	357	0.02	0.022	0.6	47	-47	77	-	-	-	-	-	NAF
BWM-EIS19_52.9-54.23m	Gp2	Fresh	Sandstone, fine-medium; abundant sparse disseminated bands	9.4	361	0.02	0.022	0.6	46	-45	75	-	-	-	-	-	NAF
BWM-EIS19_54.23-55.56m	Gp2	Fresh	Sandstone, fine; finer bands near base of unit	9.5	369	0.03	0.028	0.9	66	-65	71	-	-	-	-	-	NAF
BWM-EIS19_55.56-57.17m	Gp2	Fresh	Sandstone, fine	9.6	372	0.02	0.015	0.6	52	-52	85	-	-	-	-	-	NAF
BWM-EIS19_57.17-58.41m	Gp2	Fresh	Sandstone, fine; finer bands	9.5	372	0.03	0.027	0.9	54	-53	59	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 38 kg H2SO4/t; % ANC readily avail. = 70%; Likely carb. mineral = Fe-dol, Dol. + Mag.													
BWM-EIS19_58.41-59.16m	Gp2	Fresh	Siltstone; sandy bands near base of unit	9.5	366	0.02	0.021	0.6	29	-29	48	-	-	-	-	-	NAF
BWM-EIS19_59.16-60.78m	Gp2	Fresh	Sandstone, fine; sparse disseminated bands throughout	9.6	362	0.01	0.009	0.3	80	-80	261	-	-	-	-	-	NAF
BWM-EIS19_60.78-62.42m	Gp2	Fresh	Sandstone, fine-medium; calcareous veins; coaly wisps	9.6	366	0.02	0.015	0.6	164	-163	268	-	-	-	-	-	NAF
BWM-EIS19_62.42-64.19m	Gp2	Fresh	Sandstone, medium; calcareous	9.6	365	0.05	0.019	1.5	141	-139	92	-	-	-	-	-	NAF
BWM-EIS19_64.19-64.64m	Gp2	Fresh	Sandstone, medium; partly sideritic	9.4	372	0.1	0.075	3.1	97	-94	32	-	-	-	-	-	NAF
BWM-EIS19_64.64-64.89m	Gp2	Fresh	Sandstone, medium; coaly wisps	9.6	348	0.02	0.011	0.6	208	-207	340	-	-	-	-	-	NAF
BWM-EIS19_64.89-66.14m	Gp2	Fresh	Siltstone; abundant calcareous sandstone near base of unit	9.4	387	0.03	0.018	0.9	55	-54	60	-	-	-	-	-	NAF
BWM-EIS19_66.14-67.81m	Gp2	Fresh	Sandstone, fine; finer bands sideritic bands	9.4	397	0.06	0.039	1.8	44	-42	24	-	-	-	-	-	NAF
BWM-EIS19_67.81-69.14m	Gp2	Fresh	Sandstone, fine; finer bands sideritic bands	9.5	353	0.02	0.015	0.6	34	-34	56	-	-	-	-	-	NAF
BWM-EIS19_69.14-70.48m	Gp2	Fresh	Siltstone; sandstone bands near top of unit	9.5	342	0.03	0.024	0.9	42	-41	46	-	-	-	-	-	NAF
BWM-EIS19_70.48-72.09m	Gp2	Fresh	Sandstone, fine-medium	9.5	354	0.04	0.025	1.2	164	-163	134	-	-	-	-	-	NAF
BWM-EIS19_72.22-73.88m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	9.6	350	0.02	0.021	0.6	73	-73	120	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 62 kg H2SO4/t; % ANC readily avail. = 84%; Likely carb. mineral = Dol. + minor Fe-dol.													
BWM-EIS19_73.88-74.71m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	9.5	348	0.02	0.024	0.6	61	-60	99	-	-	-	-	-	NAF
BWM-EIS19_74.71-76.2m	Gp2	Fresh	Sandstone, fine-medium; finer bands sideritic bands	9.4	342	0.04	0.022	1.2	33	-32	27	-	-	-	-	-	NAF
BWM-EIS19_76.2-77.4m	Gp2	Fresh	Sandstone, fine-medium; finer bands sideritic bands	9.4	347	0.04	0.02	1.2	49	-48	40	-	-	-	-	-	NAF
BWM-EIS19_77.4-78.82m	Gp2	Fresh	Sandstone, very fine; coaly near top of unit sideritic bands	9.5	328	0.04	0.025	1.2	32	-31	26	-	-	-	-	-	NAF
BWM-EIS19_78.82-80.25m	Gp2	Fresh	Sandstone, medium; minor siderite; coaly wisps	9.5	332	0.04	0.025	1.2	52	-51	43	-	-	-	-	-	NAF
BWM-EIS19_80.25-81.82m	Gp2	Fresh	Sandstone, very fine; carbonaceous bands sideritic bands	9.6	334	0.05	0.032	1.5	178	-176	116	-	-	-	-	-	NAF
BWM-EIS19_81.82-82.79m	Gp2	Fresh	Sandstone, fine; carbonaceous siltstone bands throughout calcareous	9.4	361	0.06	0.027	1.8	56	-54	30	-	-	-	-	-	NAF
BWM-EIS19_82.79-83.24m	Coal	Fresh	Coal	8.0	257	0.59	0.141	18.1	22	-4	1.2	9.0	<0.1	<0.1	-	-	NAF
BWM-EIS19_83.24-83.52m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	8.9	437	0.45	0.337	13.8	16	-3	1.2	-	-	-	4.2	<0.1	PAF-LC
				ABCC ANC@pH4.5 = 4 kg H2SO4/t; % ANC readily avail. = 26%; Likely carb. mineral = Sid. + Fe-dol.													
BWM-EIS19_83.52-83.84m	Gp2	Fresh	Siltstone; carbonaceous near top of unit calcareous veins	9.2	335	0.09	0.066	2.8	21	-18	7.5	-	-	-	-	-	NAF
BWM-EIS19_83.84-84.24m	Coal	Fresh	Coal, 60-90% bright	8.1	268	0.5	0.114	15.3	27	-12	1.8	9.7	<0.1	<0.1	-	-	NAF
BWM-EIS19_84.24-85.31m	Coal	Fresh	Coal	8.3	255	0.58	0.138	17.8	21	-3	1.2	-	-	-	6	<0.1	NAF
BWM-EIS19_85.54-85.83m	Gp3	Fresh	Carbonaceous Siltstone	9.2	329	0.42	0.124	12.9	34	-21	2.6	7.2	<0.1	<0.1	-	-	NAF
BWM-EIS19_85.83-86.19m	Gp2	Fresh	Sandstone, very fine; sideritic bands near middle of unit	9.5	372	0.1	0.058	3.1	31	-28	10	-	-	-	-	-	NAF
BWM-EIS19_86.19-86.36m	Gp3	Fresh	Carbonaceous Siltstone; coaly wisps near base of unit	9.5	426	0.16	0.1	4.9	23	-18	4.7	8.1	<0.1	<0.1	-	-	NAF
				ABCC ANC@pH4.5 = 8 kg H2SO4/t; % ANC readily avail. = 32%; Likely carb. mineral = Fe-dol + Sid.													
BWM-EIS19_86.36-87.76m	Gp2	Fresh	Sandstone, very fine; calcareous, sideritic; minor carbonaceous	9.6	396	0.06	0.028	1.8	111	-109	60	-	-	-	-	-	NAF

Table B1. Acid-Base Characteristics of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	S	Scr	MPA	ANC	NAPP	ANC/ MPA ratio	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
					µS/cm	%		kg H_2SO_4/t			ratio		kg H_2SO_4/t			kg H_2SO_4/t	
BWM-EIS19_87.76-88.85m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout sideritic	9.6	377	0.05	0.032	1.5	107	-105	70	-	-	-	-	-	NAF
BWM-EIS19_88.85-90.32m	Gp2	Fresh	Sandstone, fine-medium; some carbonaceous siltstone	9.6	358	0.05	0.029	1.5	36	-34	23	-	-	-	-	-	NAF
BWM-EIS19_90.32-91.09m	Gp2	Fresh	Siltstone; carbonaceous near base of unit	9.6	320	0.04	0.025	1.2	19	-17	15	-	-	-	-	-	NAF
BWM-EIS19_91.09-92.04m	Gp2	Fresh	Sandstone, fine; partly calcareous	9.3	308	0.03	0.024	0.9	23	-22	25	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 9 kg H2SO4/t; % ANC readily avail. = 41%; Likely carb. mineral = Fe-dol												
BWM-EIS19_92.04-93.13m	Coal	Fresh	Coal	9.1	145	0.27	0.023	8.3	15	-6	1.8	-	-	-	7	<0.1	NAF
BWM-EIS19_93.13-94.18m	Coal	Fresh	Coal, 60-90% bright	8.2	103	0.28	0.035	8.6	14	-5	1.6	-	-	-	6.4	<0.1	NAF
BWM-EIS19_94.18-95.36m	Coal	Fresh	Coal	8.8	76	0.31	0.014	9.5	12	-2	1.3	-	-	-	6.4	<0.1	NAF
BWM-EIS19_95.36-96.71m	Gp2	Fresh	Sandstone, fine	9.6	366	0.05	0.029	1.5	33	-32	22	-	-	-	-	-	NAF
BWM-EIS19_96.71-98.26m	Gp2	Fresh	Sandstone, very fine; carbonaceous bands coaly wisps	9.6	373	0.03	0.019	0.9	71	-70	77	-	-	-	-	-	NAF
BWM-EIS19_98.26-98.71m	Gp3	Fresh	Carbonaceous Siltstone	9.6	387	0.05	0.017	1.5	26	-25	17	-	-	-	-	-	NAF
BWM-EIS19_98.71-100.15m	Gp2	Fresh	Sandstone, medium; finer bands; trace sideritic & coaly	9.5	365	0.02	0.017	0.6	121	-120	198	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 119 kg H2SO4/t; % ANC readily avail. = 99%; Likely carb. mineral = Calc. + Dol.												
BWM-EIS19_100.15-101.29m	Gp2	Fresh	Sandstone, medium; & Siltstone; sideritic	9.6	370	0.03	0.018	0.9	87	-86	95	-	-	-	-	-	NAF
BWM-EIS19_101.29-102.88m	Gp2	Fresh	Sandstone, medium; finer in part; minor siderite; minor carbonaceous	9.6	371	0.02	0.016	0.6	94	-93	153	-	-	-	-	-	NAF
BWM-EIS19_102.88-103.01m	Gp3	Fresh	Carbonaceous Siltstone	9.5	419	0.18	0.127	5.5	43	-37	7.7	-	-	-	-	-	NAF
BWM-EIS19_103.01-103.73m	Gp2	Fresh	Sandstone, medium; finer bands throughout	9.5	362	0.02	0.024	0.6	194	-193	317	-	-	-	-	-	NAF
BWM-EIS19_103.93-104.2m	Gp2	Fresh	Sandstone, fine-medium; sideritic finer near base of unit	9.5	358	0.03	0.017	0.9	43	-42	46	-	-	-	-	-	NAF
BWM-EIS19_104.2-105.44m	Coal	Fresh	Coal	9.2	131	0.28	0.019	8.6	14	-5	1.6	-	-	-	6.5	<0.1	NAF
BWM-EIS19_105.44-107.25m	Coal	Fresh	Coal	8.6	72	0.25	0.01	7.7	12	-4	1.5	-	-	-	5.1	<0.1	NAF
BWM-EIS19_107.25-108.2m	Coal	Fresh	Coal	9.2	276	0.17	0.138	5.2	20	-15	3.9	5.7	-	-	-	-	NAF
BWM-EIS19_108.2-108.6m	Gp3	Fresh	Carbonaceous Siltstone; sideritic near top of unit	9.3	116	0.27	0.018	8.3	15	-7	1.9	8.2	<0.1	<0.1	-	-	NAF
BWM-EIS19_108.6-109.28m	Gp3	Fresh	Carbonaceous Sandstone	9.5	286	0.04	0.027	1.2	21	-20	17	-	-	-	-	-	NAF
BWM-EIS19_109.28-110.81m	Gp2	Fresh	Sandstone, very fine; calcareous veins throughout	9.6	415	0.04	0.031	1.2	22	-21	18	-	-	-	-	-	NAF
BWM-EIS19_110.81-112.34m	Gp2	Fresh	Sandstone, very fine; carbonaceous in part sideritic bands	9.6	420	0.04	0.024	1.2	42	-41	35	-	-	-	-	-	NAF
BWM-EIS19_112.34-113.69m	Gp2	Fresh	Sandstone, very fine; carbonaceous in part sideritic bands	9.6	413	0.04	0.029	1.2	48	-47	39	-	-	-	-	-	NAF
				ABCC ANC@pH4.5 = 28 kg H2SO4/t; % ANC readily avail. = 59%; Likely carb. mineral = Dol. + Fe-dol.												
BWM-EIS19_113.69-115.17m	Gp2	Fresh	Sandstone, very fine; carbonaceous in part sideritic bands	9.6	449	0.06	0.033	1.8	73	-71	39	-	-	-	-	-	NAF
BWM-EIS19_115.17-116.84m	Gp2	Fresh	Sandstone, very fine; carbonaceous bands sideritic bands	9.7	428	0.04	0.032	1.2	62	-61	51	-	-	-	-	-	NAF
BWM-EIS19_116.84-118.21m	Gp2	Fresh	Sandstone, fine-medium; sparse disseminated bands sideritic bands	9.7	441	0.04	0.037	1.2	66	-65	54	-	-	-	-	-	NAF
BWM-EIS19_118.21-119.71m	Gp2	Fresh	Sandstone, very fine; sparse disseminated bands sideritic bands	9.7	425	0.04	0.03	1.2	35	-34	28	-	-	-	-	-	NAF
BWM-EIS19_119.71-120.91m	Gp2	Fresh	Sandstone, very fine	9.6	444	0.03	0.017	0.9	58	-57	63	-	-	-	-	-	NAF
BWM-EIS19_120.91-121.41m	Gp3	Fresh	Carbonaceous Siltstone; minor coal	9.4	499	0.39	0.313	11.9	26	-14	2.2	8.0	<0.1	<0.1	-	-	NAF
				ABCC ANC@pH4.5 = 12 kg H2SO4/t; % ANC readily avail. = 48%; Likely carb. mineral = Fe-dol												
BWM-EIS19_121.92-123.68m	Coal	Fresh	Coal	9.3	218	0.27	0.045	8.3	32	-23	3.8	-	-	-	-	-	NAF
BWM-EIS19_123.68-124.27m	Gp3	Fresh	Carbonaceous Siltstone	9.7	298	0.07	0.024	2.1	11	-9	5.0	-	-	-	-	-	NAF
BWM-EIS19_124.27-125.05m	Gp2	Fresh	Siltstone; trace carbonaceous	9.7	373	0.04	0.029	1.2	16	-14	13	-	-	-	-	-	NAF
BWM-EIS19_125.05-126.27m	Gp2	Fresh	Siltstone	9.8	389	0.02	0.024	0.6	17	-17	28	-	-	-	-	-	NAF

pH & EC 1:5 (w:v) water extracts [on pulp]; S = total sulfur; Scr = sulfide [chromium reducible sulfur]; MPA = maximum potential acidity [calculated from total S]; ANC = acid neutralising capacity; NAPP = net acid producing potential [calculated from MPA and ANC]; NAG = net acid generation; Selected samples underwent extended boil NAG test and/or acid buffering characterisation curve (ABCC) test to refine the acid classification. Refer to report body for further explanation.

Table B2. Total Element Concentrations of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo	Na
				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	%
BWM_EIS-05_1.7-1.86m	Gp1	Extremely	Sandstone, fine	0.049	8.77	4.53	438	1.88	0.25	0.62	0.051	53.6	16.9	69	6.44	44.3	4.29	20.2	0.19	4.06	0.016	0.066	1.4	24.9	40.1	0.78	531	0.33	0.464
BWM_EIS-05_4.4-4.56m	Gp1	Extremely	Silt	0.021	9.42	40	189	1.31	0.183	0.25	0.016	47	9.72	95.8	4.76	33.4	3.52	19.7	0.12	3.52	0.01	0.064	1.09	22.4	19.5	0.47	187.5	1.4	0.466
BWM_EIS-05_6.83-7.01m	Gp1	Distinctly	Sandstone, fine-medium; lithic	0.065	7.36	19.8	4530	1.78	0.156	5.38	0.26	45.4	17.45	65.8	5.13	20.7	4.7	16.3	0.12	3.44	0.084	0.043	1.21	22.4	28.5	0.81	2860	0.75	0.943
BWM_EIS-05_14.93-15.06m	Gp1	Distinctly	Sandstone, fine; lithic	0.072	7.88	20.4	670	1.61	0.166	3.72	0.067	69.1	14.8	55.5	4.14	18.5	4.34	17	0.15	3.2	0.051	0.056	1.18	31.4	33.9	0.85	1285	1.74	1.015
BWM_EIS-05_21.05-21.18m	Gp1	Weathered	Siltstone	0.047	8.41	2.7	208	2.46	0.364	0.71	0.149	54.2	12.45	66	13.25	51.5	4.86	22.2	0.34	4.14	0.044	0.073	2.58	21.5	26.3	1	408	0.27	0.38
BWM_EIS-05_29.21-29.4m	Gp1	Slightly	Siltstone	0.074	9.62	1.3	193	2.03	0.281	0.43	0.033	53.1	15.1	61.7	8.03	47.1	3.83	22.3	0.18	4.77	0.015	0.08	1.87	24.6	44.6	0.79	1080	0.27	0.378
BWM_EIS-05_34-34.14m	Gp2	Fresh	Sandstone, fine-medium; silty laminae	0.092	9.74	6.84	560	2.01	0.282	0.89	0.259	67.2	22.6	66.4	8.46	64.6	4.28	22.9	0.19	4.44	0.038	0.078	1.74	30.7	52.9	0.96	758	0.86	0.398
BWM_EIS-05_41.64-41.77m	Gp2	Fresh	Sandstone, fine; lithic	0.059	8.81	18.25	358	1.94	0.218	1.11	0.11	57.7	16.65	96.4	5.65	45.2	3.57	20.8	0.24	4.04	0.053	0.073	1.37	26.4	49.5	0.68	701	0.51	0.521
BWM_EIS-05_50.06-50.21m	Gp2	Fresh	Sandstone, very fine; silty laminae	0.102	9.02	4.91	900	2.02	0.32	1.44	0.108	59.2	22.2	81.5	8.49	56.9	5.11	21.7	0.14	3.93	0.055	0.064	1.9	28.6	40.4	1.08	1325	1.29	0.489
BWM_EIS-05_58.33-58.49m	Gp2	Fresh	Siltstone	0.068	8.97	4.59	440	1.88	0.288	0.23	0.138	45.1	10.7	52.3	11.85	55.1	2.12	23.3	0.27	4.3	0.089	0.062	2.4	19.7	25.3	0.88	103	1.33	0.889
BWM_EIS-05_66.31-66.48m	Gp2	Fresh	Sandstone, fine-med.; lithic minor silty laminae	0.045	7.5	16.4	1280	1.26	0.11	4.94	0.082	43.1	16.75	35.9	3.85	20.4	2.62	15.8	0.14	3.02	0.088	0.041	1.78	19.95	10	0.99	850	0.81	1.75
BWM_EIS-05_75.25-75.39m	Gp2	Fresh	Sandstone, fine-medium; lithic	0.037	8.4	10.3	530	1.36	0.109	1.72	0.114	49.9	24.6	47.8	3.41	21.9	4.07	15.55	0.16	3.09	0.034	0.051	1.54	21.9	23.8	0.98	1135	1.13	2.05
BWM_EIS-05_83.1-83.26m	Gp2	Fresh	Siltstone; sub angular laminae throughout	0.087	8.59	13.3	439	1.73	0.258	0.83	0.173	52.8	14.7	52.8	8.56	61.4	5.39	19.9	0.18	3.73	0.056	0.067	2.26	23.9	30.8	1.16	824	1.04	0.887
BWM_EIS-05_90.46-90.61m	Gp2	Fresh	Sandstone, very fine; cobbles	0.043	4.69	4.73	295	1.35	0.136	3.7	0.052	29.1	23.4	43.6	3.94	19.35	12.45	11.25	0.13	1.825	0.026	0.036	1.02	13.4	23.6	1.46	2190	0.58	0.68
BWM_EIS-05_97.99-98.34m	Coal	Fresh	Coal, 10-40% bright	0.005	0.14	0.1	31.8	0.19	0.131	0.63	0.019	2.4	0.443	0.72	0.197	15.2	0.139	0.2	0.097	0.049	0.016	0.01	0.03	0.684	2.1	0.03	57.3	0.1	0.029
BWM_EIS-05_100.29-100.44n	Coal	Fresh	Coal, 40-60% bright	0.004	0.13	0.03	15.7	0.08	0.0879	0.03	0.029	0.733	0.312	0.62	0.069	5.83	0.218	0.239	0.17	0.037	0.011	0.008	0.02	0.301	1.3	0.03	13.5	0.03	0.021
BWM_EIS-05_106.59-106.74n	Gp2	Fresh	Sandstone, medium-coarse; partly sideritic	0.047	7.14	7.99	406	1.47	0.128	1.47	0.075	43.1	19.5	51.8	4.34	22.8	6.09	15.45	0.12	2.54	0.038	0.042	1.71	20.4	15.3	1.17	1795	0.77	1.685
BWM_EIS-05_111.66-111.78n	Gp3	Fresh	Carbonaceous Siltstone	0.076	8.19	4.37	419	2.28	0.391	0.36	0.146	55	16.85	49.1	13.35	56.5	3.16	22.2	0.17	3.99	0.029	0.066	2.66	24.9	20.6	0.82	582	0.91	1.215
BWM_EIS-05_121.98-122.12n	Gp2	Fresh	Sandstone, very fine; coaly in part	0.055	8.68	3.92	408	1.81	0.266	0.91	0.119	52.6	13.2	50.4	10.6	47.2	4.01	21.4	0.2	3.62	0.045	0.06	2.87	25.3	24	1.03	751	1.08	0.712
BWM_EIS-05_124.99-125.13n	Coal	Fresh	Coal, 40-60% bright	0.008	0.25	0.08	11.8	0.47	0.0486	0.06	0.008	2.39	3.53	0.91	0.16	8.1	0.6	0.462	0.313	0.018	0.004	<0.005	0.02	0.89	3.3	0.09	126	0.03	0.011
BWM_EIS-05_127.64-127.77n	Gp2	Fresh	Sandstone, medium; coaly bands throughout	0.041	7.97	10.15	500	1.36	0.118	2.02	0.071	41.4	16	60.8	4.23	18.9	4.31	18.85	0.13	2.85	0.045	0.044	1.8	19.8	19.4	0.84	636	0.78	2.17
BWM_EIS-09_1.61-1.75m	Gp1	Distinctly	Sandstone, very fine; clayey	0.091	8.39	13.45	358	1.96	0.208	0.74	0.053	45.2	17.8	69.7	5.24	27.1	4.69	20.4	0.22	4.07	0.043	0.058	1.5	20.2	34.4	1.01	311	1	1.125
BWM_EIS-09_9.02-9.16m	Gp1	Weathered	Sandstone, fine; finer bands throughout	0.082	8.1	17.4	910	1.77	0.219	4.76	0.155	56.8	14.45	51	4.88	20.3	3.88	18.05	0.14	3.71	0.065	0.056	1.42	28	30.5	0.77	1920	1.13	0.991
BWM_EIS-09_14.66-14.77m	Gp1	Slightly	Sandstone, fine-medium	0.075	7.49	12.45	164	1.36	0.177	5.38	0.054	40.5	13.5	55.6	3.74	16.95	3.51	16.3	0.12	3.18	0.057	0.041	1.09	21.6	26.7	0.68	2080	0.54	1.035
BWM_EIS-09_21.07-21.22m	Gp2	Fresh	Sandstone, fine-medium	0.104	9.12	8.6	249	2.31	0.376	0.64	0.166	73.2	14.3	60.2	9.79	39.4	3.59	21.9	0.18	4.53	0.072	0.074	2.34	31.3	25.6	0.94	891	0.3	0.429
BWM_EIS-09_29.09-29.23m	Gp2	Fresh	Sandstone, fine-medium	0.088	8.26	19.35	201	1.65	0.213	1.54	0.115	42.6	17.15	84.1	5.8	41.3	4.65	19.3	0.25	3.7	0.087	0.061	1.49	19.05	44.4	0.9	923	1.06	0.602
BWM_EIS-09_37.06-37.21m	Gp2	Fresh	Sandstone, fine-medium	0.09	9.73	7.4	296	1.83	0.197	0.87	0.098	53.2	22.4	74.4	6.23	42.7	5.26	20.6	0.19	3.89	0.064	0.063	1.63	26.5	52.2	0.95	730	0.92	0.5
BWM_EIS-09_47.77-47.89m	Gp2	Fresh	Sandstone, fine-medium	0.077	8.91	13.3	299	1.44	0.197	2.48	0.108	37.3	18.15	79.9	4.98	37.9	4.13	19.2	0.16	3.64	0.054	0.063	1.55	16.95	36.8	0.92	762	0.55	0.857
BWM_EIS-09_55.9-56m	Gp2	Fresh	Sandstone, very fine; coarser in part	0.143	8.11	6.86	350	1.95	0.304	0.66	0.095	57.6	18	86.8	8.22	33.8	3.69	18.15	0.17	4.36	0.056	0.062	2.03	27.1	31.6	1.04	242	0.97	0.74
BWM_EIS-09_64.85-64.97m	Gp2	Fresh	Conglomerate	0.053	7.46	17.15	2530	1.65	0.2	3.95	0.162	51.3	16.65	64.6	4.37	26.8	8.51	15.5	0.13	3.18	0.053	0.051	1.12	22.5	37.2	1.01	3370	0.52	0.492
BWM_EIS-09_68.41-68.55m	Coal	Fresh	Coal, 60-90% bright	0.012	0.06	214	187.5	0.54	0.0255	5.76	0.024	1.04	2.79	1.38	0.151	4.1	0.59	0.322	2.9	0.023	0.56	<0.005	0.01	0.32	<0.1	0.04	334	0.3	0.008
BWM_EIS-09_68.55-68.66m	Gp2	Fresh	Siltstone; carbonaceous	0.148	1.09	121.5	219	0.71	0.277	0.91	0.151	4.47	16.5	11.25	3.65	50.3	2.24	2.62	0.021	0.12	0.499	0.052	0.22	1.76	15.3	0.35	113.5	1.24	0.139
BWM_EIS-09_76.15-76.28m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	0.031	6.96	15.2	362	0.96	0.096	8.85	0.079	30.5	13.1	39.1	3.2	27.7	3.23	14.25	0.1	2.2	0.066	0.044	1.5	13.8	17.6	1.06	998	1.01	1.06
BWM_EIS-09_77.59-77.74m	Coal	Fresh	Coal, <10% bright	0.016	0.29	0.35	64.5	0.4	0.136	0.42	0.053	7.5	2.45	1.59	0.454	13	0.7	0.556	0.138	0.07	0.012	0.019	0.04	3.01	3.4	0.1	228	0.2	0.033
BWM_EIS-09_80.05-80.15m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	0.057	8.56	12.25	387	1.31	0.142	1.26	0.09	47.5	14.3	51.7	5.8	31.4	3.46	19.15	0.17	3.03	0.083	0.048	1.65	23.5	32.4	0.86	594	1.02	1.945
BWM_EIS-09_84.63-84.74m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	0.085	8.38	14.3	540	1.5	0.219	1.27	0.137	45.1	15.45	49.7	8.06	43.5	2.78	20.3	0.18	3.43	0.062	0.063	1.87	22.3	35	0.85	511	0.86	1.55
BWM_EIS-09_88.88-89.03m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	0.094	0.51	62.3	112.5	0.87	0.266	3.17	0.146	5.99	44.2	6.6	3.95	52.1	5.17	1.695	0.04	0.132	0.279	0.039	0.21	2.34	8.5	0.55	713	1.98	0.118
BWM_EIS-09_89.14-89.24m	Gp2	Fresh	Siltstone; sideritic near base of unit	0.065	0.79	17.65	255	0.88	0.215	2.75	0.11	15.05	10.1	10.35	1.725	34.8	7.03	2.45	0.07	0.072	0.135	0.04	0.2	4.47	9.8	1.47	769	0.5	0.102
BWM_EIS-09_96.01-96.13m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps throughout	0.075	8.85	16.45	438	1.32	0.16	2.38	0.156	43.4	19.3	46.5	5.21	41.6	5.02	17.75	0.11	3.36	0.069	0.059	1.78	20	29.9	1.28	835	1.06	1.575
BWM_EIS-09_105.05-105.19n	Gp2	Fresh	Sandstone, v. fine; partly coarser; partly sideritic	0.097	7.52	15.55	800	1.46	0.221	1.91	0.107	43.9	15.2	45.9	6.66	39.2	5.37	17.7	0.2	3.37	0.06	0.062	1.85	19.05	31	1.09	849	1.15	0.792
BWM_EIS-09_111.76-111.9m	Gp2	Fresh	Sandstone, very fine	0.105	8.41	14.9	550	1.57	0.321	1.33	0.168	52.3	16.75	47.5	11.05	50.2	3.04	21.2	0.24	4.12	0.138	0.072	2.51	23.5	34.8	0.93	617	1.67	0.255
BWM_EIS-09_113.09-113.24n	Coal	Fresh	Coal, 10-40% bright	0.045	0.31	0.34	163	0.32	0.275	0.24	0.042	3.01	2.3	2.63	6.69	21.5	0.38	0.764	0.024	0.131	0.063	0.018	0.16	1.08	1.4	0.07	28.8	0.26	0.076
BWM_EIS-09_113.38-113.51n	Gp3	Fresh	Carbonaceous Siltstone	0.084	0.6	0.76	402	0.69	0.291	0.36	0.105	1.56	1.18	3.18	9.44	34.2	0.78	1.78	0.009	0.094	0.071	0.042	0.3	0.683	3.5	0.22	70.5	0.34	0.174
BWM_EIS-09_117.72-117.87n	Coal	Fresh	Coal, <10% bright	0.005	0.06	0.03	22.8	0.08	0.0565	0.02	0.017	0.67	0.254	0.35	0.125	6.93	0.197	0.119	0.259	0.04	0.006	<0.005	0.02	0.323	0.4	0.03	8.6	0.02	0.02
BWM_EIS-09_119.95-120.08n	Gp2	Fresh	Sandstone, fine; carbonaceous throughout	0.076	11.9	2.37	640	2.13	0.304	0.15	0.083	32.2	4.87	50	13.15	55.7	0.76	30.5	0.09	3.7	0.077	0.084	3.81	18.7	20.2	0.41	27	0.92	0.261
BWM_EIS-11_1.59-1.76m	Gp1	Extremely	Siltstone; abundant clayey fractures	0.053	8.12	7.4	367	2.01	0.216	3.03	0.036	46.8	15.75	62.6	6.26	27.6	3.53	20.8	0.29	3.82	0.083	0.056	1.64	22.2	23.9	0.9	275	0.75	1.035
BWM_EIS-11_3.84-4.11m	Gp1	Extremely	Sandstone, medium; minor siltstone laminae	0.069	8.56	13.7	510	1.9	0.205	0.76	0.119	48.9	20.9	59.3	6.16	26.5	5.17	19.9	0.35	3.79	0.046	0.058	1.46	23.3	36.1	0.88	826	0.8	1.18
BWM_EIS-11_7.9-8.03m	Gp1	Distinctly	Sandstone, medium; minor siltstone laminae	0.066	9.86	10.45	630	1.99	0.132	1.11	0.065	47.6	15.1	75	6.11	29.6	4.71	21.4	0.39	3.77	0.052	0.061	1.77	21.7	38.3	0.9	654	0.5	1.04
BWM_EIS-11_10.59-10.74m	Gp1	Distinctly	Sandstone, medium; carb. siltstone laminae	0.054	9.98	15.5	179	2.19	0.25	0.38	0.048	52.7	15.6	65.9	7.25	46.4	4.39	22.9	0.37	4.15	0.043	0.068	1.95	25.3	42	0.84	300	0.6	0.892
BWM_EIS-11_12.66-12.77m	Gp2	Fresh	Siltstone; carbonaceous in part	0.107	9.94	10.75	167	2.57	0.34	0.25	0.142	58.2	17.55	56.8	9.35	41.1	4.72	22.9	0.43	4.65	0.046	0.075	2.42	27.4	33.9	1.08	224	0.68	0.76

Table B2. Total Element Concentrations of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	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
BWM_EIS-05_1.7-1.86m	Gp1	Extremely	Sandstone, fine	8.34	38.6	0.042	16.6	85.6	<0.0004	0.02	0.47	16.8	0.211	2.2	151	0.62	0.044	9.25	0.485	0.447	2.54	136	1.71	21.4	83.4	144
BWM_EIS-05_4.4-4.56m	Gp1	Extremely	Silt	7.25	21	0.028	13.2	58.7	<0.0004	0.01	0.9	16.2	0.235	2.02	142.5	0.52	0.054	7.1	0.559	0.339	2.21	179	1.975	14.2	60.8	127
BWM_EIS-05_6.83-7.01m	Gp1	Distinctly	Sandstone, fine-medium; lithic	6.64	31.3	0.049	16.6	65.1	<0.0004	0.09	0.78	12.6	0.03	1.97	182	0.5	0.023	8.54	0.396	0.388	2.33	95	1.735	23.4	81.9	123
BWM_EIS-05_14.93-15.06m	Gp1	Distinctly	Sandstone, fine; lithic	6.13	29.3	0.274	15.95	62.7	<0.0004	0.02	0.73	12.7	0.144	1.93	245	0.47	0.032	8.35	0.359	0.304	2.4	99.8	1.56	44.9	70.9	113
BWM_EIS-05_21.05-21.18m	Gp1	Weathered	Siltstone	6.84	41.3	0.127	14.7	141.5	<0.0004	0.03	0.35	21.2	0.092	2.31	218	0.51	0.061	8.74	0.464	0.828	2.54	149	1.405	30	91.6	151
BWM_EIS-05_29.21-29.4m	Gp1	Slightly	Siltstone	9.49	34.3	0.064	21.8	101	<0.0004	0.02	0.39	18.55	0.334	2.69	182	0.7	0.044	10.05	0.509	0.524	2.92	147	1.765	22.7	73.4	169
BWM_EIS-05_34-34.14m	Gp2	Fresh	Sandstone, fine-medium; silty laminae	8.15	34.9	0.134	18.25	100.5	0.0014	0.1	0.96	22.7	0.347	2.34	217	0.61	0.061	11.55	0.542	0.527	2.71	176	1.505	34.5	89.5	155
BWM_EIS-05_41.64-41.77m	Gp2	Fresh	Sandstone, fine; lithic	8.01	50.6	0.055	21.1	74.4	<0.0004	0.02	0.71	17.55	0.243	2.23	223	0.6	0.045	8.96	0.5	0.378	2.47	139	1.585	22.7	92.5	146
BWM_EIS-05_50.06-50.21m	Gp2	Fresh	Sandstone, very fine; silty laminae	7.42	57	0.09	18.65	109.5	0.001	0.07	0.85	18.5	0.542	2.27	294	0.56	0.099	9.88	0.438	0.538	2.31	178	1.46	21.5	86	139
BWM_EIS-05_58.33-58.49m	Gp2	Fresh	Siltstone	6.41	22.5	0.031	15.7	114	0.0011	0.05	0.77	17.45	0.699	2.1	299	0.5	0.117	7.65	0.511	0.542	2.17	165	1.39	18.9	84.1	136
BWM_EIS-05_66.31-66.48m	Gp2	Fresh	Sandstone, fine-med.; lithic minor silty laminae	4.41	16.3	0.065	15.95	65.3	0.0004	0.07	0.84	13.4	0.155	1.37	469	0.32	0.036	6.96	0.34	0.362	1.92	101	1.215	22.8	77.1	112
BWM_EIS-05_75.25-75.39m	Gp2	Fresh	Sandstone, fine-medium; lithic	4.98	23.7	0.084	17.2	61.1	0.0004	0.04	0.57	13.5	0.107	1.32	348	0.35	0.035	6.47	0.374	0.32	1.7	139	0.996	18.95	84.9	111
BWM_EIS-05_83.1-83.26m	Gp2	Fresh	Siltstone; sub angular laminae throughout	5.54	26.2	0.097	14.55	101	0.0008	0.06	0.43	18.65	0.583	1.83	359	0.42	0.092	7.53	0.457	0.448	2.03	164	1.13	26.1	92.7	132
BWM_EIS-05_90.46-90.61m	Gp2	Fresh	Sandstone, very fine; cobbles	3.12	29.4	0.093	7.96	50.2	0.0004	0.03	0.23	15.7	0.151	1.06	287	0.24	0.031	4.19	0.236	0.224	1.01	229	0.618	18	51.5	81.6
BWM_EIS-05_97.99-98.34m	Coal	Fresh	Coal, 10-40% bright	0.009	0.67	0.024	4.54	1.17	0.0002	0.15	0.02	0.698	0.533	0.08	53.2	<0.005	0.036	0.598	<0.001	<0.001	0.141	3	0.013	2.25	5	1.58
BWM_EIS-05_100.29-100.44n	Coal	Fresh	Coal, 40-60% bright	0.024	0.28	0.001	2.22	0.862	0.0002	0.25	0.031	0.319	0.341	0.12	18.55	<0.005	0.026	0.206	0.001	<0.001	0.033	2.6	0.009	0.335	3.9	0.94
BWM_EIS-05_106.59-106.74n	Gp2	Fresh	Sandstone, medium-coarse; partly sideritic	5.13	32.2	0.064	11.5	69.8	0.0004	0.03	0.63	11.5	0.088	1.21	320	0.39	0.03	5.7	0.34	0.361	1.45	121	0.992	17.5	61.9	91.7
BWM_EIS-05_111.66-111.78n	Gp3	Fresh	Carbonaceous Siltstone	7.84	41.3	0.061	19.35	128.5	0.0005	0.03	0.59	13.85	0.276	2.26	324	0.66	0.083	9.87	0.457	0.601	2.61	133	1.545	17.85	91.3	136
BWM_EIS-05_121.98-122.12n	Gp2	Fresh	Sandstone, very fine; coaly in part	7.09	27.5	0.114	15.7	122.5	0.001	0.03	0.65	17.2	0.241	1.91	386	0.55	0.062	8.39	0.473	0.605	2.19	146	1.395	20.3	89.6	126
BWM_EIS-05_124.99-125.13n	Coal	Fresh	Coal, 40-60% bright	0.028	3.33	0.002	1.23	1.195	0.0002	0.02	0.031	0.712	0.077	0.07	10.5	<0.005	0.014	0.23	0.001	<0.001	0.036	6.4	0.012	0.675	9.2	0.57
BWM_EIS-05_127.64-127.77n	Gp2	Fresh	Sandstone, medium; coaly bands throughout	5.7	26.7	0.068	16.4	72.2	0.0005	0.03	0.59	13.15	0.09	1.47	467	0.45	0.011	6.94	0.406	0.392	1.79	138	0.758	17.75	98.1	101
BWM_EIS-09_1.61-1.75m	Gp1	Distinctly	Sandstone, very fine; clayey	7.6	35.4	0.042	19.5	79.3	<0.0004	0.01	1.07	15.45	0.252	2.55	114	0.59	0.024	9.94	0.44	0.405	2.91	114	1.845	19.5	91.7	138
BWM_EIS-09_9.02-9.16m	Gp1	Weathered	Sandstone, fine; finer bands throughout	7.07	25.8	0.047	17.65	75.1	<0.0004	0.02	1.02	14.2	0.09	2.29	222	0.55	0.024	10	0.399	0.356	2.72	88.6	2.06	27.3	83.1	130
BWM_EIS-09_14.66-14.77m	Gp1	Slightly	Sandstone, fine-medium	6.62	25.2	0.043	14.75	61.2	0.0005	<0.01	0.84	12.6	0.112	2.18	237	0.5	0.02	9.31	0.374	0.279	2.37	88.9	1.7	19.9	74.3	109
BWM_EIS-09_21.07-21.22m	Gp2	Fresh	Sandstone, fine-medium	8.8	34.2	0.1	30.3	134.5	0.0004	0.02	0.62	17.45	0.153	2.95	161.5	0.68	0.054	12.6	0.466	0.634	3.77	125	2.22	37.5	99.3	160
BWM_EIS-09_29.09-29.23m	Gp2	Fresh	Sandstone, fine-medium	6.78	49.4	0.078	14.55	67.2	0.0004	0.04	0.97	17.5	0.267	1.93	204	0.49	0.058	7.65	0.47	0.408	2.1	145	1.555	20.1	112.5	134
BWM_EIS-09_37.06-37.21m	Gp2	Fresh	Sandstone, fine-medium	7.23	45.7	0.047	19.65	86	0.0004	0.03	0.88	18.6	0.27	2.13	203	0.52	0.037	8.64	0.478	0.457	2.14	148	1.42	18.2	94.9	138
BWM_EIS-09_47.77-47.89m	Gp2	Fresh	Sandstone, fine-medium	5.86	41.3	0.061	15.95	61.9	<0.0004	0.02	0.61	16.05	0.171	1.89	250	0.42	0.072	7.65	0.461	0.413	2.11	145	1.4	16.65	103.5	128
BWM_EIS-09_55.9-56m	Gp2	Fresh	Sandstone, very fine; coarser in part	8.41	54.1	0.063	19.25	115.5	0.0004	0.03	0.7	13.75	0.412	2.45	215	0.64	0.059	10.2	0.437	0.538	2.45	135	1.665	20.9	93.1	151
BWM_EIS-09_64.85-64.97m	Gp2	Fresh	Conglomerate	6.73	31.8	0.154	13.3	57.6	<0.0004	0.07	0.49	15.35	0.163	1.83	306	0.49	0.037	7.83	0.387	0.303	2.18	108	1.525	29.1	80.3	123
BWM_EIS-09_68.41-68.55m	Coal	Fresh	Coal, 60-90% bright	0.074	9.27	0.004	6.41	0.949	0.0007	0.91	2.02	1.18	0.865	0.04	151	<0.005	0.012	0.209	0.001	0.055	0.04	7.2	0.043	2.82	9.3	1.89
BWM_EIS-09_68.55-68.66m	Gp2	Fresh	Siltstone; carbonaceous	0.015	37.5	0.015	18.8	16.05	0.0039	1.26	0.844	3.22	1.18	0.59	155.5	<0.005	0.111	1.025	0.001	0.393	0.208	28.6	0.013	3.13	89.2	4.38
BWM_EIS-09_76.15-76.28m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	3.42	15.25	0.133	10.25	51.6	0.0005	0.03	0.46	13.45	0.19	1.04	725	0.25	0.041	4.22	0.337	0.297	1.29	117	0.851	15.85	71	84.9
BWM_EIS-09_77.59-77.74m	Coal	Fresh	Coal, <10% bright	0.014	3.44	0.13	5.51	1.925	0.0004	0.03	0.041	1.72	0.241	0.22	92.4	<0.005	0.034	1.645	0.001	0.001	0.366	10.7	0.023	10.1	11.4	3.15
BWM_EIS-09_80.05-80.15m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	6.94	23.3	0.064	13.7	70.4	0.0004	0.03	0.78	15.2	0.139	1.67	319	0.49	0.028	6.78	0.478	0.358	1.81	122	1.455	18.65	96	110
BWM_EIS-09_84.63-84.74m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	7.46	27.3	0.078	16.6	82.7	0.0005	0.03	0.65	13.25	0.245	1.94	318	0.55	0.042	7.72	0.476	0.399	2	118	1.455	16.75	92.7	121
BWM_EIS-09_88.88-89.03m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	0.031	52.1	0.029	21.5	16.95	0.0016	2.18	1.175	7.06	0.993	0.46	237	<0.005	0.068	1.28	0.001	0.126	0.247	36.1	0.018	9.42	54.1	6.73
BWM_EIS-09_89.14-89.24m	Gp2	Fresh	Siltstone; sideritic near base of unit	0.004	21.2	0.117	11.05	11.65	0.0008	0.22	0.299	8.93	0.577	0.52	285	<0.005	0.086	3.28	0.001	0.17	0.294	50.2	0.015	21.2	76.5	3.82
BWM_EIS-09_96.01-96.13m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps throughout	3.89	27.5	0.106	15.95	70	0.0007	0.07	0.6	17.45	0.468	1.44	482	0.3	0.059	5.67	0.398	0.381	1.58	133	0.91	23.4	87.8	142
BWM_EIS-09_105.05-105.19n	Gp2	Fresh	Sandstone, v. fine; partly coarser; partly sideritic	4.94	28.4	0.095	14.25	76.6	0.0005	0.07	0.46	16.6	0.516	1.7	616	0.38	0.08	6.41	0.389	0.39	1.64	137	1.035	22.5	85.3	128
BWM_EIS-09_111.76-111.9m	Gp2	Fresh	Sandstone, very fine	5.88	28.7	0.072	15.4	113.5	0.0005	0.06	0.76	15.6	0.727	2.13	726	0.44	0.108	8.47	0.455	0.552	1.95	143	1.345	22.5	120.5	133
BWM_EIS-09_113.09-113.24n	Coal	Fresh	Coal, 10-40% bright	0.038	5.26	0.002	10.45	13.15	0.0003	0.51	0.081	2.99	0.317	0.33	98.4	<0.005	0.035	0.827	0.001	0.005	0.232	11.2	0.027	1.225	16.9	3.55
BWM_EIS-09_113.38-113.51n	Gp3	Fresh	Carbonaceous Siltstone	0.005	3.92	0.004	13.2	20.4	0.0004	0.01	0.037	2.94	0.422	0.43	268	<0.005	0.05	0.86	0.001	0.014	0.238	11.9	0.002	1.49	47.8	2.45
BWM_EIS-09_117.72-117.87n	Coal	Fresh	Coal, <10% bright	0.037	0.17	<0.001	1.56	0.875	0.0002	0.01	0.01	0.466	0.19	0.04	17.65	<0.005	0.015	0.134	0.001	<0.001	0.044	3	0.035	0.204	3.6	1.33
BWM_EIS-09_119.95-120.08n	Gp2	Fresh	Sandstone, fine; carbonaceous throughout	9.66	26.4	0.013	20.7	137.5	0.0004	0.03	0.51	10.95	0.449	2.68	351	0.74	0.057	9.95	0.663	0.706	2.91	120	2.3	11.3	24.5	153
BWM_EIS-11_1.59-1.76m	Gp1	Extremely	Siltstone; abundant clayey fractures	7.44	27.9	0.03	15.95	85.4	<0.0004	0.01	0.84	16.05	0.092	2.35	186	0.55	0.03	9.47	0.42	0.486	2.45	109	1.82	18.95	84.8	139
BWM_EIS-11_3.84-4.11m	Gp1	Extremely	Sandstone, medium; minor siltstone laminae	7.2	32.5	0.033	19	77.3	<0.0004	<0.01	0.73	16.15	0.072	2.29	124	0.55	0.028	9.99	0.412	0.406	2.8	98.4	1.73	23	82.8	131
BWM_EIS-11_7.9-8.03m	Gp1	Distinctly	Sandstone, medium; minor siltstone laminae	6.66	37.3	0.034	15.95	82.4	<0.0004	0.02	0.77	17.4	0.064	2.11	174.5	0.48	0.024	8.43	0.449	0.434	2.17	135	1.525	16.65	94	134
BWM_EIS-11_10.59-10.74m	Gp1	Distinctly	Sandstone, medium; carb. siltstone laminae	9.06	35.6	0.042	17.8	93	<0.0004	0.01	0.75	19.55	0.077	2.41	149	0.65	0.032	9.31	0.516	0.504	2.49	127	1.835	18.85	93.4	153
BWM_EIS-11_12.66-12.77m	Gp2	Fresh	Siltstone; carbonaceous in part	9.03	35.8	0.042	23.8	118	0.0004	0.02	0.65	19.7	0.295	2.94	131	0.7	0.043	12.25	0.48	0.579	3.65	123	1.96	25.3	98.2	162

Table B2. Total Element Concentrations of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo	Na
				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	%
BWM_EIS-11_19.96-20.09m	Gp2	Fresh	Sandstone, medium	0.039	6.67	9.93	187	1.33	0.123	3.02	0.054	56.8	15.5	33.5	2.94	15.7	3.93	15.25	0.35	2.85	0.04	0.043	0.95	26.7	26.7	0.7	1315	0.46	1.35
BWM_EIS-11_27.69-27.79m	Gp2	Fresh	Claystone & Sandst., med.; partly carbonaceous	0.067	9.24	10.55	231	1.93	0.119	0.94	0.08	55.2	16.6	73	5.8	25.7	6.66	19.75	0.48	3.43	0.048	0.059	1.47	24.1	42.7	1.18	592	2.94	0.94
BWM_EIS-11_36.78-36.89m	Gp2	Fresh	Siltstone	0.09	9.03	1.82	376	2.5	0.35	0.37	0.056	53.8	14.6	53	11.1	50.1	4.3	22.9	0.38	4.3	0.018	0.066	2.6	25.9	21.4	1.03	233	0.16	0.642
BWM_EIS-11_45.27-45.4m	Gp2	Fresh	Sandstone, fine; common siltstone laminae	0.084	11.9	24.4	448	2.55	0.266	0.65	0.137	46.5	19.2	87.8	7.68	71.3	3.97	24.9	0.26	4.89	0.042	0.072	2.06	20.8	71.1	0.91	211	1.03	0.468
BWM_EIS-11_53.5-53.64m	Gp2	Fresh	Sandstone, medium	0.051	9.27	10	438	1.66	0.163	1.63	0.052	36.7	13.85	101	4.6	31.4	4.29	19.85	0.27	3.61	0.033	0.058	1.49	17	31.5	0.95	735	0.24	1.325
BWM_EIS-11_60.61-60.76m	Gp2	Fresh	Sandstone, medium; partly sideritic & pebbly	0.062	7.21	29.5	339	2.01	0.16	7.6	0.136	65.1	15.9	56.5	4.31	22.6	5.79	16.85	0.41	3.06	0.111	0.043	1.25	30.9	32.8	1.01	3320	1.69	0.689
BWM_EIS-11_72.59-72.7m	Gp2	Fresh	Sandstone, fine; siltstone in part	0.111	9.56	8.25	448	2.31	0.335	0.85	0.113	56.7	14.3	69.8	9.52	46.7	4.04	21.9	0.32	4.72	0.056	0.067	2.39	26.8	32.7	1.08	234	0.45	0.753
BWM_EIS-11_78.78-78.87m	Gp2	Fresh	Claystone; common sandstone laminae	0.077	10.7	33	391	2.09	0.232	0.48	0.117	53.2	20.2	86.4	7.12	43.6	3.54	23.8	0.31	4.54	0.057	0.079	1.82	24.5	51.5	0.9	223	1.17	0.806
BWM_EIS-11_81.37-81.48m	Gp2	Fresh	Sandstone, medium; minor sideritic grains	0.052	8.61	6.55	380	1.2	0.115	6.41	0.084	34.2	10.4	69.2	4.59	37.5	4.2	18.05	0.33	2.66	0.054	0.058	1.88	14.3	19.1	1.33	1395	0.93	1.07
BWM_EIS-11_87.23-87.37m	Gp2	Fresh	Sandstone, medium; minor carbonaceous laminae	0.04	9.05	14.05	1340	1.03	0.094	2.54	0.068	26.4	16.9	44.8	3.15	32.1	4.26	19.05	0.31	2.64	0.056	0.054	1.49	11.55	20.5	1.18	812	0.56	1.76
BWM_EIS-11_94.42-94.52m	Gp2	Fresh	Siltstone; carbonaceous in part	0.107	2.29	2.17	254	1.02	0.32	0.89	0.159	23	19.75	12	2.25	82.6	4.97	6.53	0.109	0.097	0.141	0.052	0.24	6.95	28.9	0.82	1085	2.02	0.123
BWM_EIS-11_94.89-95.36m	Coal	Fresh	Coal, 10-40% bright	0.009	0.38	0.1	20.5	0.13	0.0966	0.96	0.029	2.73	0.34	1.73	0.165	13.85	0.62	1.095	0.303	0.039	0.025	0.011	0.02	1.01	5.2	0.12	107	0.16	0.02
BWM_EIS-11_101.3-101.44m	Gp2	Fresh	Siltstone; common carbonaceous traces	0.124	9.99	11.05	490	2.37	0.412	0.64	0.148	50.7	28.3	53.9	23.6	56.7	4.47	25.4	0.37	4.93	0.154	0.09	2.7	23.2	41.4	1.13	1070	1.44	0.638
BWM_EIS-11_110.79-110.91n	Gp2	Fresh	Sandstone, fine; rare carbonaceous traces	0.064	9.24	6.36	550	1.46	0.158	1.43	0.102	39.6	8.43	61.9	5.9	48.7	3.88	20.1	0.32	3.34	0.075	0.055	1.99	17.25	23.1	1.07	451	0.6	1.61
BWM_EIS-11_119.47-119.6m	Gp2	Fresh	Sandstone, medium	0.033	8.85	3.46	620	1.09	0.09	2.39	0.082	28.4	17.3	66.1	2.6	33	5.6	19.3	0.4	2.67	0.029	0.052	1.46	12.6	24.4	1.32	886	0.55	2.18
BWM_EIS-11_126.05-126.13n	Gp2	Fresh	Sandstone, medium; carbonaceous calcite laminae	0.032	0.81	6.96	203	0.56	0.0614	4.91	0.162	8.15	20.2	13.4	0.701	34.1	5.94	2.39	0.096	0.058	0.033	0.03	0.13	2.61	10	0.96	1090	0.59	0.079
BWM_EIS-11_135.02-135.17n	Gp2	Fresh	Sandstone, medium	0.03	8.22	8.07	342	1.17	0.08	8.29	0.078	29.7	10.65	44	3.57	30.2	4.72	17.8	0.33	2.08	0.155	0.042	1.38	12.9	29.2	1.94	1145	1.57	0.744
BWM_EIS-11_136.42-136.77n	Coal	Fresh	Coal, dull <1% bright	0.005	0.18	0.02	42.4	0.13	0.119	1.25	0.014	10.4	0.285	1.07	0.125	11.4	0.31	0.229	0.081	0.047	0.026	0.008	0.04	3.86	2.1	0.15	21.8	0.2	0.035
BWM_EIS-11_137.25-137.41n	Gp3	Fresh	Carbonaceous Siltstone; rare coaly wisps	0.002	0.08	<0.01	78.1	0.24	0.0319	15.55	0.088	3.8	0.18	0.35	0.068	2.76	3.93	0.275	0.135	0.034	0.014	0.007	0.02	0.983	1	0.54	523	0.02	0.022
BWM_EIS-11_141.79-141.97n	Coal	Fresh	Coal, undifferentiated	0.006	0.13	0.17	18.8	0.11	0.0996	0.07	0.02	3.99	1.905	1.3	0.103	7.31	0.205	0.185	0.231	0.026	0.011	0.005	0.02	1.455	1.8	0.04	22.5	0.12	0.022
BWM_EIS-11_143.13-143.31n	Gp2	Fresh	Sandstone, fine; common carbonaceous laminae	0.078	12.8	1.08	500	2.6	0.295	0.16	0.059	30.2	1.065	52.2	12.05	61.9	0.68	31	0.25	3.92	0.072	0.073	3	16.1	42.5	0.35	23.6	0.51	0.224
BWM_EIS-13_2.43-2.81m	Gp1	Distinctly	Siltstone; common sandstone bands throughout	0.155	9.37	8.92	403	1.96	0.231	0.83	0.104	47.3	18.05	78.1	5.9	34.8	4.14	21	0.37	4.05	0.037	0.07	1.82	22	31.4	0.98	653	0.72	1.075
BWM_EIS-13_6.22-6.39m	Gp1	Extremely	Siltstone; clayey in part	0.08	9.19	1.21	220	2.46	0.296	0.52	0.039	30.4	15.4	73.7	8.34	40.3	4.85	21.7	0.33	4.31	0.054	0.071	2.53	13	29.6	1.06	338	0.22	0.738
BWM_EIS-13_10.95-11.15m	Gp1	Slightly	Siltstone	0.076	9.65	5.39	188	2.35	0.315	0.48	0.065	42.9	17.4	77	8.99	46.4	5.39	23.1	0.37	4.42	0.022	0.066	2.34	20.2	36.4	1.13	414	0.21	0.856
BWM_EIS-13_13.28-13.5m	Gp2	Fresh	Sandstone, med.; minor carb. siltstone laminae	0.089	9.28	13.1	163	2.13	0.242	0.57	0.106	50.2	16.2	68.7	7.31	32.8	4.38	21.4	0.33	4.16	0.025	0.07	1.94	24.1	31.6	0.99	352	0.25	0.933
BWM_EIS-13_18.54-18.77m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae	0.05	8.79	17.75	134	1.68	0.161	0.87	0.068	44.9	13.05	56.5	4.44	21.7	3.97	19.35	0.32	3.7	0.032	0.059	1.19	22	32.6	0.79	400	0.52	1.235
BWM_EIS-13_27.61-27.93m	Gp2	Fresh	Siltstone	0.102	9.31	1.6	301	2.33	0.342	0.32	0.025	57.4	19.55	54.6	14.6	33.1	5.86	22.3	0.41	4.36	0.005	0.076	2.77	27.4	24.5	1.13	312	0.21	0.478
BWM_EIS-13_35.3-35.55m	Gp2	Fresh	Sandstone, fine-medium	0.077	8.93	4.78	361	1.7	0.175	3.92	0.064	44.7	16.1	97.4	6.7	39.4	4.84	19.75	0.34	3.7	0.046	0.061	1.88	18.85	30.6	1.09	1515	0.28	0.885
BWM_EIS-13_42.92-43.12m	Gp2	Fresh	Sandstone, medium; minor sandstone laminae	0.058	10.1	3.03	320	2.01	0.185	1.51	0.038	48.2	16.9	62.2	6.51	41.7	4.59	21.9	0.35	4.39	0.027	0.066	1.86	22.9	40.8	1.03	556	0.35	0.759
BWM_EIS-13_51.43-51.88m	Gp2	Fresh	Sandstone, medium; siltstone sideritic nodules	0.099	7.87	12.7	309	2.08	0.232	1.24	0.093	56.7	28.9	59.8	6.11	32.9	6.21	18.4	0.37	3.47	0.04	0.06	1.69	25.5	26	1	1710	0.84	0.796
BWM_EIS-13_60.81-61m	Gp2	Fresh	Sandstone, medium; rare carbonaceous laminae	0.105	8.84	15.2	449	1.91	0.228	0.91	0.086	48.2	14.75	71	7.28	39.3	4.27	20.5	0.29	3.96	0.061	0.058	1.86	22.7	30.1	0.99	685	0.68	0.872
BWM_EIS-13_62.05-62.63m	Coal	Fresh	Coal, undifferentiated; common calcite veins	0.022	0.22	1.65	298	0.37	0.077	1.89	0.029	4.7	3.01	1.62	0.405	12.6	0.43	0.412	0.323	0.077	0.053	0.009	0.03	1.38	2	0.07	143	0.2	0.031
BWM_EIS-13_63.05-63.25m	Gp3	Fresh	Carbonaceous Siltstone; minor sideritic laminae	0.128	1.93	31.5	25	1.04	0.312	0.26	0.125	10	24.8	19.9	2.92	48.6	4.75	5.89	0.072	0.126	0.279	0.045	0.26	3.46	22.9	0.76	572	2.04	0.131
BWM_EIS-13_64.56-64.77m	Gp2	Fresh	Siltstone; sandstone in part sideritic laminae	0.093	9.84	8	159	1.74	0.245	1.1	0.118	45.9	24.1	38.9	6.64	68.5	4.79	21.3	0.33	3.82	0.117	0.056	1.92	20	35.5	1.1	716	1.68	0.871
BWM_EIS-13_73.29-73.55m	Gp2	Fresh	Sandstone, med.; carbonaceous laminae	0.045	1.04	12.05	106	0.73	0.118	1.11	0.224	17.85	18.95	17.65	1.26	46.5	5.42	3.26	0.101	0.072	0.068	0.041	0.16	6.07	11.5	0.58	678	0.93	0.119
BWM_EIS-13_76.08-76.26m	Gp2	Fresh	Siltstone	0.101	10.5	5.91	362	2.26	0.25	0.42	0.126	62.7	7.75	61.8	8.82	51.5	2.42	24.3	0.28	4.36	0.075	0.07	2.09	28.7	35.3	0.8	116.5	0.58	1.37
BWM_EIS-13_84.59-84.77m	Gp2	Fresh	Siltstone; rare coaly wisps	0.068	1.05	6.88	264	0.84	0.168	1.02	0.092	12.95	22.8	11.8	1.64	34	4.46	3.58	0.076	0.097	0.057	0.033	0.21	4.43	10.9	0.63	887	1.49	0.125
BWM_EIS-13_93.81-93.96m	Gp2	Fresh	Siltstone; sandstone in part; carb. laminae	0.071	8.62	6.92	530	1.76	0.308	1.34	0.092	44.9	9.73	37.4	8.45	47.9	6.1	20.1	0.33	4.03	0.068	0.064	1.93	19.6	32	1.26	1075	0.54	1.07
BWM_EIS-13_101.89-102.04n	Gp2	Fresh	Sandstone, fine; common siltstone laminae	0.065	6.96	5.42	560	1.45	0.191	4.64	0.07	45.3	7.17	39	5.31	33.9	8.39	17.25	0.4	3.14	0.058	0.045	1.49	18.15	31	1.67	2340	0.51	0.784
BWM_EIS-13_112.26-112.43n	Gp3	Fresh	Carbonaceous Siltstone; rare coaly laminae	0.124	1.25	7.22	308	0.77	0.395	0.52	0.147	6.47	19.5	10.65	3.16	65.9	1.3	3.8	0.045	0.107	0.162	0.052	0.29	2.17	14.5	0.44	140.5	2.66	0.161
BWM_EIS-13_115.87-116.31n	Coal	Fresh	Coal, dull <1% bright	0.005	0.05	0.05	9.8	0.06	0.0971	0.04	0.008	0.777	0.172	0.2	0.047	6.94	0.31	0.086	0.125	0.034	0.012	0.005	0.02	0.32	0.4	0.06	62.2	0.09	0.018
BWM_EIS-13_117.71-117.97n	Gp3	Fresh	Carbonaceous Siltstone	0.062	0.6	141	149.5	0.6	0.304	0.69	0.104	17.5	10.5	5.15	2.36	35.1	6.39	1.855	0.15	0.079	0.288	0.036	0.18	5.58	7.4	0.41	1410	1.44	0.095
BWM_EIS-13_121.5-121.63m	Gp2	Fresh	Siltstone; sandstone laminae; minor siderite	0.05	7.19	13.75	340	1.79	0.204	0.65	0.081	46.7	8.96	57.4	6.34	42.6	6.93	19.75	0.37	3.1	0.092	0.044	1.68	21.7	15.5	0.86	1145	0.81	1.235
BWM_EIS-15_2.45-2.58m	Gp1	Distinctly	Siltstone; minor sandstone bands throughout	0.067	9.01	11.25	307	2.05	0.254	0.61	0.037	72.1	17.65	68.8	5.96	34	4.52	20.7	0.33	3.96	0.044	0.061	1.74	31.5	31.9	0.96	624	0.71	1.195
BWM_EIS-15_7.04-7.18m	Gp1	Distinctly	Siltstone	0.05	8.5	1.94	214	2.46	0.31	0.18	0.019	51.5	6.65	45.5	9.28	29.6	2.31	22.7	0.21	4.19	0.007	0.058	2.48	25.2	12.9	0.76	115.5	0.18	0.703
BWM_EIS-15_11.77-11.9m	Gp1	Slightly	Sandstone, medium; carbonaceous traces	0.085	8.59	1.21	162	2.23	0.257	0.59	0.062	49.4	12.15	67.5	8.53	37.2	4.71	20.5	0.26	4.02	0.033	0.066	2.19	22.9	27	0.97	316	0.2	0.854
BWM_EIS-15_16.74-17m	Gp1	Slightly	Sandstone, fine-medium; siltstone laminae	0.061	9.9	19.15	148	2.11	0.193	0.83	0.044	48.8	17.05	81.4	6.56	38.8	4.61	21.3	0.29	4.1	0.04	0.058	1.63	23.3	52.3	0.89	382	0.42	0.669
BWM_EIS-15_18.18-18.34m	Gp2	Fresh	Sandstone, medium; common siltstone laminae	0.1	8.81	16.85	750	1.86	0.188	3.3	0.088	60.7	17	77.5	5.73	30.1	5.19	20	0.33	3.64	0.067	0.057	1.46	26.1	40.6	1.03	1475	0.49	1.09
BWM_EIS-15_25.63-25.86m	Gp2	Fresh	Sandstone, medium; siltstone laminae	0.084	9.29	19.3	158	2.23	0.225	1	0.076	49.9	15.15	90.5	6.95	37.2	4.64	21.1	0.3	3.91	0.032	0.064	1.76	23.4	38.7	1.04	353	0.76	1.085
BWM_EIS-15_32.93-33.08m	Gp2	Fresh	Sandstone, medium; siltstone laminae	0.117	10.6	12.25	339	2.25	0.246	0.52	0.268	53.8	21.9	78.9	9.5	46.6	3.97	21.9	0.32	4.44	0.038	0.074	2.24	24.2	45.3	0.99	307	0.68	0.642

Table B2. Total Element Concentrations of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	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
BWM_EIS-11_19.96-20.09m	Gp2	Fresh	Sandstone, medium	5.6	24.9	0.05	14.85	49.8	<0.0004	0.01	0.63	12	0.07	1.84	218	0.44	0.032	8.49	0.282	0.22	2.22	79.5	1.27	25.9	67.8	105
BWM_EIS-11_27.69-27.79m	Gp2	Fresh	Claystone & Sandst., med.; partly carbonaceous	5.95	38.2	0.066	13.9	75.4	<0.0004	0.03	1.38	17.8	0.213	1.92	204	0.43	0.027	8	0.392	0.387	2.04	144	1.465	20.3	92.3	129
BWM_EIS-11_36.78-36.89m	Gp2	Fresh	Siltstone	7.77	31	0.032	18.45	141.5	0.0004	0.01	0.4	19.95	0.17	2.52	205	0.6	0.056	11.35	0.452	0.667	2.81	145	1.78	21.1	73.3	156
BWM_EIS-11_45.27-45.4m	Gp2	Fresh	Sandstone, fine; common siltstone laminae	9.17	50.7	0.056	18.55	82	0.0005	0.03	0.91	23.2	0.257	2.62	268	0.66	0.055	9.07	0.596	0.538	2.81	173	1.835	19.8	103	175
BWM_EIS-11_53.5-53.64m	Gp2	Fresh	Sandstone, medium	5.9	38.8	0.064	17.5	61.7	<0.0004	0.02	0.46	17.6	0.09	2.02	249	0.43	0.033	8.37	0.448	0.332	2.24	131	1.415	15.9	84.7	127
BWM_EIS-11_60.61-60.76m	Gp2	Fresh	Sandstone, medium; partly sideritic & pebbly	5.15	34.5	0.828	16.1	60.3	<0.0004	0.03	1.19	17.45	0.12	1.66	439	0.37	0.051	7.78	0.323	0.443	3.51	110	1.415	53.9	75.6	117
BWM_EIS-11_72.59-72.7m	Gp2	Fresh	Sandstone, fine; siltstone in part	8.27	30.7	0.075	20	118.5	0.0006	0.03	0.54	17.3	0.427	2.51	289	0.63	0.066	11	0.491	0.552	2.71	152	1.79	25.3	98.7	170
BWM_EIS-11_78.78-78.87m	Gp2	Fresh	Claystone; common sandstone laminae	9.05	49.5	0.047	24.6	77.1	<0.0004	0.04	1.1	19.2	0.278	2.48	253	0.66	0.044	9.66	0.552	0.475	2.66	141	1.86	20.5	98.3	161
BWM_EIS-11_81.37-81.48m	Gp2	Fresh	Sandstone, medium; minor sideritic grains	3.53	15.4	0.123	9.14	63.1	<0.0004	0.03	0.4	20.9	0.114	1.24	520	0.24	0.057	4.1	0.571	0.373	1.12	205	1.11	23.7	98.6	103
BWM_EIS-11_87.23-87.37m	Gp2	Fresh	Sandstone, medium; minor carbonaceous laminae	2.88	19.5	0.076	14.35	49.3	0.0007	0.05	0.54	19.85	0.179	1.12	469	0.21	0.047	3.8	0.444	0.324	1.04	166	0.548	15.15	85.8	101
BWM_EIS-11_94.42-94.52m	Gp2	Fresh	Siltstone; carbonaceous in part	0.004	23.3	0.101	17.05	12.35	0.0015	0.03	0.175	9.37	1.09	0.83	216	<0.005	0.188	3.95	0.001	0.057	0.493	55.6	0.01	16.65	85.3	2.88
BWM_EIS-11_94.89-95.36m	Coal	Fresh	Coal, 10-40% bright	0.013	0.55	0.277	2.52	0.726	0.0002	0.16	0.072	1.42	0.297	0.21	103.5	<0.005	0.02	0.779	0.001	<0.001	0.224	9.5	0.012	4.35	4.5	0.87
BWM_EIS-11_101.3-101.44m	Gp2	Fresh	Siltstone; common carbonaceous traces	6.5	38.9	0.049	19.95	133	0.0006	0.12	1.11	20.6	0.739	2.63	436	0.47	0.134	10.4	0.465	0.728	2.47	173	1.585	24.7	168.5	169
BWM_EIS-11_110.79-110.91n	Gp2	Fresh	Sandstone, fine; rare carbonaceous traces	4.68	16.35	0.085	10.4	73.3	0.0007	0.05	0.4	19.55	0.299	1.55	462	0.33	0.061	5.67	0.499	0.363	1.56	165	0.963	19.5	95.3	124
BWM_EIS-11_119.47-119.6m	Gp2	Fresh	Sandstone, medium	3.47	22.6	0.099	11.9	47.4	0.0011	0.04	0.3	22.3	0.124	1.15	454	0.24	0.042	4.28	0.495	0.243	1.21	189	0.757	15.2	91.6	96.5
BWM_EIS-11_126.05-126.13n	Gp2	Fresh	Sandstone, medium; carbonaceous calcite laminae	0.004	18.65	0.054	14.05	5.19	0.0009	0.02	0.14	13.45	0.252	0.34	271	<0.005	0.033	1.625	0.002	0.023	0.259	82.3	0.025	8.03	101	3.14
BWM_EIS-11_135.02-135.17n	Gp2	Fresh	Sandstone, medium	2.87	11.45	0.127	12.25	44.4	<0.0004	0.04	0.29	19.8	0.761	0.95	578	0.21	0.037	3.94	0.363	0.278	1.16	117	0.724	19.9	70.1	65.5
BWM_EIS-11_136.42-136.77n	Coal	Fresh	Coal, dull <1% bright	0.012	0.51	0.001	4.32	1.45	0.0002	0.1	0.015	1.57	0.486	0.11	81.2	<0.005	0.034	1.665	0.001	<0.001	0.232	2.9	0.014	1.72	2.2	1.38
BWM_EIS-11_137.25-137.41n	Gp3	Fresh	Carbonaceous Siltstone; rare coaly wisps	0.032	0.24	0.12	1.57	0.881	<0.0002	0.02	0.018	2.31	0.22	0.05	776	<0.005	0.013	0.498	0.001	<0.001	0.222	3.9	0.024	7.42	4.7	1.61
BWM_EIS-11_141.79-141.97n	Coal	Fresh	Coal, undifferentiated	0.028	3.44	0.002	1.925	0.817	<0.0002	0.01	0.023	0.752	0.137	0.07	18	<0.005	0.008	1.07	0.001	<0.001	0.083	2.9	0.026	0.668	9	0.73
BWM_EIS-11_143.13-143.31n	Gp2	Fresh	Sandstone, fine; common carbonaceous laminae	9.81	20.4	0.014	20.3	113	<0.0004	0.03	0.49	13.55	0.463	2.59	367	0.72	0.063	10.4	0.651	0.683	2.82	103	2.03	10.95	21.8	153
BWM_EIS-13_2.43-2.81m	Gp1	Distinctly	Siltstone; common sandstone bands throughout	7.54	34.8	0.048	19.8	82.9	<0.0004	0.01	1.03	17.85	0.15	2.33	128.5	0.56	0.032	9.41	0.457	0.433	2.6	125	1.72	20.9	92.4	147
BWM_EIS-13_6.22-6.39m	Gp1	Extremely	Siltstone; clayey in part	8.34	38	0.041	13.3	89.9	<0.0004	<0.01	0.53	16.45	0.025	2.76	113.5	0.63	0.034	7.19	0.48	0.613	3.03	118	2.06	17.9	94.2	156
BWM_EIS-13_10.95-11.15m	Gp1	Slightly	Siltstone	8.01	40	0.048	21.2	111.5	<0.0004	0.01	0.67	18.7	0.181	2.72	151.5	0.6	0.041	10.3	0.487	0.587	2.97	136	1.85	20.1	99.4	161
BWM_EIS-13_13.28-13.5m	Gp2	Fresh	Sandstone, med.; minor carb. siltstone laminae	7.72	36.9	0.031	23.4	99.3	0.0004	0.02	0.66	18.15	0.199	2.48	143	0.58	0.035	10.5	0.434	0.461	2.81	118	1.705	19.25	94.3	146
BWM_EIS-13_18.54-18.77m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae	7.18	25.5	0.033	14.75	62.5	<0.0004	0.01	0.66	15.05	0.088	2.18	142.5	0.52	0.017	9.28	0.418	0.291	2.47	97.2	1.64	17.75	83	128
BWM_EIS-13_27.61-27.93m	Gp2	Fresh	Siltstone	8.47	36.6	0.052	16.7	165	<0.0004	0.01	0.44	19.8	0.044	2.78	171.5	0.63	0.055	12.25	0.465	0.764	2.9	123	1.99	26	102.5	159
BWM_EIS-13_35.3-35.55m	Gp2	Fresh	Sandstone, fine-medium	6.15	34.5	0.113	17.25	77.6	<0.0004	0.03	0.51	17.45	0.24	1.9	257	0.44	0.035	7.54	0.46	0.456	2.4	138	1.465	25.2	89.8	136
BWM_EIS-13_42.92-43.12m	Gp2	Fresh	Sandstone, medium; minor sandstone laminae	6.61	32.5	0.06	19.3	88.8	<0.0004	0.02	0.55	17.8	0.133	2.15	239	0.48	0.038	11.1	0.451	0.437	2.69	124	1.645	22.5	90	161
BWM_EIS-13_51.43-51.88m	Gp2	Fresh	Sandstone, medium; siltstone sideritic nodules	6.37	40.7	0.163	18.65	84	0.0005	0.02	0.94	16.45	0.192	2.08	200	0.48	0.042	8.96	0.374	0.4	2.56	110	1.535	31.5	84.9	126
BWM_EIS-13_60.81-61m	Gp2	Fresh	Sandstone, medium; rare carbonaceous laminae	6.88	33.9	0.057	18.25	89.4	0.0011	0.03	0.69	17.45	0.217	2.29	211	0.54	0.038	10.2	0.428	0.434	2.96	117	1.585	19.95	86.6	141
BWM_EIS-13_62.05-62.63m	Coal	Fresh	Coal, undifferentiated; common calcite veins	0.073	3.28	0.062	3.89	1.835	0.0006	0.41	0.109	1.065	0.208	0.19	75.3	<0.005	0.019	2.66	0.002	0.003	0.587	9.6	0.007	4.39	11.5	2.33
BWM_EIS-13_63.05-63.25m	Gp3	Fresh	Carbonaceous Siltstone; minor sideritic laminae	0.005	49.7	0.044	19.15	15.65	0.0013	0.22	1.165	7.73	1.08	0.79	132.5	<0.005	0.11	2.92	0.002	0.051	0.35	54.2	0.013	7.89	78.5	4.05
BWM_EIS-13_64.56-64.77m	Gp2	Fresh	Siltstone; sandstone in part sideritic laminae	5.12	27.2	0.105	17	75.6	0.0011	0.07	0.76	21.4	0.663	1.78	440	0.38	0.137	7.05	0.471	0.45	1.93	159	1.095	25.1	102	140
BWM_EIS-13_73.29-73.55m	Gp2	Fresh	Sandstone, med.; carbonaceous laminae	0.01	25.2	0.065	11.9	7.09	0.0011	0.02	0.322	11.35	0.213	0.51	203	<0.005	0.036	2.88	0.002	0.032	0.447	83.5	0.024	13.75	68.3	3.17
BWM_EIS-13_76.08-76.26m	Gp2	Fresh	Siltstone	8.48	21.7	0.056	17.8	90.9	<0.0004	0.04	0.58	20	0.157	2.23	388	0.6	0.055	9.01	0.554	0.507	2.51	145	1.69	21.9	126	151
BWM_EIS-13_84.59-84.77m	Gp2	Fresh	Siltstone; rare coaly wisps	0.012	30.6	0.074	11.5	9.78	0.0006	0.02	0.218	7.92	0.145	0.61	210	<0.005	0.03	3.42	0.002	0.037	0.333	43.3	0.022	8.76	69.6	3.37
BWM_EIS-13_93.81-93.96m	Gp2	Fresh	Siltstone; sandstone in part; carb. laminae	5.33	18.2	0.188	18.85	86.7	0.0005	0.05	0.49	17.6	0.483	1.99	404	0.38	0.097	8.85	0.42	0.42	2.3	140	1.245	24.8	92.8	143
BWM_EIS-13_101.89-102.04n	Gp2	Fresh	Sandstone, fine; common siltstone laminae	4.1	17.55	0.2	9.25	63.7	0.0004	0.04	0.35	22.8	0.317	1.34	461	0.31	0.07	5.65	0.341	0.319	1.59	141	0.9	31.8	66.7	130
BWM_EIS-13_112.26-112.43n	Gp3	Fresh	Carbonaceous Siltstone; rare coaly laminae	0.009	36.5	0.023	19	14.25	0.0012	0.06	0.337	6.03	0.969	0.73	281	<0.005	0.12	1.98	0.001	0.024	0.329	40.9	0.006	5.6	98.7	3.47
BWM_EIS-13_115.87-116.31n	Coal	Fresh	Coal, dull <1% bright	0.01	0.23	0.001	2.7	0.698	0.0002	0.01	0.007	0.455	0.399	0.05	12.4	<0.005	0.015	0.292	0.001	<0.001	0.059	1.8	0.023	0.266	2.4	0.81
BWM_EIS-13_117.71-117.97n	Gp3	Fresh	Carbonaceous Siltstone	0.034	14.2	0.151	15.55	9.06	0.0005	0.64	0.683	5.17	1.01	0.38	155.5	<0.005	0.071	3.89	0.002	0.035	0.461	19.7	0.028	9.6	67.3	3.24
BWM_EIS-13_121.5-121.63m	Gp2	Fresh	Siltstone; sandstone laminae; minor siderite	6.08	22	0.073	13.55	75.6	0.0005	0.03	0.42	22.1	0.237	1.71	314	0.46	0.041	7.19	0.378	0.401	2.01	148	1.245	25.3	65.7	116
BWM_EIS-15_2.45-2.58m	Gp1	Distinctly	Siltstone; minor sandstone bands throughout	7.45	33.2	0.196	22.3	91.1	0.0004	0.01	0.81	18.1	0.1	2.43	129.5	0.57	0.034	10.7	0.423	0.441	2.86	113	1.635	48.5	85	143
BWM_EIS-15_7.04-7.18m	Gp1	Distinctly	Siltstone	7.92	16.3	0.019	14.45	133.5	<0.0004	0.01	0.46	17.75	0.049	2.57	93.6	0.61	0.034	11.55	0.416	0.627	2.84	104	1.78	22.8	53.7	149
BWM_EIS-15_11.77-11.9m	Gp1	Slightly	Sandstone, medium; carbonaceous traces	7.4	32.9	0.052	16.25	120.5	<0.0004	0.01	0.48	17.15	0.047	2.32	139.5	0.55	0.026	10.6	0.41	0.571	2.94	102	1.705	22.9	79.5	142
BWM_EIS-15_16.74-17m	Gp1	Slightly	Sandstone, fine-medium; siltstone laminae	8.02	46	0.057	19.6	79.1	0.0004	0.01	0.95	18.45	0.132	2.2	177.5	0.58	0.034	8.73	0.48	0.413	2.22	140	1.68	20.4	89.7	147
BWM_EIS-15_18.18-18.34m	Gp2	Fresh	Sandstone, medium; common siltstone laminae	6.58	40	0.236	18.2	63.1	0.0004	0.04	0.95	17.1	0.199	2.05	247	0.5	0.025	8.86	0.412	0.363	2.63	104	1.515	47.8	88.7	133
BWM_EIS-15_25.63-25.86m	Gp2	Fresh	Sandstone, medium; siltstone laminae	7.2	39.1	0.059	17.2	86.7	0.0004	0.02	0.76	18.55	0.151	2.3	205	0.55	0.032	10.45	0.454	0.408	2.81	123	1.75	24.2	90.5	144
BWM_EIS-15_32.93-33.08m	Gp2	Fresh	Sandstone, medium; siltstone laminae	7.26	43.7	0.053	33.3	108.5	0.001	0.03	0.96	20.3	0.322	2.39	259	0.53	0.064	9.4	0.529	0.532	2.63	157	1.58	23.5	98.7	162

Table B2. Total Element Concentrations of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo	Na
				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	%
BWM_EIS-15_40.07-40.27m	Gp2	Fresh	Claystone; sandstone fragments throughout	0.081	9.48	3.11	480	1.75	0.508	1.53	0.024	40.5	14.45	69.8	7.73	33	4.62	19.65	0.31	3.65	0.04	0.052	1.94	18.05	34.5	1.05	626	0.53	0.848
BWM_EIS-15_48.29-48.44m	Gp2	Fresh	Sandstone, medium; common sideritic nodules	0.096	8.95	20.5	372	1.8	0.215	2.03	0.111	43.3	17.65	75.6	7.34	41.1	4.68	18.6	0.28	3.45	0.081	0.058	1.86	19.65	34.6	0.98	946	0.99	0.733
BWM_EIS-15_56.21-56.31m	Gp2	Fresh	Sandstone, fine-medium; carb. siltstone laminae	0.08	9.2	15.8	184	2.08	0.308	0.47	0.117	62	15.1	73.2	8.14	48	4	23.6	0.34	4.37	0.08	0.062	1.82	28.4	41.6	0.73	990	0.81	0.458
BWM_EIS-15_58.28-58.88m	Coal	Fresh	Coal, undifferentiated	0.021	0.2	1.03	976	0.37	0.124	4.38	0.026	5.49	1.88	1.19	0.399	8.96	0.28	0.245	0.233	0.091	0.048	0.013	0.03	1.8	2.5	0.09	424	0.16	0.057
BWM_EIS-15_61.46-61.66m	Gp3	Fresh	Carbonaceous Siltstone	0.157	1.68	43.4	29	0.79	0.339	0.28	0.153	6.79	23.9	17.8	3.32	55	2.56	4.78	0.047	0.124	0.437	0.047	0.26	2.4	22.8	0.64	115	1.8	0.114
BWM_EIS-15_63.34-63.51m	Gp2	Fresh	Siltstone	0.09	10.7	7.5	520	2.19	0.343	0.28	0.139	63.6	12.6	57.6	18.75	55.2	3.11	25.1	0.27	4.77	0.117	0.083	3.41	28.9	28.1	0.97	272	2.12	0.601
BWM_EIS-15_70.99-71.19m	Gp2	Fresh	Sandstone, medium; trace calcite & siderite	0.027	6.65	17	6600	1.2	0.067	3.79	0.061	34.7	23	61.6	3.15	18.45	9.68	13.9	0.4	2.26	0.131	0.04	1.4	15.05	13.1	0.81	1300	1.91	1.745
BWM_EIS-15_78.95-79.08m	Gp2	Fresh	Sandstone, medium	0.03	7.54	6.93	1040	1.22	0.09	3.82	0.053	36.1	14.95	49.8	3.14	18.4	3.51	16	0.33	2.39	0.017	0.046	1.5	16.4	18.9	0.85	1015	0.88	2.22
BWM_EIS-15_87.23-87.36m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae	0.032	1.42	7.49	246	0.79	0.0919	1.95	0.158	14	25.9	26.2	1.1	34.3	8.29	5.35	0.113	0.114	0.025	0.028	0.16	4.98	21.5	0.88	2060	0.84	0.088
BWM_EIS-15_96.16-96.29m	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae	0.075	9.22	5.31	406	1.88	0.271	1	0.11	52.2	14.75	55.9	10.35	50.7	4.97	22.1	0.42	3.75	0.056	0.061	2.16	23.5	36.9	1.23	705	0.84	1.165
BWM_EIS-15_104.45-104.59n	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae	0.062	8.17	10.8	309	1.65	0.21	1.97	0.092	46.4	15.15	57	7.37	42.5	5.79	20.3	0.41	3.33	0.046	0.051	1.98	21	25.2	1.42	987	0.85	1.005
BWM_EIS-15_111.91-112.17n	Gp3	Fresh	Carbonaceous Siltstone	0.09	0.79	4.14	2480	0.88	0.297	0.25	0.12	3.35	8.38	4.81	10.5	51.7	0.64	1.845	0.025	0.105	0.138	0.032	0.26	1.38	8.8	0.24	57.3	0.67	0.127
BWM_EIS-15_113.71-113.94n	Coal	Fresh	Coal, 10-40% bright; minor siltstone	0.005	0.13	0.05	15.9	0.1	0.0409	1.05	0.036	1.97	7.35	0.36	0.163	5.17	4.67	0.283	0.388	0.022	0.011	0.005	0.03	0.715	3.9	0.13	568	0.07	0.023
BWM_EIS-15_115.64-115.94n	Gp2	Fresh	Siltstone; abundant carbonaceous traces	0.095	10.5	6.49	179	1.78	0.347	0.64	0.193	62.8	10.75	53.2	14.5	71.3	3.26	25.6	0.33	4.04	0.164	0.073	2.63	29.7	31.6	0.96	282	1.62	0.795
BWM_EIS-15_118.02-118.18n	Coal	Fresh	Coal, undifferentiated	0.006	0.24	0.05	92	0.11	0.0905	0.17	0.007	7.5	2.51	1.71	0.259	7.39	2.75	0.393	0.185	0.027	0.009	0.01	0.04	2.71	4.7	0.11	335	0.09	0.032
BWM_EIS-15_119.86-120.19n	Gp3	Fresh	Carbonaceous Siltstone	0.096	0.6	6.74	628	0.69	0.329	0.33	0.167	14.45	15.1	5.22	4.12	45.7	6.48	1.595	0.096	0.105	0.141	0.046	0.25	5.29	5.5	0.26	845	0.74	0.142
BWM_EIS-15_121.89-121.93n	Gp3	Fresh	Carbonaceous Siltstone; pyritic	0.004	0.08	0.38	73.9	0.27	0.0113	1.65	0.249	5.19	12.4	0.72	0.084	1.34	36.1	0.605	0.473	0.122	0.005	<0.005	0.02	2.19	9.8	0.64	5210	0.05	0.046
BWM_EIS-15_123.12-123.25n	Gp2	Fresh	Sandstone, fine-medium; carb. siltstone laminae	0.064	11.7	3.13	400	2.36	0.255	0.19	0.121	29.3	5.32	59.6	12.05	53.6	2.73	25.9	0.15	3.61	0.072	0.068	3.14	15.35	25.9	0.46	49.7	0.64	0.222
BWM_EIS-17_0.57-1.08m	Gp1	Extremely	Clay	0.084	5.26	6.89	430	1.91	0.186	0.68	0.071	81.7	37.5	83.6	3.72	36.3	3	10.8	0.13	3.08	0.013	0.049	0.18	28.9	28.1	0.49	2400	0.84	0.309
BWM_EIS-17_5.53-7.5m	Gp1	Distinctly	Silt	0.073	8.37	12.85	337	1.91	0.268	1.41	0.088	51.9	16.05	60.5	6.76	33.7	4.34	19.85	0.13	4.25	0.04	0.067	1.59	23.5	34.2	1.06	928	0.85	0.852
BWM_EIS-17_13-15.5m	Gp1	Distinctly	Siltstone; soft	0.096	8.97	10.5	259	2.15	0.308	0.81	0.108	52.9	17.5	65.5	8.38	40.2	4.3	21.1	0.15	4.45	0.065	0.073	1.91	24.7	37	0.96	547	1	0.765
BWM_EIS-17_20-21.52m	Gp1	Slightly	Sandstone, fine; silty bands	0.092	8.61	12.35	410	2.04	0.234	0.73	0.095	48.5	18.1	80.1	6.61	37.2	4.43	20.4	0.14	4.29	0.056	0.065	1.7	21.3	35.1	0.96	488	1.34	0.991
BWM_EIS-17_30.54-32.28m	Gp2	Fresh	Siltstone	0.111	9.15	5.25	264	2.65	0.377	0.35	0.138	46	17.45	56	12	42.2	4.48	22.8	0.15	4.89	0.093	0.071	2.57	20.3	27.4	0.96	222	0.53	0.517
BWM_EIS-17_35.27-37m	Gp2	Fresh	Sandstone, fine; silty bands	0.063	7.81	9.09	227	1.65	0.181	2.24	0.066	56.2	17.3	77	4.34	24.5	4.08	18.2	0.15	3.79	0.041	0.056	1.24	26.3	30.1	0.76	1080	0.76	1.28
BWM_EIS-17_44.2-46.35m	Gp2	Fresh	Sandstone, fine; silty laminae in part	0.098	8.42	19.45	349	1.94	0.218	1.63	0.106	38.8	17.05	82.9	5.8	43.3	4.44	20.3	0.16	4.11	0.051	0.069	1.64	17.05	37.4	0.88	862	0.81	0.802
BWM_EIS-17_55.5-57.58m	Gp2	Fresh	Sandstone, fine; part silty	0.059	7.33	15.5	391	1.44	0.166	3.02	0.067	50.4	15.15	91.9	5.04	22.6	3.47	16.85	0.14	3.37	0.031	0.051	1.45	24.2	24.7	0.75	1340	1.24	0.971
BWM_EIS-17_67.03-68.94m	Gp2	Fresh	Siltstone; cobbles in part	0.106	8.19	6.73	429	2.17	0.283	1.23	0.1	48.4	13.8	59.3	8.01	37.9	4.5	20.4	0.17	4.24	0.031	0.055	2.05	20.6	31.4	0.99	552	0.35	0.697
BWM_EIS-17_73.59-74.15m	Gp3	Fresh	Carbonaceous Siltstone	0.103	9.85	11.55	540	2.68	0.308	0.86	0.131	70.3	24.7	71	9.64	64.4	4.72	23.1	0.18	4.31	0.052	0.075	2.23	31.8	43.3	0.98	1045	1.5	0.388
BWM_EIS-17_83.13-85.2m	Gp2	Fresh	Sandstone, very fine; silty laminae throughout	0.103	7.88	15.6	510	1.77	0.207	1.97	0.09	40.5	16.5	78.3	6.53	34.9	3.99	18.95	0.15	3.87	0.053	0.062	1.75	17.9	31.9	0.95	638	0.77	0.682
BWM_EIS-17_94.52-96.49m	Gp2	Fresh	Siltstone, sideritic	0.103	8.59	14.1	470	2	0.319	1.8	0.113	57.5	17.25	66.3	9.19	42.6	4.55	20.4	0.2	4.35	0.091	0.071	1.94	26.2	36	0.91	918	0.94	0.543
BWM_EIS-17_100.46-101.24n	Coal	Fresh	Coal	0.044	0.13	6.27	104	0.32	0.0938	6.25	0.055	4.06	3.22	6.16	0.517	21.8	1.65	0.366	0.219	0.035	0.068	0.01	0.04	1.445	3.5	0.65	600	0.8	0.019
BWM_EIS-17_102.93-104.34n	Gp2	Fresh	Sandstone, fine, partly sideritic	0.087	8.01	12.05	480	1.27	0.189	2.39	0.132	41.3	14.5	50.4	5.6	42	4.25	17.5	0.16	3.49	0.137	0.062	1.76	18.1	24.8	1.12	736	1.28	1.16
BWM_EIS-17_110.76-113.06n	Gp2	Fresh	Sandstone, v. fine; coarser bands; partly sideritic	0.128	7.78	14.8	500	1.63	0.281	2.67	0.15	50.7	11.9	50.2	7.43	44.3	3.95	18.05	0.17	4.04	0.113	0.071	1.93	22.6	26.1	1.09	717	0.94	0.837
BWM_EIS-17_116.19-117.75n	Coal	Fresh	Coal	0.046	0.27	3.6	121.5	0.4	0.191	0.96	0.069	9.5	5.1	3.59	3.18	35.9	0.37	0.344	0.101	0.066	0.076	0.019	0.1	3.39	4	0.12	186	0.56	0.048
BWM_EIS-17_119.52-121.06n	Coal	Fresh	Coal, 40-60% bright; trace siltstone	0.016	0.14	0.14	37.7	0.13	0.0893	0.21	0.038	3.77	0.484	1.87	0.159	14.35	0.33	0.176	0.153	0.029	0.027	0.013	0.03	1.26	2.1	0.06	65	0.09	0.023
BWM_EIS-17_123.77-124.22n	Gp3	Fresh	Carbonaceous Siltstone	0.109	0.67	17.4	314	1.02	0.466	0.5	0.18	17.8	32.4	13.6	4.14	69.4	4.72	2.37	0.062	0.07	0.19	0.052	0.19	6.97	9.1	0.39	1505	2.42	0.13
BWM_EIS-17_126.8-128.72m	Coal	Fresh	Coal, 60-90% bright	0.02	0.05	0.23	22.8	0.17	0.1	0.48	0.027	4.85	2.54	4.58	0.172	14.25	2.38	0.192	0.223	0.028	0.01	0.009	0.02	1.87	1.9	0.19	369	0.23	0.031
BWM_EIS-17_128.94-130.05n	Gp2	Fresh	Siltstone; part coaly and carbonaceous	0.091	0.75	10.85	332	0.8	0.342	0.24	0.138	7.01	7.17	8.73	5.01	60.8	1.6	2.44	0.033	0.082	0.108	0.046	0.19	2.9	12	0.3	175.5	0.82	0.177
BWM_EIS-17_146.47-148.97n	Gp2	Fresh	Sandstone, very fine	0.091	8.73	10.6	810	1.97	0.281	0.9	0.128	57	16.8	52.3	8.94	54	4.57	20.3	0.19	3.99	0.053	0.056	2.12	27.4	28.5	0.87	653	0.93	1.54
BWM-EIS19_1.55-3.1m	Gp1	Extremely	Clay; sub angular throughout	0.074	6.65	9.38	530	1.25	0.194	1.12	0.042	40.2	10.6	92.7	5.31	30.9	3.49	14.85	0.11	3.37	0.011	0.05	0.65	19.2	24	0.57	203	1.11	0.475
BWM-EIS19_6.14-8.08m	Gp1	Weathered	Sandstone, fine-medium	0.157	7.33	25.5	298	1.53	0.179	2.68	0.102	43.5	17.2	87.5	6.35	70.3	4.25	16.3	0.12	3.36	0.081	0.054	0.98	20	38.2	0.73	1350	1.97	1.245
BWM-EIS19_12.61-13.92m	Gp1	Weathered	Sandstone, fine; sparse disseminated in part	0.168	9.36	6.4	191	2.55	0.383	0.35	0.067	62	17.8	66	8.7	58.4	4.39	23.5	0.17	4.85	0.058	0.078	2.3	28.1	34	1.08	193	1.29	0.665
BWM-EIS19_19.1-21.13m	Gp1	Weathered	Sandstone, fine-medium	0.136	8.45	16.15	201	1.91	0.265	1.28	0.111	45.9	15.75	78.7	5.79	56.7	4.39	20.2	0.15	4.25	0.043	0.061	1.64	20.2	36.6	0.87	614	1.41	0.984
BWM-EIS19_27.14-28.59m	Gp2	Fresh	Sandstone, med.; partly coaly; minor calcareous	0.087	8.16	15.55	600	1.92	0.235	0.72	0.078	46.3	14.75	78.2	5.91	34.5	4.21	20.1	0.14	4.29	0.045	0.068	1.64	21	31.5	0.88	298	0.56	0.886
BWM-EIS19_33.63-35.15m	Gp2	Fresh	Sandstone, fine; calcareous finer bands	0.101	8.87	20.5	261	2.06	0.254	0.51	0.112	55.6	19.3	82.4	6.98	41.2	4.86	20.7	0.16	4.44	0.041	0.068	1.74	25	38.6	1.02	438	1.05	0.773
BWM-EIS19_41.29-42.67m	Gp2	Fresh	Sandstone, fine-medium; finer in part	0.084	7.57	7.48	272	1.57	0.166	4.46	0.075	44	14.5	62.1	6.71	35.5	4.52	17.2	0.14	3.57	0.106	0.056	1.65	19.65	30.8	0.9	1120	0.41	0.546
BWM-EIS19_49.05-50.37m	Gp2	Fresh	Sandstone, fine-medium; finer bands in part	0.101	8.09	6.14	347	1.8	0.23	2.79	0.119	45.1	14.55	76.5	6.81	42.3	3.89	18.35	0.12	3.94	0.027	0.061	1.83	19.95	31.2	0.96	1080	0.39	0.779
BWM-EIS19_57.17-58.41m	Gp2	Fresh	Sandstone, fine; finer bands	0.12	8.05	9.27	421	1.98	0.256	1.79	0.11	63	15.35	63.3	8.79	44.5	4.15	17.9	0.15	4.01	0.04	0.069	1.99	28.8	28.8	1.06	697	0.39	0.68
BWM-EIS19_64.19-64.64m	Gp2	Fresh	Sandstone, medium; partly sideritic	0.076	7.07	18.05	530	1.67	0.217	3.41	0.079	58.7	17.35	61.4	6.13	44.7	5.16	16.8	0.15	3.58	0.043	0.054	1.49	26.1	24.9	1.01	1180	0.86	0.698
BWM-EIS19_72.22-73.88m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	0.069	8.65	13.5	402	1.72	0.197	2.56	0.117	45.3	16.25	72.2	5.48	46.2	3.74	20.3	0.13	4.14	0.073	0.067	1.46	19.25	41.8	0.79	727	0.95	0.502

Table B2. Total Element Concentrations of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	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
BWM_EIS-15_40.07-40.27m	Gp2	Fresh	Claystone; sandstone fragments throughout	5.92	31.3	0.077	18.85	82.9	<0.0004	0.02	0.52	14.85	0.057	1.95	269	0.43	0.032	8.15	0.439	0.452	2.36	127	1.54	21.1	77.3	129
BWM_EIS-15_48.29-48.44m	Gp2	Fresh	Sandstone, medium; common sideritic nodules	6.12	39.2	0.086	15.25	88.2	<0.0004	0.03	0.78	16.9	0.283	1.94	282	0.43	0.057	8.26	0.447	0.449	2.17	139	1.37	21.3	102.5	131
BWM_EIS-15_56.21-56.31m	Gp2	Fresh	Sandstone, fine-medium; carb. siltstone laminae	9.31	40.7	0.064	20.6	90	<0.0004	0.03	0.6	22.7	0.258	2.52	205	0.69	0.057	10.95	0.498	0.479	2.86	136	1.93	29.4	86	163
BWM_EIS-15_58.28-58.88m	Coal	Fresh	Coal, undifferentiated	0.064	1.94	0.076	4.84	1.645	0.0002	0.19	0.09	2.03	0.152	0.29	175	<0.005	0.022	5.17	0.002	<0.001	0.75	7.7	0.015	6.42	12.8	2.46
BWM_EIS-15_61.46-61.66m	Gp3	Fresh	Carbonaceous Siltstone	0.011	59.4	0.035	23.5	14.6	0.0015	0.19	1.02	5.28	1.44	0.73	150	<0.005	0.114	2.62	0.002	0.07	0.288	40.5	0.008	3.89	86.1	4.21
BWM_EIS-15_63.34-63.51m	Gp2	Fresh	Siltstone	6.72	27.2	0.03	15.6	146.5	0.0012	0.11	0.8	21.4	0.697	2.56	354	0.51	0.096	9.56	0.526	0.734	2.39	173	1.575	30.8	114	158
BWM_EIS-15_70.99-71.19m	Gp2	Fresh	Sandstone, medium; trace calcite & siderite	3.84	25.4	0.078	12.05	50.1	0.0006	0.21	1.23	17.9	0.138	1.26	538	0.25	0.02	4.84	0.374	0.356	1.33	132	1.075	19.65	72.3	92.3
BWM_EIS-15_78.95-79.08m	Gp2	Fresh	Sandstone, medium	5.38	20.4	0.073	12.35	52.1	0.0004	0.03	0.49	12.85	0.04	1.31	374	0.38	0.018	5.07	0.392	0.288	1.26	94.3	1.015	15.65	64.6	85.9
BWM_EIS-15_87.23-87.36m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae	0.009	34	0.057	10.95	7.02	0.0007	0.02	0.157	9.07	0.086	0.59	203	<0.005	0.022	2.44	0.004	0.028	0.437	107	0.018	8.45	55.6	4.1
BWM_EIS-15_96.16-96.29m	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae	7.11	31.1	0.094	15.5	96.1	0.0004	0.03	0.56	19.4	0.301	2.03	333	0.52	0.06	8.58	0.473	0.491	2.22	143	1.445	23.8	93	138
BWM_EIS-15_104.45-104.59n	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae	5.93	30.8	0.117	14.1	82.3	0.0005	0.04	0.52	21.2	0.218	1.71	340	0.44	0.051	7.21	0.425	0.418	1.87	153	1.17	21.7	77	127
BWM_EIS-15_111.91-112.17n	Gp3	Fresh	Carbonaceous Siltstone	0.013	10.65	0.009	14.75	22.3	0.0006	0.12	0.284	2.94	0.617	0.5	328	<0.005	0.058	0.902	0.001	0.01	0.229	14.4	0.003	1.63	50.3	3.44
BWM_EIS-15_113.71-113.94n	Coal	Fresh	Coal, 10-40% bright; minor siltstone	0.029	0.8	0.026	1.045	1.15	0.0002	0.8	0.038	1.04	0.145	0.09	62.5	<0.005	0.012	0.239	0.001	<0.001	0.065	4	0.009	1.545	4.8	0.74
BWM_EIS-15_115.64-115.94n	Gp2	Fresh	Siltstone; abundant carbonaceous traces	8.79	22.6	0.078	23.9	118.5	0.0006	0.04	0.5	19.9	0.506	2.43	365	0.65	0.078	10.4	0.546	0.602	2.56	146	1.85	22.2	117.5	130
BWM_EIS-15_118.02-118.18n	Coal	Fresh	Coal, undifferentiated	0.005	0.37	0.012	2.49	1.61	0.0002	0.37	0.016	1.21	0.392	0.16	23.5	<0.005	0.033	0.876	0.001	<0.001	0.113	3.4	0.012	0.997	3.8	0.67
BWM_EIS-15_119.86-120.19n	Gp3	Fresh	Carbonaceous Siltstone	0.011	10.6	0.034	16.6	12.1	0.0005	0.24	0.385	4.62	1.025	0.41	201	<0.005	0.073	3.28	0.001	0.02	0.336	16.2	0.01	7.28	57.2	3.32
BWM_EIS-15_121.89-121.93n	Gp3	Fresh	Carbonaceous Siltstone; pyritic	0.116	4.99	0.2	1.485	0.659	0.0002	1.5	0.113	4.71	0.072	0.05	72.4	<0.005	0.003	0.178	0.001	<0.001	0.101	4.9	0.028	5.28	16.6	5.03
BWM_EIS-15_123.12-123.25n	Gp2	Fresh	Sandstone, fine-medium; carb. siltstone laminae	9.5	24.4	0.017	19.45	116.5	0.0005	2.14	0.38	12.95	0.462	2.23	411	0.63	0.057	8.9	0.591	0.7	2.62	114	1.73	12.9	47.1	152
BWM_EIS-17_0.57-1.08m	Gp1	Extremely	Clay	8.93	45.6	0.017	25.6	35.5	0.0005	0.04	0.64	10.15	0.285	1.81	141.5	0.62	0.04	7.77	0.44	0.316	1.83	85.2	14.5	31.8	57.8	112
BWM_EIS-17_5.53-7.5m	Gp1	Distinctly	Silt	7.91	33.5	0.06	19.05	82.1	0.0004	0.01	0.86	16.65	0.167	2.59	137	0.59	0.036	10.1	0.444	0.466	3.2	114	3.77	25.6	88.8	140
BWM_EIS-17_13-15.5m	Gp1	Distinctly	Siltstone; soft	8.11	37.7	0.054	19.85	105	<0.0004	0.01	0.85	18.1	0.149	2.81	135	0.6	0.041	11.55	0.452	0.529	3.16	129	2.95	22.6	93.8	152
BWM_EIS-17_20-21.52m	Gp1	Slightly	Sandstone, fine; silty bands	7.27	42	0.063	18.4	83.2	0.0004	0.04	1.13	16.4	0.248	2.53	156	0.55	0.044	8.9	0.441	0.489	2.57	132	4.22	22.7	93.9	143
BWM_EIS-17_30.54-32.28m	Gp2	Fresh	Siltstone	8.53	35.1	0.047	23.1	133	<0.0004	0.02	0.7	19.25	0.167	3.01	177	0.67	0.054	10.85	0.478	0.774	3.3	132	2.74	22.2	101.5	161
BWM_EIS-17_35.27-37m	Gp2	Fresh	Sandstone, fine; silty bands	7.27	40.1	0.057	17.35	69.1	<0.0004	0.04	0.76	14.35	0.082	2.47	197.5	0.54	0.031	10.2	0.401	0.351	2.69	102	7.14	23.5	80.9	129
BWM_EIS-17_44.2-46.35m	Gp2	Fresh	Sandstone, fine; silty laminae in part	7.34	44.5	0.084	18.45	60.1	<0.0004	0.03	0.97	15.55	0.197	2.78	243	0.54	0.035	7.16	0.443	0.456	2.45	127	3.94	20.5	92.9	140
BWM_EIS-17_55.5-57.58m	Gp2	Fresh	Sandstone, fine; part silty	6.71	38.9	0.045	14.7	77.5	<0.0004	0.01	0.69	14.45	0.074	2.32	285	0.48	0.026	8.96	0.399	0.356	2.35	107	5.37	21.9	77.7	113
BWM_EIS-17_67.03-68.94m	Gp2	Fresh	Siltstone; cobbles in part	7.93	32	0.116	16.15	89.8	0.0004	0.03	0.75	15.95	0.165	2.72	240	0.61	0.042	9.13	0.431	0.529	2.82	118	2.48	28.6	91.5	142
BWM_EIS-17_73.59-74.15m	Gp3	Fresh	Carbonaceous Siltstone	7.78	40.6	0.249	18.7	116	0.0004	0.06	0.94	22.5	0.394	2.28	297	0.57	0.075	9.86	0.501	0.603	2.56	181	2.42	44.3	101.5	151
BWM_EIS-17_83.13-85.2m	Gp2	Fresh	Sandstone, very fine; silty laminae throughout	6.64	41	0.067	16.25	72.5	0.0004	0.04	0.97	15.25	0.29	2.25	273	0.48	0.045	7.27	0.401	0.444	1.98	126	3.1	20.7	87.7	129
BWM_EIS-17_94.52-96.49m	Gp2	Fresh	Siltstone, sideritic	8.14	37.2	0.06	20	96.2	0.0006	0.04	0.78	18.2	0.36	2.54	258	0.61	0.056	10.7	0.464	0.48	2.89	131	2.3	24.9	92.4	151
BWM_EIS-17_100.46-101.24n	Coal	Fresh	Coal	0.039	6.74	0.067	4.75	2.18	0.0013	0.58	0.395	1.935	0.258	0.56	256	<0.005	0.029	1.985	0.001	0.005	0.41	9.5	0.496	4.76	16.2	1.56
BWM_EIS-17_102.93-104.34n	Gp2	Fresh	Sandstone, fine, partly sideritic	4.58	30.2	0.089	13.15	68.8	0.0011	0.07	0.51	17.05	0.54	1.65	387	0.34	0.092	6.13	0.397	0.402	1.65	126	2.19	21.3	82.4	126
BWM_EIS-17_110.76-113.06n	Gp2	Fresh	Sandstone, v. fine; coarser bands; partly sideritic	6.44	28	0.092	16.35	85	0.0009	0.08	0.52	15.6	0.668	2.16	364	0.47	0.081	7.79	0.414	0.443	1.95	134	1.855	26.1	88.6	142
BWM_EIS-17_116.19-117.75n	Coal	Fresh	Coal	0.025	6.92	0.056	7.8	9.14	0.0006	0.05	0.127	1.95	0.422	0.32	103	<0.005	0.054	1.745	0.001	0.001	0.249	11.5	0.114	8.09	29.3	2.23
BWM_EIS-17_119.52-121.06n	Coal	Fresh	Coal, 40-60% bright; trace siltstone	0.009	0.73	0.074	2.46	1.295	0.0004	0.03	0.015	1.17	0.324	0.18	44.6	<0.005	0.021	0.714	0.001	<0.001	0.126	4.6	0.054	2.82	7.8	1.17
BWM_EIS-17_123.77-124.22n	Gp3	Fresh	Carbonaceous Siltstone	0.016	52.3	0.059	19.7	11.8	0.0006	0.12	0.709	8.04	0.487	0.51	209	<0.005	0.092	3.44	0.001	0.036	0.455	29.2	0.052	10.2	98.1	2.96
BWM_EIS-17_126.8-128.72m	Coal	Fresh	Coal, 60-90% bright	0.029	3.71	0.005	8.83	1.015	0.0003	0.05	0.052	1.18	0.178	0.33	21.5	<0.005	0.019	0.651	0.001	<0.001	0.089	3.1	0.13	2.21	5.5	1.05
BWM_EIS-17_128.94-130.05n	Gp2	Fresh	Siltstone; part coaly and carbonaceous	0.015	17.5	0.014	19.2	11.9	0.0004	0.02	0.238	5.22	0.431	0.5	263	<0.005	0.067	1.705	0.002	0.052	0.352	18.8	0.026	4.62	85	2.65
BWM_EIS-17_146.47-148.97n	Gp2	Fresh	Sandstone, very fine	8.1	32.8	0.085	19.45	101	0.0006	0.07	0.73	16.85	0.301	2.53	402	0.6	0.06	9.3	0.47	0.513	2.41	135	2.59	23.8	92.4	139
BWM-EIS19_1.55-3.1m	Gp1	Extremely	Clay; sub angular throughout	7.14	35.8	0.017	14.05	55.2	0.0005	0.06	0.82	12.4	0.441	2.44	172.5	0.51	0.035	8.17	0.393	0.337	3.28	99.6	20.1	15.85	51.7	115
BWM-EIS19_6.14-8.08m	Gp1	Weathered	Sandstone, fine-medium	6.35	49.7	0.044	20.1	47.1	0.0004	0.01	0.89	13.5	0.197	4.98	151	0.48	0.032	8.55	0.341	0.288	2.39	93.5	12.1	20.4	76.1	112
BWM-EIS19_12.61-13.92m	Gp1	Weathered	Sandstone, fine; sparse disseminated in part	8.63	40.5	0.107	23.6	125.5	<0.0004	0.01	0.87	21.2	0.18	3.41	154	0.62	0.051	12.05	0.486	0.596	3.46	147	2.35	30.7	104	163
BWM-EIS19_19.1-21.13m	Gp1	Weathered	Sandstone, fine-medium	7.81	40.8	0.079	18.8	71.7	<0.0004	0.01	0.84	16.4	0.246	3.61	178	0.58	0.038	9.02	0.435	0.436	2.86	122	4.33	24.5	93.4	140
BWM-EIS19_27.14-28.59m	Gp2	Fresh	Sandstone, med.; partly coaly; minor calcareous	7.82	35.3	0.074	19	79.8	<0.0004	0.05	0.76	16.15	0.148	3.03	149	0.59	0.034	9.58	0.446	0.423	2.87	116	4.27	22.6	90.4	143
BWM-EIS19_33.63-35.15m	Gp2	Fresh	Sandstone, fine; calcareous finer bands	7.62	44.9	0.069	19.75	92.4	0.0004	0.03	1.05	17.7	0.223	2.7	171	0.56	0.041	10.7	0.443	0.471	2.96	126	3.44	25.4	98.2	147
BWM-EIS19_41.29-42.67m	Gp2	Fresh	Sandstone, fine-medium; finer in part	5.85	33.3	0.062	14.5	87.2	<0.0004	0.02	0.58	14.05	0.103	2.23	334	0.43	0.029	7.93	0.371	0.441	2.19	107	3.59	21.8	83.1	121
BWM-EIS19_49.05-50.37m	Gp2	Fresh	Sandstone, fine-medium; finer bands in part	6.89	35.5	0.078	20.2	79.5	<0.0004	0.02	0.55	15.2	0.162	2.44	266	0.53	0.044	8.31	0.426	0.458	2.23	125	2.92	23.6	87.2	137
BWM-EIS19_57.17-58.41m	Gp2	Fresh	Sandstone, fine; finer bands	7.61	40.6	0.107	17.8	110	0.0005	0.03	0.66	14.95	0.238	2.5	261	0.57	0.039	10.8	0.41	0.515	2.75	125	2.49	26.7	92.1	138
BWM-EIS19_64.19-64.64m	Gp2	Fresh	Sandstone, medium; partly sideritic	6.22	35.9	0.229	16.8	77.1	0.0007	0.1	0.63	15.6	0.194	2.48	302	0.46	0.046	8.79	0.368	0.376	2.43	113	4.01	36.1	81.3	132
BWM-EIS19_72.22-73.88m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	8.38	43	0.072	17.2	55.4	<0.0004	0.04	0.81	17	0.232	2.61	269	0.59	0.035	7.25	0.475	0.417	1.92	133	3.1	22.2	90.6	145

Table B2. Total Element Concentrations of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo	Na
				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	%
BWM-EIS19_81.82-82.79m	Gp2	Fresh	Sandstone, fine; carb. siltstone bands; calcareous	0.075	9.5	23.8	1480	1.77	0.239	1.81	0.109	53.1	16.1	83.5	6.16	50.3	4.08	21.3	0.16	4.51	0.135	0.059	1.5	23.8	44.8	0.69	734	1.08	0.536
BWM-EIS19_82.79-83.24m	Coal	Fresh	Coal	0.025	0.1	1.1	261	0.33	0.0634	0.87	0.022	2.26	1.37	2.03	0.112	13.05	1.08	0.526	0.536	0.056	0.097	0.006	0.01	0.941	1.5	0.06	350	0.28	0.015
BWM-EIS19_83.24-83.52m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	0.124	0.95	26.2	392	0.85	0.523	0.26	0.236	4.76	21.3	9.47	5.2	76.5	2.39	2.92	0.039	0.079	0.872	0.074	0.24	1.78	8.9	0.3	526	4.22	0.136
BWM-EIS19_84.24-85.31m	Coal	Fresh	Coal	0.05	0.26	0.83	361	0.34	0.126	0.66	0.063	3.96	0.699	2.15	1.84	28.3	0.37	0.371	0.18	0.057	0.04	0.016	0.06	1.555	1.7	0.05	74.2	0.37	0.029
BWM-EIS19_86.19-86.36m	Gp3	Fresh	Carbonaceous Siltstone; coaly wisps	0.122	0.8	17.2	436	1.08	0.484	0.43	0.18	6.61	17	8.46	5.92	65.3	1.52	2.4	0.033	0.087	0.279	0.062	0.22	2.63	6.7	0.29	267	1.75	0.127
BWM-EIS19_91.09-92.04m	Gp2	Fresh	Sandstone, fine; partly calcareous	0.099	9.97	11.65	540	1.92	0.33	0.65	0.156	63	15.5	52.6	9.05	62	3.98	23.9	0.2	4.54	0.192	0.07	2.07	29.3	35.4	0.78	558	1.27	0.645
BWM-EIS19_93.13-94.18m	Coal	Fresh	Coal, 60-90% bright	0.011	0.13	0.22	17.3	0.09	0.0528	0.29	0.036	2.59	0.343	1.2	0.087	10.55	0.5	0.246	0.274	0.026	0.024	0.009	0.01	0.931	1.2	0.07	61.9	0.06	0.015
BWM-EIS19_98.71-100.15m	Gp2	Fresh	Sandstone, med.; partly finer; trace siderite & coaly	0.069	7.69	19.5	367	1.31	0.437	3.96	0.095	43.8	13.05	63.1	4.84	46.6	5.68	17.8	0.15	2.87	0.096	0.042	1.27	20.9	25.8	1.33	1010	0.95	1.04
BWM-EIS19_105.44-107.25m	Coal	Fresh	Coal	0.017	0.07	0.14	25.1	0.09	0.0694	0.21	0.025	4.09	3.96	3.71	0.157	14.55	3.14	0.239	0.339	0.022	0.006	0.009	0.02	1.47	1.8	0.11	532	0.12	0.027
BWM-EIS19_112.34-113.69m	Gp2	Fresh	Sandstone, v. fine; partly carbonaceous & sideritic	0.103	8.56	5.77	680	1.92	0.327	1.46	0.152	58.6	20.7	51.1	8.54	73.5	6.58	20.8	0.21	3.96	0.106	0.07	1.98	26.8	24.6	1.02	1000	1.63	1.13
BWM-EIS19_120.91-121.41m	Gp3	Fresh	Carbonaceous Siltstone; minor coal	0.111	0.87	5.34	392	0.89	0.372	0.9	0.154	13	11.2	9.87	3.29	57.4	4.62	2.47	0.058	0.063	0.156	0.051	0.23	4.18	9.5	0.37	150	1.48	0.157

Table B2. Total Element Concentrations of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	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
BWM-EIS19_81.82-82.79m	Gp2	Fresh	Sandstone, fine; carb. siltstone bands; calcareous	8.77	41.1	0.073	19	68.4	0.0004	0.07	0.85	18.3	0.358	2.92	261	0.64	0.051	9.63	0.533	0.404	2.52	141	3.34	24.6	96.7	150
BWM-EIS19_82.79-83.24m	Coal	Fresh	Coal	0.085	4.72	0.003	3.88	0.57	0.0004	0.22	0.092	1.25	0.114	0.42	39.7	<0.005	0.008	1.145	0.002	0.019	0.212	5.2	0.148	1.6	14.7	2
BWM-EIS19_83.24-83.52m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	0.009	46.2	0.01	26.2	16.45	0.0022	0.4	1.02	6.4	1.815	0.82	175.5	<0.005	0.112	1.6	0.001	0.924	0.317	30.1	0.024	6.55	111.5	2.41
BWM-EIS19_84.24-85.31m	Coal	Fresh	Coal	0.031	1.81	0.085	4.28	4.06	0.0008	0.21	0.096	1.64	0.34	0.26	61.5	<0.005	0.03	0.744	0.001	0.004	0.166	9.3	0.203	4.39	12.4	1.92
BWM-EIS19_86.19-86.36m	Gp3	Fresh	Carbonaceous Siltstone; coaly wisps	0.009	30.8	0.021	20	15.45	0.0011	0.12	0.785	4.56	0.891	0.71	194.5	<0.005	0.12	1.885	0.001	0.107	0.339	24.1	0.036	5.82	93.8	3.19
BWM-EIS19_91.09-92.04m	Gp2	Fresh	Sandstone, fine; partly calcareous	9.26	32.9	0.109	21.3	97.5	0.0005	0.04	0.59	19.15	0.57	3.21	269	0.71	0.063	10.8	0.536	0.546	2.74	123	2.3	26.2	108	141
BWM-EIS19_93.13-94.18m	Coal	Fresh	Coal, 60-90% bright	0.016	0.74	0.097	1.885	0.465	0.0002	0.05	0.036	0.793	0.264	0.16	37.6	<0.005	0.012	0.623	0.001	0.001	0.165	3.1	0.111	4.47	9.9	0.76
BWM-EIS19_98.71-100.15m	Gp2	Fresh	Sandstone, med.; partly finer; trace siderite & coaly	6.49	29	0.095	14.7	58.1	0.0005	0.03	0.49	14.65	0.149	2.28	324	0.45	0.032	6.79	0.422	0.342	1.71	120	4.29	17.6	84.4	104
BWM-EIS19_105.44-107.25m	Coal	Fresh	Coal	0.032	2.2	0.033	2.71	0.821	0.0003	0.02	0.046	1.02	0.254	0.38	20.9	<0.005	0.017	0.67	0.001	0.001	0.106	3.1	0.079	2.85	5.7	0.85
BWM-EIS19_112.34-113.69m	Gp2	Fresh	Sandstone, v. fine; partly carbonaceous & sideritic	7.51	37.9	0.112	19.05	92.3	0.0014	0.06	0.73	19.85	0.56	2.88	498	0.54	0.097	8.64	0.466	0.489	2.35	146	1.94	28.2	98.2	145
BWM-EIS19_120.91-121.41m	Gp3	Fresh	Carbonaceous Siltstone; minor coal	0.01	18.75	0.112	16.6	12.75	0.0008	0.37	0.509	8.35	0.651	0.65	244	<0.005	0.1	3.52	0.001	0.135	0.357	26.9	0.219	13.9	80.6	2.67

Table B3. Geochemical Abundance Indices (GAI) of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo
			Avg. abundance in soil (units shown)	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
				0.05	7.1	6	500	0.3	0.2	1.5	0.35	50	8	70	4	30	4	20	1	6	0.06	1	1.4	40	25	0.5	1000	1.2
BWM_EIS-05_1.7-1.86m	Gp1	Extremely	Sandstone, fine	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_4.4-4.56m	Gp1	Extremely	Silt	-	-	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_6.83-7.01m	Gp1	Distinctly	Sandstone, fine-medium; lithic	-	-	1	3	2	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
BWM_EIS-05_14.93-15.06m	Gp1	Distinctly	Sandstone, fine; lithic	-	-	1	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_21.05-21.18m	Gp1	Weathered	Siltstone	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_29.21-29.4m	Gp1	Slightly	Siltstone	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_34-34.14m	Gp2	Fresh	Sandstone, fine-medium; silty laminae	-	-	-	-	2	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_41.64-41.77m	Gp2	Fresh	Sandstone, fine; lithic	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_50.06-50.21m	Gp2	Fresh	Sandstone, very fine; silty laminae	-	-	-	-	2	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-05_58.33-58.49m	Gp2	Fresh	Siltstone	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_66.31-66.48m	Gp2	Fresh	Sandstone, fine-med.; lithic minor silty laminae	-	-	1	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_75.25-75.39m	Gp2	Fresh	Sandstone, fine-medium; lithic	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_83.1-83.26m	Gp2	Fresh	Siltstone; sub angular laminae throughout	-	-	1	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-05_90.46-90.61m	Gp2	Fresh	Sandstone, very fine; cobbles	-	-	-	-	2	-	1	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	1	1	-
BWM_EIS-05_97.99-98.34m	Coal	Fresh	Coal, 10-40% bright	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_100.29-100.44m	Coal	Fresh	Coal, 40-60% bright	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_106.59-106.74m	Gp2	Fresh	Sandstone, medium-coarse; partly sideritic	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-05_111.66-111.78m	Gp3	Fresh	Carbonaceous Siltstone	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_121.98-122.12m	Gp2	Fresh	Sandstone, very fine; coaly in part	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_124.99-125.13m	Coal	Fresh	Coal, 40-60% bright	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_127.64-127.77m	Gp2	Fresh	Sandstone, medium; coaly bands throughout	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_1.61-1.75m	Gp1	Distinctly	Sandstone, very fine; clayey	-	-	1	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_9.02-9.16m	Gp1	Weathered	Sandstone, fine; finer bands throughout	-	-	1	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_14.66-14.77m	Gp1	Slightly	Sandstone, fine-medium	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_21.07-21.22m	Gp2	Fresh	Sandstone, fine-medium	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_29.09-29.23m	Gp2	Fresh	Sandstone, fine-medium	-	-	1	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_37.06-37.21m	Gp2	Fresh	Sandstone, fine-medium	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_47.77-47.89m	Gp2	Fresh	Sandstone, fine-medium	-	-	1	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_55.9-56m	Gp2	Fresh	Sandstone, very fine; coarser in part	1	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_64.85-64.97m	Gp2	Fresh	Conglomerate	-	-	1	2	2	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-
BWM_EIS-09_68.41-68.55m	Coal	Fresh	Coal, 60-90% bright	-	-	5	-	-	-	1	-	-	-	-	-	-	-	-	1	-	3	-	-	-	-	-	-	-
BWM_EIS-09_68.55-68.66m	Gp2	Fresh	Siltstone; carbonaceous	1	-	4	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
BWM_EIS-09_76.15-76.28m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	-	-	1	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_77.59-77.74m	Coal	Fresh	Coal, <10% bright	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_80.05-80.15m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_84.63-84.74m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_88.88-89.03m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	-	-	3	-	1	-	-	-	-	2	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
BWM_EIS-09_89.14-89.24m	Gp2	Fresh	Siltstone; sideritic near base of unit	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-
BWM_EIS-09_96.01-96.13m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps throughout	-	-	1	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-09_105.05-105.19m	Gp2	Fresh	Sandstone, v. fine; partly coarser; partly sideritic	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-09_111.76-111.9m	Gp2	Fresh	Sandstone, very fine	-	-	1	-	2	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
BWM_EIS-09_113.09-113.24m	Coal	Fresh	Coal, 10-40% bright	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_113.38-113.51m	Gp3	Fresh	Carbonaceous Siltstone	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_117.72-117.87m	Coal	Fresh	Coal, <10% bright	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_119.95-120.08m	Gp2	Fresh	Sandstone, fine; carbonaceous throughout	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
BWM_EIS-11_1.59-1.76m	Gp1	Extremely	Siltstone; abundant clayey fractures	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_3.84-4.11m	Gp1	Extremely	Sandstone, medium; minor siltstone laminae	-	-	1	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_7.9-8.03m	Gp1	Distinctly	Sandstone, medium; minor siltstone laminae	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_10.59-10.74m	Gp1	Distinctly	Sandstone, medium; carb. siltstone laminae	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table B3. Geochemical Abundance Indices (GAI) of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Avg. abundance in soil (units shown)	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
					0.5	10	50	0.08	35	150	0.0004	0.07	1	7	0.4	4	250	2	0.01	9	0.5	0.2	2	90	1.5	40	90	400
BWM_EIS-05_1.7-1.86m	Gp1	Extremely	Sandstone, fine		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-05_4.4-4.56m	Gp1	Extremely	Silt		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-05_6.83-7.01m	Gp1	Distinctly	Sandstone, fine-medium; lithic		-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-05_14.93-15.06m	Gp1	Distinctly	Sandstone, fine; lithic		-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-05_21.05-21.18m	Gp1	Weathered	Siltstone		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-05_29.21-29.4m	Gp1	Slightly	Siltstone		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-05_34-34.14m	Gp2	Fresh	Sandstone, fine-medium; silty laminae		-	-	-	-	-	-	1	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-05_41.64-41.77m	Gp2	Fresh	Sandstone, fine; lithic		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-05_50.06-50.21m	Gp2	Fresh	Sandstone, very fine; silty laminae		-	-	-	-	-	-	1	-	-	1	-	-	-	-	3	-	-	1	-	-	-	-	-	-
BWM_EIS-05_58.33-58.49m	Gp2	Fresh	Siltstone		-	-	-	-	-	-	1	-	-	1	-	-	-	-	3	-	-	1	-	-	-	-	-	-
BWM_EIS-05_66.31-66.48m	Gp2	Fresh	Sandstone, fine-med.; lithic minor silty laminae		1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-05_75.25-75.39m	Gp2	Fresh	Sandstone, fine-medium; lithic		1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-05_83.1-83.26m	Gp2	Fresh	Siltstone; sub angular laminae throughout		-	-	-	-	-	-	-	-	-	1	-	-	-	-	3	-	-	1	-	-	-	-	-	-
BWM_EIS-05_90.46-90.61m	Gp2	Fresh	Sandstone, very fine; cobbles		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-
BWM_EIS-05_97.99-98.34m	Coal	Fresh	Coal, 10-40% bright		-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-05_100.29-100.44m	Coal	Fresh	Coal, 40-60% bright		-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-05_106.59-106.74m	Gp2	Fresh	Sandstone, medium-coarse; partly sideritic		1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-05_111.66-111.78m	Gp3	Fresh	Carbonaceous Siltstone		1	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-05_121.98-122.12m	Gp2	Fresh	Sandstone, very fine; coaly in part		-	-	-	-	-	-	1	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-05_124.99-125.13m	Coal	Fresh	Coal, 40-60% bright		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-05_127.64-127.77m	Gp2	Fresh	Sandstone, medium; coaly bands throughout		2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_1.61-1.75m	Gp1	Distinctly	Sandstone, very fine; clayey		1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-09_9.02-9.16m	Gp1	Weathered	Sandstone, fine; finer bands throughout		-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-09_14.66-14.77m	Gp1	Slightly	Sandstone, fine-medium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_21.07-21.22m	Gp2	Fresh	Sandstone, fine-medium		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-09_29.09-29.23m	Gp2	Fresh	Sandstone, fine-medium		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-09_37.06-37.21m	Gp2	Fresh	Sandstone, fine-medium		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-09_47.77-47.89m	Gp2	Fresh	Sandstone, fine-medium		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-09_55.9-56m	Gp2	Fresh	Sandstone, very fine; coarser in part		-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-09_64.85-64.97m	Gp2	Fresh	Conglomerate		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-09_68.41-68.55m	Coal	Fresh	Coal, 60-90% bright		-	-	-	-	-	-	-	3	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_68.55-68.66m	Gp2	Fresh	Siltstone; carbonaceous		-	-	-	-	-	-	3	4	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-
BWM_EIS-09_76.15-76.28m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps		-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-09_77.59-77.74m	Coal	Fresh	Coal, <10% bright		-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-09_80.05-80.15m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps		1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-09_84.63-84.74m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout		1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-09_88.88-89.03m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part		-	-	-	-	-	-	1	4	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-09_89.14-89.24m	Gp2	Fresh	Siltstone; sideritic near base of unit		-	-	-	-	-	-	-	1	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
BWM_EIS-09_96.01-96.13m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps throughout		1	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-09_105.05-105.19m	Gp2	Fresh	Sandstone, v. fine; partly coarser; partly sideritic		-	-	-	-	-	-	-	-	-	1	-	-	1	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-09_111.76-111.9m	Gp2	Fresh	Sandstone, very fine		-	-	-	-	-	-	-	-	-	1	-	-	1	-	3	-	-	1	-	-	-	-	-	-
BWM_EIS-09_113.09-113.24m	Coal	Fresh	Coal, 10-40% bright		-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-09_113.38-113.51m	Gp3	Fresh	Carbonaceous Siltstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-09_117.72-117.87m	Coal	Fresh	Coal, <10% bright		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-09_119.95-120.08m	Gp2	Fresh	Sandstone, fine; carbonaceous throughout		-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-11_1.59-1.76m	Gp1	Extremely	Siltstone; abundant clayey fractures		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-11_3.84-4.11m	Gp1	Extremely	Sandstone, medium; minor siltstone laminae		1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-11_7.9-8.03m	Gp1	Distinctly	Sandstone, medium; minor siltstone laminae		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-11_10.59-10.74m	Gp1	Distinctly	Sandstone, medium; carb. siltstone laminae		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-

Table B3. Geochemical Abundance Indices (GAI) of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Avg. abundance in soil (units shown)	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	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	mg/kg
					0.05	7.1	6	500	0.3	0.2	1.5	0.35	50	8	70	4	30	4	20	1	6	0.06	1	1.4	40	25	0.5	1000	1.2
BWM_EIS-11_12.66-12.77m	Gp2	Fresh	Siltstone; carbonaceous in part		1	-	-	-	3	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-11_19.96-20.09m	Gp2	Fresh	Sandstone, medium		-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_27.69-27.79m	Gp2	Fresh	Claystone & Sandst., med.; partly carbonaceous		-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
BWM_EIS-11_36.78-36.89m	Gp2	Fresh	Siltstone		-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_45.27-45.4m	Gp2	Fresh	Sandstone, fine; common siltstone laminae		-	-	1	-	3	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-
BWM_EIS-11_53.5-53.64m	Gp2	Fresh	Sandstone, medium		-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_60.61-60.76m	Gp2	Fresh	Sandstone, medium; partly sideritic & pebbly		-	-	2	-	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-11_72.59-72.7m	Gp2	Fresh	Sandstone, fine; siltstone in part		1	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-11_78.78-78.87m	Gp2	Fresh	Claystone; common sandstone laminae		-	-	2	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_81.37-81.48m	Gp2	Fresh	Sandstone, medium; minor sideritic grains		-	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
BWM_EIS-11_87.23-87.37m	Gp2	Fresh	Sandstone, medium; minor carbonaceous laminae		-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
BWM_EIS-11_94.42-94.52m	Gp2	Fresh	Siltstone; carbonaceous in part		1	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-
BWM_EIS-11_94.89-95.36m	Coal	Fresh	Coal, 10-40% bright		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_101.3-101.44m	Gp2	Fresh	Siltstone; common carbonaceous traces		1	-	-	-	2	-	-	-	-	1	-	2	-	-	-	-	-	1	-	-	-	1	-	-	-
BWM_EIS-11_110.79-110.91m	Gp2	Fresh	Sandstone, fine; rare carbonaceous traces		-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
BWM_EIS-11_119.47-119.6m	Gp2	Fresh	Sandstone, medium		-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
BWM_EIS-11_126.05-126.13m	Gp2	Fresh	Sandstone, medium; carbonaceous calcite laminae		-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_135.02-135.17m	Gp2	Fresh	Sandstone, medium		-	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-
BWM_EIS-11_136.42-136.77m	Coal	Fresh	Coal, dull <1% bright		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_137.25-137.41m	Gp3	Fresh	Carbonaceous Siltstone; rare coaly wisps		-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_141.79-141.97m	Coal	Fresh	Coal, undifferentiated		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_143.13-143.31m	Gp2	Fresh	Sandstone, fine; common carbonaceous laminae		-	-	-	-	3	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
BWM_EIS-13_2.43-2.81m	Gp1	Distinctly	Siltstone; common sandstone bands throughout		1	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_6.22-6.39m	Gp1	Extremely	Siltstone; clayey in part		-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_10.95-11.15m	Gp1	Slightly	Siltstone		-	-	-	-	2	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-13_13.28-13.5m	Gp2	Fresh	Sandstone, med.; minor carb. siltstone laminae		-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_18.54-18.77m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae		-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_27.61-27.93m	Gp2	Fresh	Siltstone		-	-	-	-	2	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-13_35.3-35.55m	Gp2	Fresh	Sandstone, fine-medium		-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-13_42.92-43.12m	Gp2	Fresh	Sandstone, medium; minor sandstone laminae		-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_51.43-51.88m	Gp2	Fresh	Sandstone, medium; siltstone sideritic nodules		-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_60.81-61m	Gp2	Fresh	Sandstone, medium; rare carbonaceous laminae		-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_62.05-62.63m	Coal	Fresh	Coal, undifferentiated; common calcite veins		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_63.05-63.25m	Gp3	Fresh	Carbonaceous Siltstone; minor sideritic laminae		1	-	2	-	1	-	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
BWM_EIS-13_64.56-64.77m	Gp2	Fresh	Siltstone; sandstone in part sideritic laminae		-	-	-	-	2	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-
BWM_EIS-13_73.29-73.55m	Gp2	Fresh	Sandstone, med.; carbonaceous laminae		-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_76.08-76.26m	Gp2	Fresh	Siltstone		-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_84.59-84.77m	Gp2	Fresh	Siltstone; rare coaly wisps		-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_93.81-93.96m	Gp2	Fresh	Siltstone; sandstone in part; carb. laminae		-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-13_101.89-102.04m	Gp2	Fresh	Sandstone, fine; common siltstone laminae		-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
BWM_EIS-13_112.26-112.43m	Gp3	Fresh	Carbonaceous Siltstone; rare coaly laminae		1	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	-	-	-	-	1
BWM_EIS-13_115.87-116.31m	Coal	Fresh	Coal, dull <1% bright		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_117.71-117.97m	Gp3	Fresh	Carbonaceous Siltstone		-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
BWM_EIS-13_121.5-121.63m	Gp2	Fresh	Siltstone; sandstone laminae; minor siderite		-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_2.45-2.58m	Gp1	Distinctly	Siltstone; minor sandstone bands throughout		-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_7.04-7.18m	Gp1	Distinctly	Siltstone		-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_11.77-11.9m	Gp1	Slightly	Sandstone, medium; carbonaceous traces		-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_16.74-17m	Gp1	Slightly	Sandstone, fine-medium; siltstone laminae		-	-	1	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_18.18-18.34m	Gp2	Fresh	Sandstone, medium; common siltstone laminae		-	-	1	-	2	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table B3. Geochemical Abundance Indices (GAI) of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Avg. abundance in soil (units shown)	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
					0.5	10	50	0.08	35	150	0.0004	0.07	1	7	0.4	4	250	2	0.01	9	0.5	0.2	2	90	1.5	40	90	400
BWM_EIS-11_12.66-12.77m	Gp2	Fresh	Siltstone; carbonaceous in part		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-11_19.96-20.09m	Gp2	Fresh	Sandstone, medium		1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-11_27.69-27.79m	Gp2	Fresh	Claystone & Sandst., med.; partly carbonaceous		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-11_36.78-36.89m	Gp2	Fresh	Siltstone		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-11_45.27-45.4m	Gp2	Fresh	Sandstone, fine; common siltstone laminae		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-11_53.5-53.64m	Gp2	Fresh	Sandstone, medium		1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-11_60.61-60.76m	Gp2	Fresh	Sandstone, medium; partly sideritic & pebbly		-	-	-	3	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-11_72.59-72.7m	Gp2	Fresh	Sandstone, fine; siltstone in part		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-11_78.78-78.87m	Gp2	Fresh	Claystone; common sandstone laminae		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-11_81.37-81.48m	Gp2	Fresh	Sandstone, medium; minor sideritic grains		1	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	1	-	-	-	-
BWM_EIS-11_87.23-87.37m	Gp2	Fresh	Sandstone, medium; minor carbonaceous laminae		1	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-11_94.42-94.52m	Gp2	Fresh	Siltstone; carbonaceous in part		-	-	-	-	-	-	1	-	-	-	1	-	-	-	4	-	-	-	-	-	-	-	-	-
BWM_EIS-11_94.89-95.36m	Coal	Fresh	Coal, 10-40% bright		-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_101.3-101.44m	Gp2	Fresh	Siltstone; common carbonaceous traces		-	-	-	-	-	-	-	-	-	1	-	-	-	-	3	-	-	1	-	-	-	-	-	-
BWM_EIS-11_110.79-110.91m	Gp2	Fresh	Sandstone, fine; rare carbonaceous traces		1	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-11_119.47-119.6m	Gp2	Fresh	Sandstone, medium		2	-	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-11_126.05-126.13m	Gp2	Fresh	Sandstone, medium; carbonaceous calcite laminae		-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-11_135.02-135.17m	Gp2	Fresh	Sandstone, medium		-	-	-	-	-	-	-	-	-	1	-	-	1	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-11_136.42-136.77m	Coal	Fresh	Coal, dull <1% bright		-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-11_137.25-137.41m	Gp3	Fresh	Carbonaceous Siltstone; rare coaly wisps		-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_141.79-141.97m	Coal	Fresh	Coal, undifferentiated		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-11_143.13-143.31m	Gp2	Fresh	Sandstone, fine; common carbonaceous laminae		-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-13_2.43-2.81m	Gp1	Distinctly	Siltstone; common sandstone bands throughout		1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-13_6.22-6.39m	Gp1	Extremely	Siltstone; clayey in part		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-13_10.95-11.15m	Gp1	Slightly	Siltstone		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-13_13.28-13.5m	Gp2	Fresh	Sandstone, med.; minor carb. siltstone laminae		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-13_18.54-18.77m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae		1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_27.61-27.93m	Gp2	Fresh	Siltstone		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-13_35.3-35.55m	Gp2	Fresh	Sandstone, fine-medium		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-13_42.92-43.12m	Gp2	Fresh	Sandstone, medium; minor sandstone laminae		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-13_51.43-51.88m	Gp2	Fresh	Sandstone, medium; siltstone sideritic nodules		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-13_60.81-61m	Gp2	Fresh	Sandstone, medium; rare carbonaceous laminae		-	-	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-13_62.05-62.63m	Coal	Fresh	Coal, undifferentiated; common calcite veins		-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_63.05-63.25m	Gp3	Fresh	Carbonaceous Siltstone; minor sideritic laminae		-	-	-	-	-	-	1	1	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-
BWM_EIS-13_64.56-64.77m	Gp2	Fresh	Siltstone; sandstone in part sideritic laminae		-	-	-	-	-	-	1	-	-	1	-	-	-	-	3	-	-	1	-	-	-	-	-	-
BWM_EIS-13_73.29-73.55m	Gp2	Fresh	Sandstone, med.; carbonaceous laminae		-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-13_76.08-76.26m	Gp2	Fresh	Siltstone		1	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-13_84.59-84.77m	Gp2	Fresh	Siltstone; rare coaly wisps		-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-13_93.81-93.96m	Gp2	Fresh	Siltstone; sandstone in part; carb. laminae		1	-	-	1	-	-	-	-	-	1	-	-	-	-	3	-	-	-	-	-	-	-	-	-
BWM_EIS-13_101.89-102.04m	Gp2	Fresh	Sandstone, fine; common siltstone laminae		-	-	-	1	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-13_112.26-112.43m	Gp3	Fresh	Carbonaceous Siltstone; rare coaly laminae		-	-	-	-	-	-	1	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-
BWM_EIS-13_115.87-116.31m	Coal	Fresh	Coal, dull <1% bright		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-13_117.71-117.97m	Gp3	Fresh	Carbonaceous Siltstone		-	-	-	-	-	-	-	3	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-13_121.5-121.63m	Gp2	Fresh	Siltstone; sandstone laminae; minor siderite		1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-15_2.45-2.58m	Gp1	Distinctly	Siltstone; minor sandstone bands throughout		1	-	-	1	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-15_7.04-7.18m	Gp1	Distinctly	Siltstone		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-15_11.77-11.9m	Gp1	Slightly	Sandstone, medium; carbonaceous traces		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-15_16.74-17m	Gp1	Slightly	Sandstone, fine-medium; siltstone laminae		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-15_18.18-18.34m	Gp2	Fresh	Sandstone, medium; common siltstone laminae		1	-	-	1	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-

Table B3. Geochemical Abundance Indices (GAI) of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo
			Avg. abundance in soil (units shown)	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
				0.05	7.1	6	500	0.3	0.2	1.5	0.35	50	8	70	4	30	4	20	1	6	0.06	1	1.4	40	25	0.5	1000	1.2
BWM_EIS-15_25.63-25.86m	Gp2	Fresh	Sandstone, medium; siltstone laminae	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_32.93-33.08m	Gp2	Fresh	Sandstone, medium; siltstone laminae	1	-	-	-	2	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_40.07-40.27m	Gp2	Fresh	Claystone; sandstone fragments throughout	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_48.29-48.44m	Gp2	Fresh	Sandstone, medium; common sideritic nodules	-	-	1	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_56.21-56.31m	Gp2	Fresh	Sandstone, fine-medium; carb. siltstone laminae	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_58.28-58.88m	Coal	Fresh	Coal, undifferentiated	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_61.46-61.66m	Gp3	Fresh	Carbonaceous Siltstone	1	-	2	-	1	-	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
BWM_EIS-15_63.34-63.51m	Gp2	Fresh	Siltstone	-	-	-	-	2	-	-	-	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-
BWM_EIS-15_70.99-71.19m	Gp2	Fresh	Sandstone, medium; trace calcite & siderite	-	-	1	3	1	-	1	-	-	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-
BWM_EIS-15_78.95-79.08m	Gp2	Fresh	Sandstone, medium	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_87.23-87.36m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_96.16-96.29m	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-15_104.45-104.59m	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
BWM_EIS-15_111.91-112.17m	Gp3	Fresh	Carbonaceous Siltstone	-	-	-	2	1	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
BWM_EIS-15_113.71-113.94m	Coal	Fresh	Coal, 10-40% bright; minor siltstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_115.64-115.94m	Gp2	Fresh	Siltstone; abundant carbonaceous traces	-	-	-	-	2	-	-	-	-	-	-	1	1	-	-	-	-	1	-	-	-	-	-	-	-
BWM_EIS-15_118.02-118.18m	Coal	Fresh	Coal, undifferentiated	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_119.86-120.19m	Gp3	Fresh	Carbonaceous Siltstone	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
BWM_EIS-15_121.89-121.93m	Gp3	Fresh	Carbonaceous Siltstone; pyritic	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	2	-	-
BWM_EIS-15_123.12-123.25m	Gp2	Fresh	Sandstone, fine-medium; carb. siltstone laminae	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
BWM_EIS-17_0.57-1.08m	Gp1	Extremely	Clay	-	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-17_5.53-7.5m	Gp1	Distinctly	Silt	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_13-15.5m	Gp1	Distinctly	Siltstone; soft	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_20-21.52m	Gp1	Slightly	Sandstone, fine; silty bands	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_30.54-32.28m	Gp2	Fresh	Siltstone	1	-	-	-	3	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_35.27-37m	Gp2	Fresh	Sandstone, fine; silty bands	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_44.2-46.35m	Gp2	Fresh	Sandstone, fine; silty laminae in part	-	-	1	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_55.5-57.58m	Gp2	Fresh	Sandstone, fine; part silty	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_67.03-68.94m	Gp2	Fresh	Siltstone; cobbles in part	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_73.59-74.15m	Gp3	Fresh	Carbonaceous Siltstone	-	-	-	-	3	-	-	-	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_83.13-85.2m	Gp2	Fresh	Sandstone, very fine; silty laminae throughout	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_94.52-96.49m	Gp2	Fresh	Siltstone, sideritic	-	-	1	-	2	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_100.46-101.24m	Coal	Fresh	Coal	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_102.93-104.34m	Gp2	Fresh	Sandstone, fine, partly sideritic	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-
BWM_EIS-17_110.76-113.06m	Gp2	Fresh	Sandstone, v. fine; coarser bands; partly sideritic	1	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM_EIS-17_116.19-117.75m	Coal	Fresh	Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_119.52-121.06m	Coal	Fresh	Coal, 40-60% bright; trace siltstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_123.77-124.22m	Gp3	Fresh	Carbonaceous Siltstone	1	-	1	-	1	1	-	-	-	1	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-
BWM_EIS-17_126.8-128.72m	Coal	Fresh	Coal, 60-90% bright	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_128.94-130.05m	Gp2	Fresh	Siltstone; part coaly and carbonaceous	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_146.47-148.97m	Gp2	Fresh	Sandstone, very fine	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_1.55-3.1m	Gp1	Extremely	Clay; sub angular throughout	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_6.14-8.08m	Gp1	Weathered	Sandstone, fine-medium	1	-	2	-	2	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_12.61-13.92m	Gp1	Weathered	Sandstone, fine; sparse disseminated in part	1	-	-	-	3	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM-EIS19_19.1-21.13m	Gp1	Weathered	Sandstone, fine-medium	1	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_27.14-28.59m	Gp2	Fresh	Sandstone, med.; partly coaly; minor calcareous	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_33.63-35.15m	Gp2	Fresh	Sandstone, fine; calcareous finer bands	-	-	1	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_41.29-42.67m	Gp2	Fresh	Sandstone, fine-medium; finer in part	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_49.05-50.37m	Gp2	Fresh	Sandstone, fine-medium; finer bands in part	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table B3. Geochemical Abundance Indices (GAI) of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Avg. abundance in soil (units shown)	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
					0.5	10	50	0.08	35	150	0.0004	0.07	1	7	0.4	4	250	2	0.01	9	0.5	0.2	2	90	1.5	40	90	400
BWM_EIS-15_25.63-25.86m	Gp2	Fresh	Sandstone, medium; siltstone laminae		1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-15_32.93-33.08m	Gp2	Fresh	Sandstone, medium; siltstone laminae		-	-	-	-	-	-	1	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-15_40.07-40.27m	Gp2	Fresh	Claystone; sandstone fragments throughout		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-15_48.29-48.44m	Gp2	Fresh	Sandstone, medium; common sideritic nodules		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-15_56.21-56.31m	Gp2	Fresh	Sandstone, fine-medium; carb. siltstone laminae		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-15_58.28-58.88m	Coal	Fresh	Coal, undifferentiated		-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-15_61.46-61.66m	Gp3	Fresh	Carbonaceous Siltstone		-	-	-	-	-	-	1	1	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-
BWM_EIS-15_63.34-63.51m	Gp2	Fresh	Siltstone		-	-	-	-	-	-	1	-	-	1	-	-	-	-	3	-	-	1	-	-	-	-	-	-
BWM_EIS-15_70.99-71.19m	Gp2	Fresh	Sandstone, medium; trace calcite & siderite		1	-	-	-	-	-	-	1	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_78.95-79.08m	Gp2	Fresh	Sandstone, medium		2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_87.23-87.36m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae		-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-15_96.16-96.29m	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae		1	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-15_104.45-104.59m	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-15_111.91-112.17m	Gp3	Fresh	Carbonaceous Siltstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-15_113.71-113.94m	Coal	Fresh	Coal, 10-40% bright; minor siltstone		-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_115.64-115.94m	Gp2	Fresh	Siltstone; abundant carbonaceous traces		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-15_118.02-118.18m	Coal	Fresh	Coal, undifferentiated		-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-15_119.86-120.19m	Gp3	Fresh	Carbonaceous Siltstone		-	-	-	-	-	-	-	1	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-15_121.89-121.93m	Gp3	Fresh	Carbonaceous Siltstone; pyritic		-	-	-	1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-15_123.12-123.25m	Gp2	Fresh	Sandstone, fine-medium; carb. siltstone laminae		-	-	-	-	-	-	-	4	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-17_0.57-1.08m	Gp1	Extremely	Clay		-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-
BWM_EIS-17_5.53-7.5m	Gp1	Distinctly	Silt		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	1	-	-	-
BWM_EIS-17_13-15.5m	Gp1	Distinctly	Siltstone; soft		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-17_20-21.52m	Gp1	Slightly	Sandstone, fine; silty bands		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	1	-	-	-
BWM_EIS-17_30.54-32.28m	Gp2	Fresh	Siltstone		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-17_35.27-37m	Gp2	Fresh	Sandstone, fine; silty bands		1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-
BWM_EIS-17_44.2-46.35m	Gp2	Fresh	Sandstone, fine; silty laminae in part		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	1	-	-	-
BWM_EIS-17_55.5-57.58m	Gp2	Fresh	Sandstone, fine; part silty		-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-
BWM_EIS-17_67.03-68.94m	Gp2	Fresh	Siltstone; cobbles in part		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM_EIS-17_73.59-74.15m	Gp3	Fresh	Carbonaceous Siltstone		-	-	-	1	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-17_83.13-85.2m	Gp2	Fresh	Sandstone, very fine; silty laminae throughout		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-17_94.52-96.49m	Gp2	Fresh	Siltstone, sideritic		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-17_100.46-101.24m	Coal	Fresh	Coal		-	-	-	-	-	-	1	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM_EIS-17_102.93-104.34m	Gp2	Fresh	Sandstone, fine, partly sideritic		1	-	-	-	-	-	1	-	-	1	-	-	-	-	3	-	-	-	-	-	-	-	-	-
BWM_EIS-17_110.76-113.06m	Gp2	Fresh	Sandstone, v. fine; coarser bands; partly sideritic		-	-	-	-	-	-	1	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM_EIS-17_116.19-117.75m	Coal	Fresh	Coal		-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-17_119.52-121.06m	Coal	Fresh	Coal, 40-60% bright; trace siltstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_123.77-124.22m	Gp3	Fresh	Carbonaceous Siltstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
BWM_EIS-17_126.8-128.72m	Coal	Fresh	Coal, 60-90% bright		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM_EIS-17_128.94-130.05m	Gp2	Fresh	Siltstone; part coaly and carbonaceous		-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BWM_EIS-17_146.47-148.97m	Gp2	Fresh	Sandstone, very fine		1	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM-EIS19_1.55-3.1m	Gp1	Extremely	Clay; sub angular throughout		-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-
BWM-EIS19_6.14-8.08m	Gp1	Weathered	Sandstone, fine-medium		1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-
BWM-EIS19_12.61-13.92m	Gp1	Weathered	Sandstone, fine; sparse disseminated in part		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM-EIS19_19.1-21.13m	Gp1	Weathered	Sandstone, fine-medium		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	1	-	-	-
BWM-EIS19_27.14-28.59m	Gp2	Fresh	Sandstone, med.; partly coaly; minor calcareous		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	1	-	-	-
BWM-EIS19_33.63-35.15m	Gp2	Fresh	Sandstone, fine; calcareous finer bands		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	1	-	-	-
BWM-EIS19_41.29-42.67m	Gp2	Fresh	Sandstone, fine-medium; finer in part		-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-
BWM-EIS19_49.05-50.37m	Gp2	Fresh	Sandstone, fine-medium; finer bands in part		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-

Table B3. Geochemical Abundance Indices (GAI) of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Avg. abundance in soil (units shown)	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	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	mg/kg
					0.05	7.1	6	500	0.3	0.2	1.5	0.35	50	8	70	4	30	4	20	1	6	0.06	1	1.4	40	25	0.5	1000	1.2
BWM-EIS19_57.17-58.41m	Gp2	Fresh	Sandstone, fine; finer bands		1	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_64.19-64.64m	Gp2	Fresh	Sandstone, medium; partly sideritic		-	-	1	-	2	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_72.22-73.88m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout		-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_81.82-82.79m	Gp2	Fresh	Sandstone, fine; carb. siltstone bands; calcareous		-	-	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
BWM-EIS19_82.79-83.24m	Coal	Fresh	Coal		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_83.24-83.52m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part		1	-	2	-	1	1	-	-	-	1	-	-	1	-	-	-	-	3	-	-	-	-	-	-	1
BWM-EIS19_84.24-85.31m	Coal	Fresh	Coal		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_86.19-86.36m	Gp3	Fresh	Carbonaceous Siltstone; coaly wisps		1	-	1	-	1	1	-	-	-	1	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-
BWM-EIS19_91.09-92.04m	Gp2	Fresh	Sandstone, fine; partly calcareous		-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
BWM-EIS19_93.13-94.18m	Coal	Fresh	Coal, 60-90% bright		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_98.71-100.15m	Gp2	Fresh	Sandstone, med.; partly finer; trace siderite & coaly		-	-	1	-	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
BWM-EIS19_105.44-107.25m	Coal	Fresh	Coal		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_112.34-113.69m	Gp2	Fresh	Sandstone, v. fine; partly carbonaceous & sideritic		-	-	-	-	2	-	-	-	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_120.91-121.41m	Gp3	Fresh	Carbonaceous Siltstone; minor coal		1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-

Geochemical abundance index (GAI) was calculated from the average element abundance in soil in the earth's crust (AusIMM 2011; Bowen 1979). Refer to report body for further explanation. " - " = GAI <1

Table B3. Geochemical Abundance Indices (GAI) of Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Avg. abundance in soil (units shown)	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
					0.5	10	50	0.08	35	150	0.0004	0.07	1	7	0.4	4	250	2	0.01	9	0.5	0.2	2	90	1.5	40	90	400
BWM-EIS19_57.17-58.41m	Gp2	Fresh	Sandstone, fine; finer bands		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-
BWM-EIS19_64.19-64.64m	Gp2	Fresh	Sandstone, medium; partly sideritic		-	-	-	1	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	1	-	-	-
BWM-EIS19_72.22-73.88m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout		-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM-EIS19_81.82-82.79m	Gp2	Fresh	Sandstone, fine; carb. siltstone bands; calcareous		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	1	-	-	-
BWM-EIS19_82.79-83.24m	Coal	Fresh	Coal		-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_83.24-83.52m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part		-	-	-	-	-	-	2	2	-	-	2	-	-	-	3	-	-	2	-	-	-	-	-	-
BWM-EIS19_84.24-85.31m	Coal	Fresh	Coal		-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
BWM-EIS19_86.19-86.36m	Gp3	Fresh	Carbonaceous Siltstone; coaly wisps		-	-	-	-	-	-	1	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-
BWM-EIS19_91.09-92.04m	Gp2	Fresh	Sandstone, fine; partly calcareous		-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-
BWM-EIS19_93.13-94.18m	Coal	Fresh	Coal, 60-90% bright		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_98.71-100.15m	Gp2	Fresh	Sandstone, med.; partly finer; trace siderite & coaly		-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-
BWM-EIS19_105.44-107.25m	Coal	Fresh	Coal		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BWM-EIS19_112.34-113.69m	Gp2	Fresh	Sandstone, v. fine; partly carbonaceous & sideritic		1	-	-	-	-	-	1	-	-	1	-	-	-	-	3	-	-	1	-	-	-	-	-	-
BWM-EIS19_120.91-121.41m	Gp3	Fresh	Carbonaceous Siltstone; minor coal		-	-	-	-	-	-	-	2	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-

Geochemical abundance index (GAI) was calculated from the average element abundance in soil in the earth's crust (AusIMM 2011; Bowen 1979). Refer to report body for further explanation. " - " = GAI <1

Table B4. Quantitative X-Ray Diffraction (QXRD) Results for Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Pyrite	Marcasite	Jarosite	Calcite	Ankerite	Siderite	Rhodochrosite	Illite-smectite	Illite-muscovite	Kaolinite	Quartz	Albite	Microcline	Chlorite	Anatase	Rutile	Amorphous /coal
				Sulfide	Sulfide	Sulfate	Carb.	Carb.	Carb.	Carb.	Clay	Clay	Clay	Quartz	Feldspar	Feldspar	Silicate	Oxide	Oxide	non-crystalline
				wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%
BWM_EIS-05_34-34.14m	Gp2	Fresh	Sandstone, fine-medium; silty laminae	0.3	0.2	0.4	1.3	0.2	3.0	1.6	23.3	0.8	32.9	25.4	2.7	0.5	1.5	0.4	0.1	5.5
BWM_EIS-05_121.98-122.12m	Gp2	Fresh	Sandstone, very fine; coaly in part	0.3	<0.1	0.1	1.0	0.7	5.4	<0.1	42.2	0.4	7.4	25.0	7.5	0.4	2.3	0.5	0.1	6.7
BWM_EIS-09_21.07-21.22m	Gp2	Fresh	Sandstone, fine-medium	0.2	<0.1	<0.1	0.8	0.2	0.9	0.3	32.8	0.2	17.5	27.4	3.5	<0.1	2.7	0.2	0.1	13.2
BWM_EIS-09_84.63-84.74m	Gp2	Fresh	Sandstone, fine-medium; finer bands	0.3	<0.1	0.2	1.6	1.8	3.2	0.2	26.0	0.4	17.6	22.8	17.0	0.9	2.1	0.1	<0.1	5.8
BWM_EIS-11_78.78-78.87m	Gp2	Fresh	Claystone; common sandstone laminae	0.1	0.1	0.1	0.5	<0.1	1.2	<0.1	24.2	0.5	22.5	24.4	8.1	0.2	3.7	0.5	0.3	13.6
BWM_EIS-11_87.23-87.37m	Gp2	Fresh	Sandstone, medium; minor carbonaceous laminae	0.5	<0.1	0.4	3.8	3.1	5.6	<0.1	28.5	0.1	11.9	23.2	19.9	0.8	1.1	0.2	<0.1	0.9
BWM_EIS-11_94.42-94.52m	Gp2	Fresh	Siltstone; carbonaceous in part	0.2	0.1	0.4	1.0	0.6	3.1	0.4	25.8	0.4	18.4	19.8	3.8	<0.1	7.5	0.1	0.3	18.1
BWM_EIS-13_42.92-43.12m	Gp2	Fresh	Sandstone, medium; minor sandstone laminae	0.3	0.1	0.4	3.8	0.1	0.7	<0.1	24.5	0.4	19.3	23.7	7.8	<0.1	6.5	0.4	0.5	11.5
BWM_EIS-13_84.59-84.77m	Gp2	Fresh	Siltstone; rare coaly wisps	0.3	0.1	0.5	2.6	0.7	7.6	0.1	26.3	0.5	8.6	26.0	14.5	0.6	3.1	0.2	0.1	8.2
BWM_EIS-15_87.23-87.36m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae	0.4	0.2	0.3	3.2	1.0	14.4	<0.1	14.4	0.5	5.3	28.4	24.5	0.3	6.2	0.4	0.5	<0.1
BWM_EIS-15_96.16-96.29m	Gp2	Fresh	Sandstone, fine-medium; carbonaceous	0.3	<0.1	0.7	1.0	1.2	3.9	0.3	27.3	1.1	13.8	24.4	12.1	0.5	7.7	0.9	0.2	4.6
BWM_EIS-17_30.54-32.28m	Gp2	Fresh	Siltstone	0.4	0.1	0.5	0.7	0.4	0.4	<0.1	27.8	3.9	18.4	28.1	4.3	0.6	8.6	0.6	0.3	4.9
BWM_EIS-17_35.27-37m	Gp2	Fresh	Sandstone, fine; silty bands	0.2	<0.1	0.2	7.9	<0.1	0.1	<0.1	16.9	1.5	19.5	30.3	15.3	0.3	6.7	0.7	0.4	<0.1
BWM_EIS-17_102.93-104.34m	Gp2	Fresh	Sandstone, fine, partly sideritic	0.3	<0.1	<0.1	1.3	4.3	6.4	0.3	33.3	<0.1	15.4	25.9	12.0	<0.1	<0.1	<0.1	<0.1	0.8
BWM_EIS-05_111.66-111.78m	Gp3	Fresh	Carbonaceous Siltstone	0.2	<0.1	<0.1	0.3	0.3	3.4	0.2	37.1	0.5	4.8	23.4	11.5	<0.1	1.5	0.6	0.2	15.9
BWM_EIS-09_113.38-113.51m	Gp3	Fresh	Carbonaceous Siltstone	0.1	<0.1	<0.1	0.4	1.0	2.0	0.3	47.1	0.4	13.0	24.6	0.5	0.3	<0.1	0.4	<0.1	9.9
BWM_EIS-13_63.05-63.25m	Gp3	Fresh	Carbonaceous Siltstone; minor sideritic laminae	0.7	<0.1	0.3	0.3	0.2	3.7	0.1	24.2	0.7	10.2	29.0	7.0	0.3	6.5	0.5	0.2	16.1
BWM_EIS-15_61.46-61.66m	Gp3	Fresh	Carbonaceous Siltstone	0.6	0.1	0.5	0.5	0.4	0.5	0.2	29.9	1.2	10.5	23.7	6.5	0.3	5.8	0.1	0.1	19.1
BWM-EIS19_83.24-83.52m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	0.6	<0.1	<0.1	0.4	0.3	1.4	0.4	40.8	0.9	14.2	20.0	0.8	<0.1	1.0	<0.1	0.2	19.0
BWM-EIS19_86.19-86.36m	Gp3	Fresh	Carbonaceous Siltstone; coaly wisps	0.3	<0.1	<0.1	0.7	0.3	1.4	0.4	40.4	0.7	7.1	24.6	3.6	<0.1	0.9	<0.1	0.1	19.5
BWM-EIS19_120.91-121.41m	Gp3	Fresh	Carbonaceous Siltstone; minor coal	0.5	<0.1	<0.1	0.3	0.8	8.0	<0.1	35.5	1.0	9.1	22.2	3.2	<0.1	1.1	<0.1	0.1	18.2

Table B5. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Fresh Water Extracts from Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	Total Alk.	HCO_3	CO_3	Acidity	SO_4	Cl	Ca	Mg	Na	K	Al	As	B	Ba	Be	Bi	Cd	Co
					µS/cm	mg $CaCO_3$/L				mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
BWM_EIS-05_1.7-1.86m	Gp1	Extremely	Sandstone, fine	8.2	927	1620	1620	<1.0	<1.0	48	196	7	3	153	7	0.03	<0.002	<0.2	0.019	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_4.4-4.56m	Gp1	Extremely	Silt	7.3	861	324	324	<1.0	64.2	14	237	4	2	142	2	0.02	<0.002	<0.2	0.01	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_6.83-7.01m	Gp1	Distinctly	Sandstone, fine-medium; lithic	8.9	602	17600	17400	170	<1.0	34	106	5	<2	101	8	0.08	<0.002	<0.2	0.095	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_14.93-15.06m	Gp1	Distinctly	Sandstone, fine; lithic	9	475	9260	9100	170	<1.0	32	59	<2	<2	87	4	0.1	0.003	<0.2	0.022	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_21.05-21.18m	Gp1	Weathered	Siltstone	8.9	589	1700	1610	90	<1.0	9	98	<2	<2	104	7	0.06	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_29.21-29.4m	Gp1	Slightly	Siltstone	9	449	855	747	108	<1.0	14	63	<2	<2	85	8	0.1	0.003	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_34-34.14m	Gp2	Fresh	Sandstone, fine-medium; silty laminae	9.1	522	1270	1160	108	<1.0	36	62	<2	<2	97	9	0.1	0.04	<0.2	0.027	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_41.64-41.77m	Gp2	Fresh	Sandstone, fine; lithic	9.2	400	1760	1640	126	<1.0	14	32	<2	<2	77	6	0.19	0.373	<0.2	0.022	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_50.06-50.21m	Gp2	Fresh	Sandstone, very fine; silty laminae	9.2	433	2090	1980	108	<1.0	28	26	<2	<2	82	10	0.19	0.017	<0.2	0.057	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_58.33-58.49m	Gp2	Fresh	Siltstone	9.1	324	808	775	33.3	<1.0	29	42	<2	<2	56	6	0.11	0.019	<0.2	0.01	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_66.31-66.48m	Gp2	Fresh	Sandstone, fine-med.; lithic minor silty laminae	9.6	425	14900	14500	340	<1.0	41	22	<2	<2	78	9	0.1	0.215	<0.2	0.074	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_75.25-75.39m	Gp2	Fresh	Sandstone, fine-medium; lithic	9.4	402	3500	3380	117	<1.0	29	26	<2	<2	75	8	0.13	0.064	<0.2	0.051	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_83.1-83.26m	Gp2	Fresh	Siltstone; sub angular laminae throughout	9.4	387	1490	1420	66.7	<1.0	14	22	<2	<2	78	8	0.13	0.148	<0.2	0.018	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_90.46-90.61m	Gp2	Fresh	Sandstone, very fine; cobbles	9.4	334	13600	13300	340	<1.0	13	11	<2	<2	64	10	0.14	0.013	<0.2	0.026	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_97.99-98.34m	Coal	Fresh	Coal, 10-40% bright	8.4	225	1130	1130	<1.0	6.7	92	10	30	4	42	2	<0.02	<0.002	<0.2	0.123	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_100.29-100.44m	Coal	Fresh	Coal, 40-60% bright	4.7	201	<1.0	<1.0	<1.0	78.3	122	4	13	6	33	2	0.11	<0.002	<0.2	0.061	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_106.59-106.74m	Gp2	Fresh	Sandstone, medium-coarse; partly sideritic	9.7	380	3100	2970	133	<1.0	25	11	<2	<2	74	9	0.16	0.101	<0.2	0.038	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_111.66-111.78m	Gp3	Fresh	Carbonaceous Siltstone	9.6	271	583	517	66.7	<1.0	11	9	<2	<2	54	4	0.21	0.096	<0.2	0.007	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_121.98-122.12m	Gp2	Fresh	Sandstone, very fine; coaly in part	9.6	404	1960	1790	167	<1.0	13	8	<2	<2	79	11	0.16	0.05	<0.2	0.009	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_124.99-125.13m	Coal	Fresh	Coal, 40-60% bright	8.6	37	1350	1250	100	<1.0	13	21	<2	<2	77	7	0.13	0.223	<0.2	0.017	<0.002	<0.002	<0.002	<0.002
BWM_EIS-05_127.64-127.77m	Gp2	Fresh	Sandstone, medium; coaly bands throughout	9.7	456	14700	14500	170	<1.0	24	12	<2	<2	75	8	0.16	0.034	<0.2	0.033	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_1.61-1.75m	Gp1	Distinctly	Sandstone, very fine; clayey	8.8	502	2330	2260	72	<1.0	<2	94	3	<2	90	4	0.08	<0.002	<0.2	0.011	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_9.02-9.16m	Gp1	Weathered	Sandstone, fine; finer bands throughout	8.8	291	9860	9690	170	<1.0	31	10	7	2	42	5	0.06	0.002	<0.2	0.048	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_14.66-14.77m	Gp1	Slightly	Sandstone, fine-medium	8.8	216	20100	19900	170	<1.0	<2	5	4	<2	32	4	0.11	0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_21.07-21.22m	Gp2	Fresh	Sandstone, fine-medium	9.3	313	1280	1170	108	<1.0	16	6	<2	<2	58	14	0.15	0.158	<0.2	0.004	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_29.09-29.23m	Gp2	Fresh	Sandstone, fine-medium	9.3	381	2400	2400	<1.0	<1.0	18	13	<2	<2	73	8	0.29	0.373	<0.2	0.003	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_37.06-37.21m	Gp2	Fresh	Sandstone, fine-medium	9.4	439	1070	927	144	<1.0	17	28	<2	<2	86	7	0.14	0.057	<0.2	0.005	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_47.77-47.89m	Gp2	Fresh	Sandstone, fine-medium	9.5	460	6290	6120	170	<1.0	13	35	<2	<2	88	8	0.17	0.231	<0.2	0.007	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_55.9-56m	Gp2	Fresh	Sandstone, very fine; coarser in part	9.5	408	2380	2210	170	<1.0	15	28	<2	<2	83	10	0.25	0.091	<0.2	0.012	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_64.85-64.97m	Gp2	Fresh	Conglomerate	9.2	418	17200	16800	340	<1.0	34	23	<2	<2	77	10	0.2	0.089	<0.2	0.057	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_68.41-68.55m	Coal	Fresh	Coal, 60-90% bright	8.7	100	24200	24200	<1.0	<1.0	159	10	86	2	10	<2	<0.02	0.012	<0.2	0.266	<0.002	<0.002	<0.002	0.008
BWM_EIS-09_68.55-68.66m	Gp2	Fresh	Siltstone; carbonaceous	8.6	775	3740	3720	20	<1.0	277	30	9	<2	152	17	<0.02	0.038	<0.2	0.046	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_76.15-76.28m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	9.4	464	52000	51800	200	<1.0	15	22	<2	<2	84	7	0.19	0.213	<0.2	0.02	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_77.59-77.74m	Coal	Fresh	Coal, <10% bright	9.3	163	558	558	<1.0	<1.0	<2	9	<2	<2	41	<2	0.14	<0.002	<0.2	0.024	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_80.05-80.15m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	9.6	441	5380	5320	60	<1.0	21	27	<2	<2	84	6	0.19	0.194	<0.2	0.022	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_84.63-84.74m	Gp2	Fresh	Sandstone, fine-medium; finer bands	9.4	439	4700	4620	80	<1.0	21	22	<2	<2	87	8	0.18	0.27	<0.2	0.036	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_88.88-89.03m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	8.8	621	12900	12900	<1.0	<1.0	195	32	6	<2	124	16	0.02	0.004	<0.2	0.066	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_89.14-89.24m	Gp2	Fresh	Siltstone; sideritic near base of unit	9.1	522	10700	10500	200	<1.0	53	34	<2	<2	95	17	0.14	0.002	<0.2	0.116	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_96.01-96.13m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	9.5	480	8320	8160	160	<1.0	29	14	<2	<2	92	9	0.23	0.148	<0.2	0.048	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_105.05-105.19m	Gp2	Fresh	Sandstone, v. fine; partly coarser & sideritic	9.5	496	7640	7480	160	<1.0	29	14	<2	<2	96	10	0.22	0.179	<0.2	0.059	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_111.76-111.9m	Gp2	Fresh	Sandstone, very fine	9.4	491	5720	5620	108	<1.0	56	16	<2	<2	108	11	0.13	0.112	<0.2	0.048	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_113.09-113.24m	Coal	Fresh	Coal, 10-40% bright	8.1	623	314	314	<1.0	<1.0	292	6	20	5	110	19	<0.02	<0.002	<0.2	0.038	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_113.38-113.51m	Gp3	Fresh	Carbonaceous Siltstone	9.5	388	1770	1680	90	<1.0	11	11	<2	<2	85	6	0.08	0.028	<0.2	0.02	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_117.72-117.87m	Coal	Fresh	Coal, <10% bright	8.1	33	284	284	<1.0	<1.0	<2	3	<2	<2	14	<2	0.16	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-09_119.95-120.08m	Gp2	Fresh	Sandstone, fine; carbonaceous throughout	9.5	202	2580	2460	108	<1.0	16	5	<2	<2	36	<2	0.43	0.079	<0.2	0.003	<0.002	<0.002	<0.002	<0.002

Table B5. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Fresh Water Extracts from Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Cr	Cu	Fe	Hg	Mn	Mo	Ni	P	Pb	Sb	Se	Sn	Sr	Th	Ti	U	V	Zn	Zr
				mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
BWM_EIS-05_1.7-1.86m	Gp1	Extremely	Sandstone, fine	<0.002	<0.002	<0.2	<0.0001	<0.002	0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-05_4.4-4.56m	Gp1	Extremely	Silt	<0.002	<0.002	<0.2	<0.0001	0.009	<0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-05_6.83-7.01m	Gp1	Distinctly	Sandstone, fine-medium; lithic	<0.002	<0.002	<0.2	<0.0001	<0.002	0.003	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-05_14.93-15.06m	Gp1	Distinctly	Sandstone, fine; lithic	<0.002	<0.002	<0.2	<0.0001	<0.002	0.007	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-05_21.05-21.18m	Gp1	Weathered	Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	<0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-05_29.21-29.4m	Gp1	Slightly	Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-05_34-34.14m	Gp2	Fresh	Sandstone, fine-medium; silty laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.034	<0.002	<2	<0.002	0.003	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-05_41.64-41.77m	Gp2	Fresh	Sandstone, fine; lithic	<0.002	<0.002	<0.2	<0.0001	<0.002	0.008	<0.002	<2	<0.002	0.003	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-05_50.06-50.21m	Gp2	Fresh	Sandstone, very fine; silty laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.079	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-05_58.33-58.49m	Gp2	Fresh	Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	0.087	<0.002	<2	<0.002	0.003	0.04	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-05_66.31-66.48m	Gp2	Fresh	Sandstone, fine-med.; lithic minor silty laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.027	<0.002	<2	<0.002	0.005	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-05_75.25-75.39m	Gp2	Fresh	Sandstone, fine-medium; lithic	<0.002	<0.002	<0.2	<0.0001	<0.002	0.032	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-05_83.1-83.26m	Gp2	Fresh	Siltstone; sub angular laminae throughout	<0.002	<0.002	<0.2	<0.0001	<0.002	0.044	<0.002	<2	<0.002	0.002	0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-05_90.46-90.61m	Gp2	Fresh	Sandstone, very fine; cobbles	<0.002	<0.002	<0.2	<0.0001	<0.002	0.017	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-05_97.99-98.34m	Coal	Fresh	Coal, 10-40% bright	<0.002	<0.002	<0.2	<0.0001	0.035	0.003	<0.002	<2	<0.002	<0.002	<0.02	<0.02	1.4	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-05_100.29-100.44m	Coal	Fresh	Coal, 40-60% bright	<0.002	0.01	3.1	<0.0001	0.255	<0.002	0.002	<2	<0.002	<0.002	<0.02	<0.02	1.1	<0.002	<0.02	<0.002	<0.02	0.033	<0.01
BWM_EIS-05_106.59-106.74m	Gp2	Fresh	Sandstone, medium-coarse; partly sideritic	<0.002	<0.002	<0.2	<0.0001	<0.002	0.042	<0.002	<2	<0.002	0.005	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-05_111.66-111.78m	Gp3	Fresh	Carbonaceous Siltstone	<0.002	<0.002	<0.2	<0.0001	0.004	0.049	0.04	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-05_121.98-122.12m	Gp2	Fresh	Sandstone, very fine; coaly in part	<0.002	<0.002	<0.2	<0.0001	<0.002	0.073	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.05	<0.01	<0.01
BWM_EIS-05_124.99-125.13m	Coal	Fresh	Coal, 40-60% bright	<0.002	<0.002	<0.2	<0.0001	<0.002	0.02	<0.002	<2	<0.002	<0.002	0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-05_127.64-127.77m	Gp2	Fresh	Sandstone, medium; coaly bands throughout	<0.002	<0.002	<0.2	<0.0001	<0.002	0.018	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-09_1.61-1.75m	Gp1	Distinctly	Sandstone, very fine; clayey	<0.002	<0.002	<0.2	<0.0001	<0.002	0.003	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-09_9.02-9.16m	Gp1	Weathered	Sandstone, fine; finer bands throughout	<0.002	<0.002	<0.2	<0.0001	0.004	0.008	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-09_14.66-14.77m	Gp1	Slightly	Sandstone, fine-medium	<0.002	<0.002	<0.2	<0.0001	0.003	0.004	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-09_21.07-21.22m	Gp2	Fresh	Sandstone, fine-medium	<0.002	<0.002	<0.2	<0.0001	<0.002	0.008	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-09_29.09-29.23m	Gp2	Fresh	Sandstone, fine-medium	<0.002	<0.002	<0.2	<0.0001	<0.002	0.046	<0.002	<2	<0.002	0.006	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.06	0.03	<0.01
BWM_EIS-09_37.06-37.21m	Gp2	Fresh	Sandstone, fine-medium	<0.002	<0.002	<0.2	<0.0001	<0.002	0.058	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.05	<0.01	<0.01
BWM_EIS-09_47.77-47.89m	Gp2	Fresh	Sandstone, fine-medium	<0.002	<0.002	<0.2	<0.0001	<0.002	0.022	<0.002	<2	<0.002	0.003	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.06	<0.01	<0.01
BWM_EIS-09_55.9-56m	Gp2	Fresh	Sandstone, very fine; coarser in part	<0.002	<0.002	<0.2	<0.0001	<0.002	0.058	<0.002	<2	<0.002	0.004	0.03	<0.02	<0.2	<0.002	<0.02	<0.002	0.06	<0.01	<0.01
BWM_EIS-09_64.85-64.97m	Gp2	Fresh	Conglomerate	<0.002	<0.002	<0.2	<0.0001	<0.002	0.011	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-09_68.41-68.55m	Coal	Fresh	Coal, 60-90% bright	<0.002	<0.002	<0.2	<0.0001	0.055	0.004	0.041	<2	<0.002	0.02	<0.02	<0.02	0.5	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-09_68.55-68.66m	Gp2	Fresh	Siltstone; carbonaceous	<0.002	<0.002	<0.2	<0.0001	<0.002	0.051	<0.002	<2	<0.002	0.009	0.05	<0.02	0.5	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-09_76.15-76.28m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	<0.002	<0.002	<0.2	<0.0001	<0.002	0.04	0.01	<2	<0.002	0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.05	<0.01	<0.01
BWM_EIS-09_77.59-77.74m	Coal	Fresh	Coal, <10% bright	<0.002	<0.002	<0.2	<0.0001	<0.002	0.007	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-09_80.05-80.15m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	<0.002	<0.002	<0.2	<0.0001	<0.002	0.033	<0.002	<2	<0.002	0.003	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-09_84.63-84.74m	Gp2	Fresh	Sandstone, fine-medium; finer bands	<0.002	<0.002	<0.2	<0.0001	<0.002	0.034	<0.002	<2	<0.002	0.003	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.05	<0.01	<0.01
BWM_EIS-09_88.88-89.03m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	<0.002	<0.002	<0.2	<0.0001	0.003	0.071	0.007	<2	<0.002	0.007	<0.02	<0.02	0.4	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-09_89.14-89.24m	Gp2	Fresh	Siltstone; sideritic near base of unit	<0.002	<0.002	<0.2	<0.0001	<0.002	0.02	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-09_96.01-96.13m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	<0.002	<0.002	<0.2	<0.0001	<0.002	0.051	<0.002	<2	<0.002	0.003	0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-09_105.05-105.19m	Gp2	Fresh	Sandstone, v. fine; partly coarser & sideritic	<0.002	<0.002	<0.2	<0.0001	<0.002	0.055	<0.002	<2	<0.002	0.002	0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-09_111.76-111.9m	Gp2	Fresh	Sandstone, very fine	<0.002	<0.002	<0.2	<0.0001	<0.002	0.14	<0.002	<2	<0.002	0.006	0.04	<0.02	<0.2	<0.002	<0.02	<0.002	0.06	<0.01	<0.01
BWM_EIS-09_113.09-113.24m	Coal	Fresh	Coal, 10-40% bright	<0.002	<0.002	<0.2	<0.0001	0.015	0.016	<0.002	<2	<0.002	<0.002	<0.02	<0.02	1.3	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-09_113.38-113.51m	Gp3	Fresh	Carbonaceous Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	0.044	<0.002	<2	<0.002	<0.002	0.03	<0.02	<0.2	<0.002	<0.02	<0.002	0.05	<0.01	<0.01
BWM_EIS-09_117.72-117.87m	Coal	Fresh	Coal, <10% bright	<0.002	<0.002	<0.2	<0.0001	<0.002	0.006	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-09_119.95-120.08m	Gp2	Fresh	Sandstone, fine; carbonaceous throughout	<0.002	<0.002	<0.2	<0.0001	<0.002	0.037	<0.002	<2	<0.002	<0.002	0.04	<0.02	<0.2	<0.002	<0.02	<0.002	0.05	<0.01	<0.01

Table B5. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Fresh Water Extracts from Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	Total Alk.	HCO_3	CO_3	Acidity	SO_4	Cl	Ca	Mg	Na	K	Al	As	B	Ba	Be	Bi	Cd	Co
					µS/cm	mg $CaCO_3$/L				mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
BWM_EIS-11_1.59-1.76m	Gp1	Extremely	Siltstone; abundant clayey fractures	9.3	609	11200	10700	432	<1.0	2	83	<2	<2	118	<2	0.1	0.004	<0.2	0.003	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_3.84-4.11m	Gp1	Extremely	Sandstone, medium; minor siltstone laminae	9.1	430	2200	2040	160	<1.0	2	47	<2	<2	89	<2	0.13	0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_7.9-8.03m	Gp1	Distinctly	Sandstone, medium; minor siltstone laminae	9	402	2920	2740	180	<1.0	26	28	<2	<2	85	<2	0.09	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_10.59-10.74m	Gp1	Distinctly	Sandstone, medium; carb. siltstone laminae	8.8	278	648	576	72	<1.0	7	16	<2	<2	65	<2	0.11	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_12.66-12.77m	Gp2	Fresh	Siltstone; carbonaceous in part	8.8	144	576	558	18	<1.0	13	11	<2	<2	30	3	0.28	0.128	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_19.96-20.09m	Gp2	Fresh	Sandstone, medium	9	240	11000	10900	170	<1.0	15	7	<2	<2	38	13	0.13	0.048	<0.2	0.015	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_27.69-27.79m	Gp2	Fresh	Claystone & Sandst., med.; partly carb.	8.8	320	2900	2860	36	<1.0	21	11	<2	<2	56	11	0.19	0.023	<0.2	0.011	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_36.78-36.89m	Gp2	Fresh	Siltstone	9.1	354	702	594	108	<1.0	11	18	<2	<2	60	12	0.15	0.011	<0.2	0.012	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_45.27-45.4m	Gp2	Fresh	Sandstone, fine; common siltstone laminae	8.9	360	1160	1070	90	<1.0	14	21	<2	<2	69	7	0.15	0.373	<0.2	0.017	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_53.5-53.64m	Gp2	Fresh	Sandstone, medium	9.2	342	5120	5020	108	<1.0	17	21	<2	<2	58	9	0.17	0.109	<0.2	0.026	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_60.61-60.76m	Gp2	Fresh	Sandstone, medium; partly sideritic & pebbly	9.1	345	23200	23000	170	<1.0	15	22	<2	<2	58	11	0.15	0.104	<0.2	0.023	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_72.59-72.7m	Gp2	Fresh	Sandstone, fine; siltstone in part	9.2	350	2540	2500	36	<1.0	9	20	<2	<2	67	10	0.12	0.094	<0.2	0.007	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_78.78-78.87m	Gp2	Fresh	Claystone; common sandstone laminae	9.1	335	640	584	56	<1.0	29	17	<2	<2	67	6	0.15	0.466	<0.2	0.015	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_81.37-81.48m	Gp2	Fresh	Sandstone, medium; minor sideritic grains	9.3	370	24200	23800	400	<1.0	12	12	<2	<2	68	8	0.19	0.075	<0.2	0.021	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_87.23-87.37m	Gp2	Fresh	Sandstone, medium; minor carb. laminae	9.3	378	7060	6920	140	<1.0	36	10	<2	<2	72	9	0.18	0.148	<0.2	0.068	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_94.42-94.52m	Gp2	Fresh	Siltstone; carbonaceous in part	9.2	338	3140	2960	180	<1.0	17	12	<2	<2	69	6	0.17	0.015	<0.2	0.015	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_94.89-95.36m	Coal	Fresh	Coal, 10-40% bright	8.5	141	256	252	4	<1.0	72	9	34	4	21	<2	<0.02	<0.002	<0.2	0.054	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_101.3-101.44m	Gp2	Fresh	Siltstone; common carbonaceous traces	9.1	447	2060	1920	144	<1.0	57	12	<2	<2	86	10	0.12	0.03	<0.2	0.025	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_110.79-110.91m	Gp2	Fresh	Sandstone, fine; rare carbonaceous traces	9.4	402	2840	2740	108	<1.0	21	8	<2	<2	76	9	0.16	0.077	<0.2	0.03	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_119.47-119.6m	Gp2	Fresh	Sandstone, medium	9.4	403	6750	6570	180	<1.0	23	11	<2	<2	75	8	0.22	0.023	<0.2	0.041	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_126.05-126.13m	Gp2	Fresh	Sandstone, medium; carb. calcite laminae	9.4	330	18800	18600	170	<1.0	14	10	<2	<2	65	7	0.14	0.033	<0.2	0.031	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_135.02-135.17m	Gp2	Fresh	Sandstone, medium	9.3	427	18000	17800	170	<1.0	14	7	<2	<2	79	7	0.18	0.049	<0.2	0.018	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_136.42-136.77m	Coal	Fresh	Coal, dull <1% bright	9.1	168	4160	4140	18	<1.0	24	5	2	<2	43	<2	0.06	<0.002	<0.2	0.064	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_137.25-137.41m	Gp3	Fresh	Carbonaceous Siltstone; rare coaly wisps	8.8	117	53200	53000	170	<1.0	4	4	6	2	19	<2	0.09	<0.002	<0.2	0.053	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_141.79-141.97m	Coal	Fresh	Coal, undifferentiated	9.1	114	166	162	3.4	<1.0	3	10	<2	<2	29	<2	0.17	<0.002	<0.2	0.015	<0.002	<0.002	<0.002	<0.002
BWM_EIS-11_143.13-143.31m	Gp2	Fresh	Sandstone, fine; carbonaceous laminae	9.1	137	810	774	36	<1.0	12	5	<2	<2	23	<2	0.34	0.006	<0.2	0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_2.43-2.81m	Gp1	Distinctly	Siltstone; sandstone bands	8.8	366	2050	1980	66.7	<1.0	<2	32	<2	<2	70	3	0.18	<0.002	<0.2	0.005	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_6.22-6.39m	Gp1	Extremely	Siltstone; clayey in part	8.8	364	2350	2320	33.3	<1.0	<2	23	<2	<2	67	4	0.11	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_10.95-11.15m	Gp1	Slightly	Siltstone	8.8	350	875	808	66.7	<1.0	3	16	<2	<2	67	3	0.08	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_13.28-13.5m	Gp2	Fresh	Sandstone, med.; minor carb. siltst. laminae	9	345	1080	1000	83.3	<1.0	13	17	<2	<2	65	10	0.2	0.292	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_18.54-18.77m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae	9.1	333	2450	2380	66.7	<1.0	11	20	<2	<2	57	8	0.2	0.304	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_27.61-27.93m	Gp2	Fresh	Siltstone	9	346	833	800	33.3	<1.0	2	17	<2	<2	66	10	0.15	0.003	<0.2	0.003	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_35.3-35.55m	Gp2	Fresh	Sandstone, fine-medium	9.2	437	11600	11400	170	<1.0	21	12	<2	<2	78	10	0.16	0.04	<0.2	0.015	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_42.92-43.12m	Gp2	Fresh	Sandstone, medium; minor sandstone laminae	9.2	403	3000	2820	183	<1.0	8	12	<2	<2	74	7	0.23	0.037	<0.2	0.009	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_51.43-51.88m	Gp2	Fresh	Sandstone, medium; siltstone sideritic nodules	9.3	366	1700	1600	100	<1.0	21	13	<2	<2	71	7	0.2	0.209	<0.2	0.009	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_60.81-61m	Gp2	Fresh	Sandstone, medium; rare carb. laminae	9.2	375	2080	2030	50	<1.0	35	12	<2	<2	74	7	0.23	0.329	<0.2	0.014	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_62.05-62.63m	Coal	Fresh	Coal, undifferentiated; common calcite veins	8.5	176	2210	2210	<1.0	<1.0	134	10	58	6	30	3	<0.02	<0.002	<0.2	0.022	<0.002	<0.002	<0.002	0.002
BWM_EIS-13_63.05-63.25m	Gp3	Fresh	Carbonaceous Siltst.; minor sideritic laminae	8.6	200	467	450	17	<1.0	60	17	<2	<2	48	4	0.16	0.058	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_64.56-64.77m	Gp2	Fresh	Siltstone; sandstone in part sideritic laminae	9.3	447	1720	1580	133	<1.0	43	13	<2	<2	91	8	0.23	0.085	<0.2	0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_73.29-73.55m	Gp2	Fresh	Sandstone, med.; carbonaceous laminae	9.4	390	2330	2220	117	<1.0	25	14	<2	<2	84	6	0.33	0.222	<0.2	0.014	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_76.08-76.26m	Gp2	Fresh	Siltstone	9.3	386	917	900	17	<1.0	28	13	<2	<2	77	7	0.18	0.117	<0.2	0.008	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_84.59-84.77m	Gp2	Fresh	Siltstone; rare coaly wisps	9.4	395	1650	1570	83	<1.0	24	13	<2	<2	81	8	0.23	0.114	<0.2	0.025	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_93.81-93.96m	Gp2	Fresh	Siltstone; sandstone in part; carb. laminae	9.1	434	1920	1830	83	<1.0	43	14	<2	<2	86	10	0.21	0.032	<0.2	0.026	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_101.89-102.04m	Gp2	Fresh	Sandstone, fine; common siltstone laminae	9.2	460	11700	11600	170	<1.0	29	10	<2	<2	88	14	0.21	0.009	<0.2	0.061	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_112.26-112.43m	Gp3	Fresh	Carbonaceous Siltstone; rare coaly laminae	9.1	456	1210	1180	33	<1.0	56	10	<2	<2	96	9	0.1	0.112	<0.2	0.035	<0.002	<0.002	<0.002	<0.002

Table B5. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Fresh Water Extracts from Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Cr	Cu	Fe	Hg	Mn	Mo	Ni	P	Pb	Sb	Se	Sn	Sr	Th	Ti	U	V	Zn	Zr
				mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
BWM_EIS-11_1.59-1.76m	Gp1	Extremely	Siltstone; abundant clayey fractures	<0.002	<0.002	<0.2	<0.0001	<0.002	<0.002	0.003	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-11_3.84-4.11m	Gp1	Extremely	Sandstone, medium; minor siltstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.004	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-11_7.9-8.03m	Gp1	Distinctly	Sandstone, medium; minor siltstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.004	0.007	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-11_10.59-10.74m	Gp1	Distinctly	Sandstone, medium; carb. siltstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.005	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-11_12.66-12.77m	Gp2	Fresh	Siltstone; carbonaceous in part	<0.002	<0.002	<0.2	<0.0001	<0.002	0.031	<0.002	<2	<0.002	0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-11_19.96-20.09m	Gp2	Fresh	Sandstone, medium	<0.002	<0.002	<0.2	<0.0001	<0.002	0.015	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-11_27.69-27.79m	Gp2	Fresh	Claystone & Sandst., med.; partly carb.	<0.002	<0.002	<0.2	<0.0001	<0.002	0.141	<0.002	<2	<0.002	0.005	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-11_36.78-36.89m	Gp2	Fresh	Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	0.004	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-11_45.27-45.4m	Gp2	Fresh	Sandstone, fine; common siltstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.044	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-11_53.5-53.64m	Gp2	Fresh	Sandstone, medium	<0.002	<0.002	<0.2	<0.0001	<0.002	0.003	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-11_60.61-60.76m	Gp2	Fresh	Sandstone, medium; partly sideritic & pebbly	<0.002	<0.002	<0.2	<0.0001	<0.002	0.066	<0.002	<2	<0.002	0.006	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-11_72.59-72.7m	Gp2	Fresh	Sandstone, fine; siltstone in part	<0.002	<0.002	<0.2	<0.0001	<0.002	0.02	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-11_78.78-78.87m	Gp2	Fresh	Claystone; common sandstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.042	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-11_81.37-81.48m	Gp2	Fresh	Sandstone, medium; minor sideritic grains	<0.002	<0.002	<0.2	<0.0001	<0.002	0.03	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.13	<0.01	<0.01
BWM_EIS-11_87.23-87.37m	Gp2	Fresh	Sandstone, medium; minor carb. laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.024	<0.002	<2	<0.002	0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.05	<0.01	<0.01
BWM_EIS-11_94.42-94.52m	Gp2	Fresh	Siltstone; carbonaceous in part	<0.002	<0.002	<0.2	<0.0001	<0.002	0.148	<0.002	<2	<0.002	<0.002	0.04	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-11_94.89-95.36m	Coal	Fresh	Coal, 10-40% bright	<0.002	<0.002	<0.2	<0.0001	0.045	0.009	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.6	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-11_101.3-101.44m	Gp2	Fresh	Siltstone; common carbonaceous traces	<0.002	<0.002	<0.2	<0.0001	<0.002	0.068	<0.002	<2	<0.002	0.002	0.03	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-11_110.79-110.91m	Gp2	Fresh	Sandstone, fine; rare carbonaceous traces	<0.002	<0.002	<0.2	<0.0001	<0.002	0.028	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.08	<0.01	<0.01
BWM_EIS-11_119.47-119.6m	Gp2	Fresh	Sandstone, medium	<0.002	<0.002	<0.2	<0.0001	<0.002	0.016	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.05	<0.01	<0.01
BWM_EIS-11_126.05-126.13m	Gp2	Fresh	Sandstone, medium; carb. calcite laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.018	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-11_135.02-135.17m	Gp2	Fresh	Sandstone, medium	<0.002	<0.002	<0.2	<0.0001	<0.002	0.03	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-11_136.42-136.77m	Coal	Fresh	Coal, dull <1% bright	<0.002	<0.002	<0.2	<0.0001	<0.002	0.015	<0.002	<2	<0.002	<0.002	0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-11_137.25-137.41m	Gp3	Fresh	Carbonaceous Siltstone; rare coaly wisps	<0.002	<0.002	<0.2	<0.0001	<0.002	0.003	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.3	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-11_141.79-141.97m	Coal	Fresh	Coal, undifferentiated	0.003	<0.002	<0.2	<0.0001	<0.002	0.006	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-11_143.13-143.31m	Gp2	Fresh	Sandstone, fine; carbonaceous laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.009	<0.002	<2	<0.002	<0.002	0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-13_2.43-2.81m	Gp1	Distinctly	Siltstone; sandstone bands	<0.002	<0.002	<0.2	<0.0001	<0.002	0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-13_6.22-6.39m	Gp1	Extremely	Siltstone; clayey in part	<0.002	<0.002	<0.2	<0.0001	<0.002	<0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-13_10.95-11.15m	Gp1	Slightly	Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	<0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-13_13.28-13.5m	Gp2	Fresh	Sandstone, med.; minor carb. siltst. laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.006	<0.002	<2	<0.002	0.003	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-13_18.54-18.77m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.02	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-13_27.61-27.93m	Gp2	Fresh	Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	<0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-13_35.3-35.55m	Gp2	Fresh	Sandstone, fine-medium	<0.002	<0.002	<0.2	<0.0001	<0.002	<0.002	<0.002	<2	<0.002	0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.05	<0.01	<0.01
BWM_EIS-13_42.92-43.12m	Gp2	Fresh	Sandstone, medium; minor sandstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.008	<0.002	<2	<0.002	0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-13_51.43-51.88m	Gp2	Fresh	Sandstone, medium; siltstone sideritic nodules	<0.002	<0.002	<0.2	<0.0001	<0.002	0.03	<0.002	<2	<0.002	0.006	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-13_60.81-61m	Gp2	Fresh	Sandstone, medium; rare carb. laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.034	<0.002	<2	<0.002	0.005	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-13_62.05-62.63m	Coal	Fresh	Coal, undifferentiated; common calcite veins	<0.002	<0.002	<0.2	<0.0001	0.077	0.007	0.003	<2	<0.002	<0.002	<0.02	<0.02	0.9	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-13_63.05-63.25m	Gp3	Fresh	Carbonaceous Siltst.; minor sideritic laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.196	<0.002	<2	<0.002	0.022	0.03	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-13_64.56-64.77m	Gp2	Fresh	Siltstone; sandstone in part sideritic laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.147	<0.002	<2	<0.002	0.005	0.03	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-13_73.29-73.55m	Gp2	Fresh	Sandstone, med.; carbonaceous laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.045	<0.002	<2	<0.002	0.006	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.06	<0.01	<0.01
BWM_EIS-13_76.08-76.26m	Gp2	Fresh	Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	0.032	<0.002	<2	<0.002	0.003	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.05	<0.01	<0.01
BWM_EIS-13_84.59-84.77m	Gp2	Fresh	Siltstone; rare coaly wisps	<0.002	<0.002	<0.2	<0.0001	<0.002	0.099	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-13_93.81-93.96m	Gp2	Fresh	Siltstone; sandstone in part; carb. laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.042	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-13_101.89-102.04m	Gp2	Fresh	Sandstone, fine; common siltstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.032	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-13_112.26-112.43m	Gp3	Fresh	Carbonaceous Siltstone; rare coaly laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.186	<0.002	<2	<0.002	0.005	0.09	<0.02	<0.2	<0.002	<0.02	<0.002	0.08	<0.01	<0.01

Table B5. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Fresh Water Extracts from Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	Total Alk.	HCO_3	CO_3	Acidity	SO_4	Cl	Ca	Mg	Na	K	Al	As	B	Ba	Be	Bi	Cd	Co
					µS/cm	mg CaCO3/L				mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
BWM_EIS-13_115.87-116.31m	Coal	Fresh	Coal, dull <1% bright	7.6	52	250	250	<1.0	<1.0	<2	12	<2	<2	23	<2	<0.02	<0.002	<0.2	0.014	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_117.71-117.97m	Gp3	Fresh	Carbonaceous Siltstone	9	306	767	750	17	<1.0	50	5	<2	<2	88	6	0.09	0.01	<0.2	0.032	<0.002	<0.002	<0.002	<0.002
BWM_EIS-13_121.5-121.63m	Gp2	Fresh	Siltstone; sandstone laminae; minor siderite	9.2	359	850	783	67	<1.0	20	6	<2	<2	85	7	0.27	0.239	<0.2	0.012	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_2.45-2.58m	Gp1	Distinctly	Siltstone; minor sandstone bands throughout	8.2	378	233	233	<1.0	<1.0	<2	101	<2	<2	72	2	0.06	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_7.04-7.18m	Gp1	Distinctly	Siltstone	8.3	220	417	400	17	<1.0	9	47	<2	<2	41	<2	0.16	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_11.77-11.9m	Gp1	Slightly	Sandstone, medium; carbonaceous traces	8.9	382	983	933	50	<1.0	4	22	<2	<2	72	3	0.14	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_16.74-17m	Gp1	Slightly	Sandstone, fine-medium; siltstone laminae	9	377	1580	1470	117	<1.0	7	16	<2	<2	71	3	0.14	0.01	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_18.18-18.34m	Gp2	Fresh	Sandstone, medium; common siltstone laminae	9	394	6490	6410	83	<1.0	46	10	<2	<2	71	10	0.18	0.201	<0.2	0.032	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_25.63-25.86m	Gp2	Fresh	Sandstone, medium; siltstone laminae	9.2	327	1800	1680	117	<1.0	14	6	<2	<2	65	6	0.2	0.575	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_32.93-33.08m	Gp2	Fresh	Sandstone, medium; siltstone laminae	9.2	337	800	717	83	<1.0	15	8	<2	<2	68	6	0.18	0.332	<0.2	0.006	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_40.07-40.27m	Gp2	Fresh	Claystone; sandstone fragments throughout	9.3	366	1670	1570	100	<1.0	17	8	<2	<2	70	7	0.14	0.034	<0.2	0.016	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_48.29-48.44m	Gp2	Fresh	Sandstone, medium; common sideritic nodules	9.2	363	2420	2340	83	<1.0	34	9	<2	<2	70	7	0.22	0.433	<0.2	0.013	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_56.21-56.31m	Gp2	Fresh	Sandstone, fine-med.; carb. siltstone laminae	9.4	282	917	900	17	<1.0	16	8	<2	<2	67	5	0.22	0.321	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_58.28-58.88m	Coal	Fresh	Coal, undifferentiated	8.8	168	8840	8840	<1.0	<1.0	64	9	24	3	30	2	<0.02	<0.002	<0.2	0.035	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_61.46-61.66m	Gp3	Fresh	Carbonaceous Siltstone	9.2	249	342	325	17	<1.0	61	16	<2	<2	74	6	0.09	0.176	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_63.34-63.51m	Gp2	Fresh	Siltstone	9.3	216	550	533	17	<1.0	63	10	<2	<2	47	4	0.21	0.072	<0.2	0.003	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_70.99-71.19m	Gp2	Fresh	Sandstone, medium; trace calcite & siderite	9.4	350	7310	7310	<1.0	<1.0	67	15	<2	<2	76	11	0.15	0.054	<0.2	0.062	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_78.95-79.08m	Gp2	Fresh	Sandstone, medium	9.6	299	8160	7990	170	<1.0	30	11	<2	<2	71	10	0.19	0.097	<0.2	0.057	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_87.23-87.36m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae	9.5	297	4500	4480	20	<1.0	13	15	<2	<2	70	8	0.23	0.054	<0.2	0.034	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_96.16-96.29m	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae	9.5	303	1320	1300	20	<1.0	22	10	<2	<2	79	7	0.24	0.064	<0.2	0.022	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_104.45-104.59m	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae	9.4	356	2670	2650	20	<1.0	20	10	<2	<2	83	10	0.23	0.09	<0.2	0.016	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_111.91-112.17m	Gp3	Fresh	Carbonaceous Siltstone	9.1	316	417	400	17	<1.0	76	10	<2	<2	80	5	0.08	0.135	<0.2	0.039	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_113.71-113.94m	Coal	Fresh	Coal, 10-40% bright; minor siltstone	8.1	263	1300	1300	<1.0	58	442	14	194	19	18	<2	<0.02	<0.002	<0.2	0.006	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_115.64-115.94m	Gp2	Fresh	Siltstone; abundant carbonaceous traces	9.5	326	633	617	16	<1.0	20	13	<2	<2	84	7	0.22	0.127	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_118.02-118.18m	Coal	Fresh	Coal, undifferentiated	7.7	96	117	117	<1.0	64	114	13	15	8	34	<2	<0.02	<0.002	<0.2	0.019	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_119.86-120.19m	Gp3	Fresh	Carbonaceous Siltstone	9.3	201	350	350	<1.0	<1.0	62	9	<2	<2	53	3	0.15	0.035	<0.2	0.006	<0.002	<0.002	<0.002	<0.002
BWM_EIS-15_121.89-121.93m	Gp3	Fresh	Carbonaceous Siltstone; pyritic	6.4	1260	517	517	<1.0	<1.0	2240	72	411	256	19	3	<0.02	<0.002	<0.2	0.027	<0.002	<0.002	<0.002	0.02
BWM_EIS-15_123.12-123.25m	Gp2	Fresh	Sandstone, fine-medium; carb. siltstone laminae	8.8	332	600	600	<1.0	<1.0	184	11	<2	<2	90	6	0.02	0.012	<0.2	0.012	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_0.57-1.08m	Gp1	Extremely	Clay	8.0	1020	1310	1310	<1.0	208	91	206	24	10	148	3	<0.02	<0.002	<0.2	0.024	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_5.53-7.5m	Gp1	Distinctly	Silt	8.8	707	2420	2410	16.7	<1.0	2	169	2	<2	122	3	0.04	<0.002	<0.2	0.003	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_13-15.5m	Gp1	Distinctly	Siltstone; soft	9.0	567	1000	967	33.3	<1.0	4	107	<2	<2	105	<2	0.05	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_20-21.52m	Gp1	Slightly	Sandstone, fine; silty bands	9.2	529	1050	1020	33.3	<1.0	33	78	<2	<2	97	8	0.07	0.044	<0.2	0.014	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_30.54-32.28m	Gp2	Fresh	Siltstone	9.4	442	742	708	33.3	<1.0	15	53	<2	<2	81	8	0.06	0.077	<0.2	0.007	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_35.27-37m	Gp2	Fresh	Sandstone, fine; silty bands	9.2	442	5990	5980	16.7	<1.0	32	49	<2	<2	77	11	0.16	0.051	<0.2	0.024	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_44.2-46.35m	Gp2	Fresh	Sandstone, fine; silty laminae in part	9.4	381	2820	2690	133	<1.0	17	24	<2	<2	76	6	0.16	0.33	<0.2	0.022	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_55.5-57.58m	Gp2	Fresh	Sandstone, fine; part silty	9.6	333	7920	7820	100	<1.0	12	15	<2	<2	66	7	0.28	0.378	<0.2	0.033	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_67.03-68.94m	Gp2	Fresh	Siltstone; cobbles in part	9.5	361	1460	1410	50	<1.0	11	15	<2	<2	70	7	0.14	0.097	<0.2	0.021	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_73.59-74.15m	Gp3	Fresh	Carbonaceous Siltstone	9.3	396	742	708	33.3	<1.0	26	18	<2	<2	78	6	0.12	0.056	<0.2	0.036	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_83.13-85.2m	Gp2	Fresh	Sandstone, very fine; silty laminae throughout	9.3	373	4050	4000	50	<1.0	23	9	<2	<2	71	9	0.21	0.175	<0.2	0.035	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_94.52-96.49m	Gp2	Fresh	Siltstone, sideritic	9.4	397	858	792	66.7	<1.0	28	6	<2	<2	72	<2	0.09	0.023	<0.2	0.023	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_100.46-101.24m	Coal	Fresh	Coal	8.1	499	914	914	<1.0	<1.0	240	4	77	14	20	<2	<0.02	<0.002	<0.2	0.034	<0.002	<0.002	<0.002	0.004
BWM_EIS-17_102.93-104.34m	Gp2	Fresh	Sandstone, fine, partly sideritic	9.6	474	1040	992	50	<1.0	48	5	<2	<2	86	<2	0.05	0.004	<0.2	0.042	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_110.76-113.06m	Gp2	Fresh	Sandstone, v. fine; coarser bands; partly sideritic	9.7	457	683	617	66.7	<1.0	30	4	<2	<2	80	<2	0.05	0.009	<0.2	0.023	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_116.19-117.75m	Coal	Fresh	Coal	9.5	244	156	82.2	73.5	<1.0	15	<2	<2	<2	41	<2	0.07	0.011	<0.2	0.081	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_119.52-121.06m	Coal	Fresh	Coal, 40-60% bright; trace siltstone	8.4	96	87.5	87.4	<1.0	1.7	13	2	<2	<2	24	<2	<0.02	<0.002	<0.2	0.115	<0.002	<0.002	<0.002	<0.002

Table B5. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Fresh Water Extracts from Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Cr	Cu	Fe	Hg	Mn	Mo	Ni	P	Pb	Sb	Se	Sn	Sr	Th	Ti	U	V	Zn	Zr
				mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
BWM_EIS-13_115.87-116.31m	Coal	Fresh	Coal, dull <1% bright	<0.002	<0.002	<0.2	<0.0001	0.004	0.008	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-13_117.71-117.97m	Gp3	Fresh	Carbonaceous Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	0.087	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-13_121.5-121.63m	Gp2	Fresh	Siltstone; sandstone laminae; minor siderite	<0.002	<0.002	<0.2	<0.0001	<0.002	0.032	<0.002	<2	<0.002	0.003	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-15_2.45-2.58m	Gp1	Distinctly	Siltstone; minor sandstone bands throughout	<0.002	<0.002	<0.2	<0.0001	<0.002	0.003	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-15_7.04-7.18m	Gp1	Distinctly	Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	<0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-15_11.77-11.9m	Gp1	Slightly	Sandstone, medium; carbonaceous traces	<0.002	<0.002	<0.2	<0.0001	<0.002	<0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-15_16.74-17m	Gp1	Slightly	Sandstone, fine-medium; siltstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.003	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-15_18.18-18.34m	Gp2	Fresh	Sandstone, medium; common siltstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.018	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-15_25.63-25.86m	Gp2	Fresh	Sandstone, medium; siltstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.027	<0.002	<2	<0.002	0.005	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-15_32.93-33.08m	Gp2	Fresh	Sandstone, medium; siltstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.046	<0.002	<2	<0.002	0.006	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.05	<0.01	<0.01
BWM_EIS-15_40.07-40.27m	Gp2	Fresh	Claystone; sandstone fragments throughout	<0.002	<0.002	<0.2	<0.0001	<0.002	0.005	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-15_48.29-48.44m	Gp2	Fresh	Sandstone, medium; common sideritic nodules	<0.002	<0.002	<0.2	<0.0001	<0.002	0.051	<0.002	<2	<0.002	0.006	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-15_56.21-56.31m	Gp2	Fresh	Sandstone, fine-med.; carb. siltstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.039	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-15_58.28-58.88m	Coal	Fresh	Coal, undifferentiated	<0.002	<0.002	<0.2	<0.0001	0.01	0.006	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.7	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-15_61.46-61.66m	Gp3	Fresh	Carbonaceous Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	0.163	<0.002	<2	<0.002	0.016	0.03	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-15_63.34-63.51m	Gp2	Fresh	Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	0.119	<0.002	<2	<0.002	0.007	0.05	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-15_70.99-71.19m	Gp2	Fresh	Sandstone, medium; trace calcite & siderite	<0.002	<0.002	<0.2	<0.0001	<0.002	0.128	<0.002	<2	<0.002	0.012	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-15_78.95-79.08m	Gp2	Fresh	Sandstone, medium	<0.002	<0.002	<0.2	<0.0001	<0.002	0.038	<0.002	<2	<0.002	0.003	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-15_87.23-87.36m	Gp2	Fresh	Sandstone, medium; carbonaceous laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.035	<0.002	<2	<0.002	0.003	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-15_96.16-96.29m	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.066	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-15_104.45-104.59m	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.037	<0.002	<2	<0.002	0.004	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-15_111.91-112.17m	Gp3	Fresh	Carbonaceous Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	0.044	<0.002	<2	<0.002	0.008	0.06	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-15_113.71-113.94m	Coal	Fresh	Coal, 10-40% bright; minor siltstone	<0.002	<0.002	<0.2	<0.0001	0.401	0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	1.4	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-15_115.64-115.94m	Gp2	Fresh	Siltstone; abundant carbonaceous traces	<0.002	<0.002	<0.2	<0.0001	<0.002	0.087	<0.002	<2	<0.002	0.003	0.03	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-15_118.02-118.18m	Coal	Fresh	Coal, undifferentiated	<0.002	<0.002	<0.2	<0.0001	0.4	0.003	<0.002	<2	<0.002	<0.002	<0.02	<0.02	1	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-15_119.86-120.19m	Gp3	Fresh	Carbonaceous Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	0.071	<0.002	<2	<0.002	0.005	0.03	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-15_121.89-121.93m	Gp3	Fresh	Carbonaceous Siltstone; pyritic	<0.002	<0.002	81.8	<0.0001	39.3	0.003	0.028	<2	<0.002	<0.002	<0.02	<0.02	1.6	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-15_123.12-123.25m	Gp2	Fresh	Sandstone, fine-medium; carb. siltstone laminae	<0.002	<0.002	<0.2	<0.0001	<0.002	0.016	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_0.57-1.08m	Gp1	Extremely	Clay	0.003	0.007	<0.2	<0.0001	0.002	0.003	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.3	<0.002	<0.02	0.005	<0.02	<0.01	<0.01
BWM_EIS-17_5.53-7.5m	Gp1	Distinctly	Silt	<0.002	0.003	<0.2	<0.0001	0.002	<0.002	0.016	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_13-15.5m	Gp1	Distinctly	Siltstone; soft	<0.002	0.004	<0.2	<0.0001	<0.002	0.003	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_20-21.52m	Gp1	Slightly	Sandstone, fine; silty bands	<0.002	<0.002	<0.2	<0.0001	<0.002	0.059	<0.002	<2	<0.002	0.005	0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_30.54-32.28m	Gp2	Fresh	Siltstone	<0.002	0.004	<0.2	<0.0001	<0.002	0.028	<0.002	<2	<0.002	0.003	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-17_35.27-37m	Gp2	Fresh	Sandstone, fine; silty bands	<0.002	<0.002	<0.2	<0.0001	<0.002	0.007	<0.002	<2	<0.002	0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_44.2-46.35m	Gp2	Fresh	Sandstone, fine; silty laminae in part	<0.002	<0.002	<0.2	<0.0001	<0.002	0.031	0.004	<2	<0.002	0.008	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-17_55.5-57.58m	Gp2	Fresh	Sandstone, fine; part silty	<0.002	<0.002	<0.2	<0.0001	<0.002	0.021	<0.002	<2	<0.002	0.005	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.04	<0.01	<0.01
BWM_EIS-17_67.03-68.94m	Gp2	Fresh	Siltstone; cobbles in part	<0.002	<0.002	<0.2	<0.0001	<0.002	0.007	<0.002	<2	<0.002	0.005	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-17_73.59-74.15m	Gp3	Fresh	Carbonaceous Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	0.052	<0.002	<2	<0.002	0.007	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.02	<0.01	<0.01
BWM_EIS-17_83.13-85.2m	Gp2	Fresh	Sandstone, very fine; silty laminae throughout	<0.002	<0.002	<0.2	<0.0001	<0.002	0.025	<0.002	<2	<0.002	0.009	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	0.03	<0.01	<0.01
BWM_EIS-17_94.52-96.49m	Gp2	Fresh	Siltstone, sideritic	<0.002	<0.002	<0.2	<0.0001	<0.002	0.017	<0.002	<2	<0.002	<0.002	0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_100.46-101.24m	Coal	Fresh	Coal	<0.002	<0.002	<0.2	<0.0001	0.098	<0.002	0.007	<2	<0.002	<0.002	<0.02	<0.02	1	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_102.93-104.34m	Gp2	Fresh	Sandstone, fine, partly sideritic	<0.002	<0.002	<0.2	<0.0001	<0.002	0.005	<0.002	<2	<0.002	<0.002	0.03	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_110.76-113.06m	Gp2	Fresh	Sandstone, v. fine; coarser bands; partly sideritic	<0.002	<0.002	<0.2	<0.0001	<0.002	0.014	<0.002	<2	<0.002	<0.002	0.04	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_116.19-117.75m	Coal	Fresh	Coal	<0.002	<0.002	<0.2	<0.0001	<0.002	0.011	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_119.52-121.06m	Coal	Fresh	Coal, 40-60% bright; trace siltstone	<0.002	<0.002	<0.2	<0.0001	0.002	<0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01

Table B5. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Fresh Water Extracts from Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	Total Alk.	HCO_3	CO_3	Acidity	SO_4	Cl	Ca	Mg	Na	K	Al	As	B	Ba	Be	Bi	Cd	Co
					µS/cm	mg CaCO3/L				mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
BWM_EIS-17_123.77-124.22m	Gp3	Fresh	Carbonaceous Siltstone	9.5	412	180	173	7	<1.0	102	5	<2	<2	85	<2	0.04	0.003	<0.2	0.017	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_126.8-128.72m	Coal	Fresh	Coal, 60-90% bright	8.7	89	262	262	<1.0	<1.0	8	3	3	<2	19	<2	<0.02	<0.002	<0.2	0.133	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_128.94-130.05m	Gp2	Fresh	Siltstone; part coaly and carbonaceous	9.7	297	217	203	14	<1.0	21	4	<2	<2	60	<2	0.13	0.087	<0.2	0.011	<0.002	<0.002	<0.002	<0.002
BWM_EIS-17_146.47-148.97m	Gp2	Fresh	Sandstone, very fine	9.8	482	382	304	77	<1.0	33	4	<2	<2	84	<2	0.19	0.014	<0.2	0.016	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_1.55-3.1m	Gp1	Extremely	Clay; sub angular throughout	8.3	1670	116	116	<1.0	86.7	78	291	<2	<2	195	<2	<0.02	<0.002	0.2	0.003	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_6.14-8.08m	Gp1	Weathered	Sandstone, fine-medium	8.9	654	164	154	10	<1.0	12	125	<2	<2	112	<2	<0.02	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_12.61-13.92m	Gp1	Weathered	Sandstone, fine; sparse disseminated in part	8.4	413	166	166	<1.0	<1.0	8	94	<2	<2	71	<2	0.02	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_19.1-21.13m	Gp1	Weathered	Sandstone, fine-medium	9.0	581	191	147	43.6	<1.0	18	80	<2	<2	96	<2	0.02	<0.002	<0.2	<0.002	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_27.14-28.59m	Gp2	Fresh	Sandstone, med.; partly coaly; minor calcareous	9.3	432	265	198	67	<1.0	35	25	<2	<2	78	<2	0.11	0.123	<0.2	0.003	<0.002	<0.002	<0.002	0.005
BWM-EIS19_33.63-35.15m	Gp2	Fresh	Sandstone, fine; calcareous finer bands	9.3	375	152	85.4	67	<1.0	28	16	<2	<2	68	<2	0.14	0.178	<0.2	0.004	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_41.29-42.67m	Gp2	Fresh	Sandstone, fine-medium; finer in part	9.4	407	718	598	121	<1.0	12	20	<2	<2	75	<2	0.07	0.039	<0.2	0.007	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_49.05-50.37m	Gp2	Fresh	Sandstone, fine-medium; finer bands in part	9.5	366	598	477	121	<1.0	10	9	<2	<2	73	<2	0.1	0.032	<0.2	0.009	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_57.17-58.41m	Gp2	Fresh	Sandstone, fine; finer bands	9.5	372	732	625	107	<1.0	22	8	<2	<2	77	<2	0.1	0.03	<0.2	0.02	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_64.19-64.64m	Gp2	Fresh	Sandstone, medium; partly sideritic	9.4	372	362	288	73.7	<1.0	23	8	<2	<2	86	2	0.02	0.117	<0.2	0.021	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_72.22-73.88m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	9.6	350	303	206	97.2	<1.0	20	6	<2	<2	75	<2	0.08	0.022	<0.2	0.02	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_81.82-82.79m	Gp2	Fresh	Sandstone, fine; carb. siltst. bands; calcareous	9.4	361	298	211	87.1	<1.0	32	7	<2	<2	74	<2	0.09	0.127	<0.2	0.022	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_82.79-83.24m	Coal	Fresh	Coal	8.0	257	742	742	<1.0	8.3	92	6	50	4	15	<2	<0.02	<0.002	<0.2	0.027	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_83.24-83.52m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	8.9	437	45.2	45.2	<1.0	9.2	268	6	2	<2	131	3	<0.02	<0.002	<0.2	0.015	<0.002	<0.002	<0.002	0.005
BWM-EIS19_84.24-85.31m	Coal	Fresh	Coal	8.3	255	556	556	<1.0	6.7	80	8	25	4	44	4	<0.02	<0.002	<0.2	0.057	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_86.19-86.36m	Gp3	Fresh	Carbonaceous Siltstone; coaly wisps	9.5	426	112	58.6	53.6	<1.0	77	7	<2	<2	78	<2	0.04	0.074	<0.2	0.013	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_91.09-92.04m	Gp2	Fresh	Sandstone, fine; partly calcareous	9.3	308	193	146	46.9	<1.0	26	7	<2	<2	69	<2	0.12	0.024	<0.2	0.014	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_93.13-94.18m	Coal	Fresh	Coal, 60-90% bright	8.2	103	73.7	73.7	<1.0	2.5	13	7	10	<2	19	<2	<0.02	<0.002	<0.2	0.021	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_98.71-100.15m	Gp2	Fresh	Sandst., med.; partly finer; trace siderite & coaly	9.5	365	240	146	93.8	<1.0	17	3	<2	<2	75	<2	0.08	0.087	<0.2	0.024	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_105.44-107.25m	Coal	Fresh	Coal	8.6	72	83.8	83.8	<1.0	1.7	<2	3	6	2	16	<2	<0.02	<0.002	<0.2	0.034	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_112.34-113.69m	Gp2	Fresh	Sandstone, v. fine; partly carb. & sideritic	9.6	413	214	127	87.1	<1.0	36	4	<2	<2	83	<2	0.07	0.01	<0.2	0.016	<0.002	<0.002	<0.002	<0.002
BWM-EIS19_120.91-121.41m	Gp3	Fresh	Carbonaceous Siltstone; minor coal	9.4	499	273	219	53.6	<1.0	77	6	<2	<2	97	9	0.08	0.02	<0.2	0.042	<0.002	<0.002	<0.002	<0.002

Water extract tests undertaken as 1:5 (w:v).
Refer to report body for further explanation of data.

Table B5. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Fresh Water Extracts from Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	Cr	Cu	Fe	Hg	Mn	Mo	Ni	P	Pb	Sb	Se	Sn	Sr	Th	Ti	U	V	Zn	Zr
				mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
BWM_EIS-17_123.77-124.22m	Gp3	Fresh	Carbonaceous Siltstone	<0.002	<0.002	<0.2	<0.0001	<0.002	0.044	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_126.8-128.72m	Coal	Fresh	Coal, 60-90% bright	<0.002	<0.002	<0.2	<0.0001	<0.002	<0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_128.94-130.05m	Gp2	Fresh	Siltstone; part coaly and carbonaceous	<0.002	<0.002	<0.2	<0.0001	<0.002	0.03	<0.002	<2	<0.002	<0.002	0.06	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM_EIS-17_146.47-148.97m	Gp2	Fresh	Sandstone, very fine	<0.002	0.003	<0.2	<0.0001	<0.002	0.016	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_1.55-3.1m	Gp1	Extremely	Clay; sub angular throughout	<0.002	<0.002	<0.2	<0.0001	<0.002	<0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_6.14-8.08m	Gp1	Weathered	Sandstone, fine-medium	<0.002	<0.002	<0.2	<0.0001	<0.002	0.002	0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_12.61-13.92m	Gp1	Weathered	Sandstone, fine; sparse disseminated in part	<0.002	<0.002	0.5	<0.0001	<0.002	0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_19.1-21.13m	Gp1	Weathered	Sandstone, fine-medium	<0.002	<0.002	<0.2	<0.0001	<0.002	0.018	<0.002	<2	<0.002	<0.002	0.03	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_27.14-28.59m	Gp2	Fresh	Sandstone, med.; partly coaly; minor calcareous	<0.002	0.035	<0.2	<0.0001	<0.002	0.006	0.013	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_33.63-35.15m	Gp2	Fresh	Sandstone, fine; calcareous finer bands	<0.002	<0.002	<0.2	<0.0001	<0.002	0.017	<0.002	<2	<0.002	<0.002	0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_41.29-42.67m	Gp2	Fresh	Sandstone, fine-medium; finer in part	<0.002	<0.002	<0.2	<0.0001	<0.002	<0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_49.05-50.37m	Gp2	Fresh	Sandstone, fine-medium; finer bands in part	<0.002	<0.002	<0.2	<0.0001	<0.002	0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_57.17-58.41m	Gp2	Fresh	Sandstone, fine; finer bands	<0.002	<0.002	<0.2	<0.0001	<0.002	0.003	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_64.19-64.64m	Gp2	Fresh	Sandstone, medium; partly sideritic	<0.002	<0.002	<0.2	<0.0001	<0.002	0.007	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_72.22-73.88m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	<0.002	<0.002	<0.2	<0.0001	0.002	0.015	0.008	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_81.82-82.79m	Gp2	Fresh	Sandstone, fine; carb. siltst. bands; calcareous	<0.002	<0.002	<0.2	<0.0001	<0.002	0.019	<0.002	<2	<0.002	0.003	0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_82.79-83.24m	Coal	Fresh	Coal	<0.002	<0.002	<0.2	<0.0001	0.012	0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.5	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_83.24-83.52m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	<0.002	<0.002	<0.2	<0.0001	0.036	0.005	0.012	<2	<0.002	<0.002	0.07	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_84.24-85.31m	Coal	Fresh	Coal	<0.002	<0.002	<0.2	<0.0001	0.01	0.011	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.8	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_86.19-86.36m	Gp3	Fresh	Carbonaceous Siltstone; coaly wisps	<0.002	<0.002	<0.2	<0.0001	<0.002	0.102	0.005	<2	<0.002	0.007	0.05	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_91.09-92.04m	Gp2	Fresh	Sandstone, fine; partly calcareous	<0.002	<0.002	<0.2	<0.0001	<0.002	0.037	<0.002	<2	<0.002	<0.002	0.03	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_93.13-94.18m	Coal	Fresh	Coal, 60-90% bright	<0.002	<0.002	<0.2	<0.0001	<0.002	0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_98.71-100.15m	Gp2	Fresh	Sandst., med.; partly finer; trace siderite & coaly	<0.002	<0.002	<0.2	<0.0001	<0.002	0.007	<0.002	<2	<0.002	<0.002	<0.02	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_105.44-107.25m	Coal	Fresh	Coal	<0.002	<0.002	<0.2	<0.0001	<0.002	<0.002	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_112.34-113.69m	Gp2	Fresh	Sandstone, v. fine; partly carb. & sideritic	<0.002	<0.002	<0.2	<0.0001	<0.002	0.054	<0.002	<2	<0.002	<0.002	0.03	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01
BWM-EIS19_120.91-121.41m	Gp3	Fresh	Carbonaceous Siltstone; minor coal	<0.002	<0.002	<0.2	<0.0001	<0.002	0.035	<0.002	<2	<0.002	0.005	0.04	<0.02	<0.2	<0.002	<0.02	<0.002	<0.02	<0.01	<0.01

Water extract tests undertaken as 1:5 (w:v).
Refer to report body for further explanation of data.

Table B6. Exchangeable Cations and Emerson Class Test Results in Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	Exch. Ca	Exch. Mg	Exch. K	Exch. Na	CEC	ESP	Sodicity Rating	Emerson Class No. & Description	
					µS/cm	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%			
BWM_EIS-05_1.7-1.86m	Gp1	Extremely	Sandstone, fine	8.7	884	11.3	7.4	0.4	7.4	26.5	27.9	strongly sodic	2	Some dispersion
BWM_EIS-05_4.4-4.56m	Gp1	Extremely	Silt	7.7	816	7.2	7.4	<0.2	5.6	20.3	27.4	strongly sodic	2	Some dispersion
BWM_EIS-05_6.83-7.01m	Gp1	Distinctly	Sandstone, fine-medium; lithic	9.2	581	4.8	4	<0.2	3.3	12.3	27.2	strongly sodic	2	Some dispersion
BWM_EIS-05_14.93-15.06m	Gp1	Distinctly	Sandstone, fine; lithic	9.4	464	3.2	4.5	<0.2	3.4	11.2	30.3	strongly sodic	2	Some dispersion
BWM_EIS-05_21.05-21.18m	Gp1	Weathered	Siltstone	9.3	574	4.7	9.1	0.4	6.1	20.4	29.9	strongly sodic	2	Some dispersion
BWM_EIS-05_29.21-29.4m	Gp1	Slightly	Siltstone	9.4	466	3	7.1	0.5	4.7	15.4	30.5	strongly sodic	2	Some dispersion
BWM_EIS-05_34-34.14m	Gp2	Fresh	Sandstone, fine-medium; silty laminae throughout	9.4	529	3.5	6.9	0.5	4.9	15.9	30.9	strongly sodic	2	Some dispersion
BWM_EIS-05_41.64-41.77m	Gp2	Fresh	Sandstone, fine; lithic	9.6	402	3.7	3.8	0.4	4.2	12.2	34.6	strongly sodic	2	Some dispersion
BWM_EIS-05_50.06-50.21m	Gp2	Fresh	Sandstone, very fine; silty laminae	9.5	436	4.3	3.2	0.5	4.5	12.5	35.7	strongly sodic	2	Some dispersion
BWM_EIS-05_58.33-58.49m	Gp2	Fresh	Siltstone	9	331	4.8	3.2	0.5	4.2	12.6	33	strongly sodic	2	Some dispersion
BWM_EIS-05_66.31-66.48m	Gp2	Fresh	Sandstone, fine-medium; lithic minor silty laminae	9.7	432	4.1	2.3	0.3	3	9.8	31.2	strongly sodic	2	Some dispersion
BWM_EIS-05_75.25-75.39m	Gp2	Fresh	Sandstone, fine-medium; lithic	9.6	413	2.3	1.6	<0.2	2.1	6.3	33.7	strongly sodic	2	Some dispersion
BWM_EIS-05_83.1-83.26m	Gp2	Fresh	Siltstone; sub angular laminae throughout	9.5	405	3.8	2.3	0.5	3.7	10.3	36.2	strongly sodic	2	Some dispersion
BWM_EIS-05_90.46-90.61m	Gp2	Fresh	Sandstone, very fine; cobbles	9.6	342	1.8	1.5	0.2	1.8	5.3	34.6	strongly sodic	2	Some dispersion
BWM_EIS-05_106.59-106.74m	Gp2	Fresh	Sandstone, medium-coarse; sideritic near top of unit	9.8	399	1.9	1.5	0.2	2.4	6	39.2	strongly sodic	2	Some dispersion
BWM_EIS-05_111.66-111.78m	Gp3	Fresh	Carbonaceous Siltstone	9.7	279	2.8	1.9	0.5	3.6	8.8	41	strongly sodic	2	Some dispersion
BWM_EIS-05_121.98-122.12m	Gp2	Fresh	Sandstone, very fine; coaly in part	9.6	428	3.3	2.3	0.6	4.4	10.6	41.2	strongly sodic	2	Some dispersion
BWM_EIS-05_127.64-127.77m	Gp2	Fresh	Sandstone, medium; coaly bands throughout	9.7	411	2.7	2	0.4	4.1	9.2	44.7	strongly sodic	2	Some dispersion
BWM_EIS-09_1.61-1.75m	Gp1	Distinctly	Sandstone, very fine; abundant clayey throughout	9.1	499	6.9	4.8	<0.2	4.4	16.3	27.1	strongly sodic	2	Some dispersion
BWM_EIS-09_9.02-9.16m	Gp1	Weathered	Sandstone, fine; finer bands throughout	9	272	6.7	4.2	0.2	1.8	13	14.2	strongly sodic	2	Some dispersion
BWM_EIS-09_14.66-14.77m	Gp1	Slightly	Sandstone, fine-medium	9.2	181	8	2.3	0.2	0.9	11.5	8.1	sodic	2	Some dispersion
BWM_EIS-09_21.07-21.22m	Gp2	Fresh	Sandstone, fine-medium	9.4	336	4.1	5.6	0.6	4	14.4	28.1	strongly sodic	2	Some dispersion
BWM_EIS-09_29.09-29.23m	Gp2	Fresh	Sandstone, fine-medium	9.7	381	3.7	3.1	0.4	4.5	11.7	38.3	strongly sodic	2	Some dispersion
BWM_EIS-09_37.06-37.21m	Gp2	Fresh	Sandstone, fine-medium	9.6	460	4.2	3.1	0.4	6.2	14	44.5	strongly sodic	2	Some dispersion
BWM_EIS-09_47.77-47.89m	Gp2	Fresh	Sandstone, fine-medium	9.7	483	4.4	2.6	0.5	6.5	13.9	46.4	strongly sodic	2	Some dispersion
BWM_EIS-09_55.9-56m	Gp2	Fresh	Sandstone, very fine; coarser in part	9.7	454	3.9	1.8	0.5	5.7	11.9	48.1	strongly sodic	2	Some dispersion
BWM_EIS-09_64.85-64.97m	Gp2	Fresh	Conglomerate	9.4	397	2.4	1.5	0.7	3.6	8.2	44.1	strongly sodic	2	Some dispersion
BWM_EIS-09_76.15-76.28m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	9.7	443	4.3	2.2	0.8	5.3	12.6	41.8	strongly sodic	2	Some dispersion
BWM_EIS-09_80.05-80.15m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps	9.7	441	2.6	1.4	0.6	3.6	8.2	43.3	strongly sodic	2	Some dispersion
BWM_EIS-09_84.63-84.74m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	9.7	444	3.4	1.8	0.8	4.7	10.7	44.3	strongly sodic	2	Some dispersion
BWM_EIS-09_89.14-89.24m	Gp2	Fresh	Siltstone; sideritic near base of unit	9.4	507	2.3	2.4	0.8	3.7	9.2	40.6	strongly sodic	2	Some dispersion
BWM_EIS-09_96.01-96.13m	Gp2	Fresh	Sandstone, fine-medium; coaly wisps throughout	9.7	477	2.2	1.9	0.8	4.2	9.1	46.6	strongly sodic	2	Some dispersion
BWM_EIS-09_105.05-105.19m	Gp2	Fresh	Sandstone, v. fine; partly coarser & sideritic	9.7	497	2.4	2	0.8	5.1	10.3	49	strongly sodic	2	Some dispersion
BWM_EIS-09_111.76-111.9m	Gp2	Fresh	Sandstone, very fine	9.6	503	3.4	1.8	1	6.2	12.4	49.7	strongly sodic	2	Some dispersion
BWM_EIS-09_113.38-113.51m	Gp3	Fresh	Carbonaceous Siltstone	9.6	389	3.6	1.9	1.1	7.7	14.2	54.1	strongly sodic	2	Some dispersion
BWM_EIS-09_119.95-120.08m	Gp2	Fresh	Sandstone, fine; carbonaceous throughout	9.6	199	4.9	2	1.4	9.7	18	53.8	strongly sodic	2	Some dispersion
BWM_EIS-11_1.59-1.76m	Gp1	Extremely	Siltstone; abundant clayey fractures	9.6	600	4.4	2.8	0.5	7.3	15.1	48.3	strongly sodic	2	Some dispersion
BWM_EIS-11_3.84-4.11m	Gp1	Extremely	Sandstone, medium; minor siltstone laminae	9.4	420	5	2	0.5	5.7	13.1	43.3	strongly sodic	2	Some dispersion
BWM_EIS-11_7.9-8.03m	Gp1	Distinctly	Sandstone, medium; minor siltstone laminae	9.4	391	6.9	3.7	0.6	5.9	17.1	34.4	strongly sodic	2	Some dispersion
BWM_EIS-11_10.59-10.74m	Gp1	Distinctly	Sandstone, medium; carbonaceous siltstone laminae	9.3	285	7	4.7	0.6	5.4	17.7	30.3	strongly sodic	2	Some dispersion
BWM_EIS-11_12.66-12.77m	Gp2	Fresh	Siltstone; carbonaceous in part	9	150	2	1.6	0.6	1.9	6.2	30.8	strongly sodic	2	Some dispersion
BWM_EIS-11_19.96-20.09m	Gp2	Fresh	Sandstone, medium	9.3	224	6.6	1.1	0.6	1.4	9.8	14.8	strongly sodic	2	Some dispersion
BWM_EIS-11_27.69-27.79m	Gp2	Fresh	Claystone and Sandstone, medium; carbonaceous in part	9.2	305	5.3	1.9	0.9	3.2	11.4	28.1	strongly sodic	2	Some dispersion
BWM_EIS-11_36.78-36.89m	Gp2	Fresh	Siltstone	9.4	336	5.6	1.3	1	3.5	11.4	30.8	strongly sodic	2	Some dispersion
BWM_EIS-11_45.27-45.4m	Gp2	Fresh	Sandstone, fine; common siltstone laminae throughout	9.2	351	7.1	1.2	0.8	3.8	12.9	29.4	strongly sodic	2	Some dispersion

Table B6. Exchangeable Cations and Emerson Class Test Results in Drill-hole Samples

Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	Exch. Ca	Exch. Mg	Exch. K	Exch. Na	CEC	ESP	Sodicity Rating	Emerson Class No. & Description	
					µS/cm	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%			
BWM_EIS-11_53.5-53.64m	Gp2	Fresh	Sandstone, medium	9.4	329	6.2	1.3	0.5	2.9	10.8	26.5	strongly sodic	2	Some dispersion
BWM_EIS-11_60.61-60.76m	Gp2	Fresh	Sandstone, medium; common sideritic pebbly throughout	9.3	323	6	1.4	0.4	2.8	10.7	26.1	strongly sodic	2	Some dispersion
BWM_EIS-11_72.59-72.7m	Gp2	Fresh	Sandstone, fine; siltstone in part	9.4	342	8.3	1.3	0.6	4.7	15	31.6	strongly sodic	2	Some dispersion
BWM_EIS-11_78.78-78.87m	Gp2	Fresh	Claystone; common sandstone laminae throughout	9.3	334	8.2	1.6	0.4	3.8	14	27.1	strongly sodic	2	Some dispersion
BWM_EIS-11_81.37-81.48m	Gp2	Fresh	Sandstone, medium; minor sideritic grains throughout	9.6	351	7.2	2.7	0.5	4	14.4	27.8	strongly sodic	2	Some dispersion
BWM_EIS-11_87.23-87.37m	Gp2	Fresh	Sandstone, medium; minor carbonaceous laminae	9.5	367	6.6	2.4	0.5	3.7	13.2	28.3	strongly sodic	2	Some dispersion
BWM_EIS-11_94.42-94.52m	Gp2	Fresh	Siltstone; carbonaceous in part near base of unit	9.4	336	7.4	1.9	0.5	4.5	14.4	31.3	strongly sodic	2	Some dispersion
BWM_EIS-11_101.3-101.44m	Gp2	Fresh	Siltstone; common carbonaceous traces	9.3	449	7.8	2.8	0.5	6.2	17.4	35.6	strongly sodic	2	Some dispersion
BWM_EIS-11_110.79-110.91m	Gp2	Fresh	Sandstone, fine; rare carbonaceous traces	9.6	384	6	2.8	0.5	4.9	14.3	34.5	strongly sodic	2	Some dispersion
BWM_EIS-11_119.47-119.6m	Gp2	Fresh	Sandstone, medium	9.6	384	4.6	2.8	0.4	3.9	11.7	33.2	strongly sodic	2	Some dispersion
BWM_EIS-11_126.05-126.13m	Gp2	Fresh	Sandstone, medium; carb. calcite laminae	9.6	318	10.4	2.4	0.2	2.2	15.3	14.7	strongly sodic	2	Some dispersion
BWM_EIS-11_135.02-135.17m	Gp2	Fresh	Sandstone, medium	9.5	390	3.8	2.4	0.2	2.8	9.3	30	strongly sodic	2	Some dispersion
BWM_EIS-11_143.13-143.31m	Gp2	Fresh	Sandstone, fine; common carbonaceous laminae	9.2	124	2.8	0.5	<0.2	0.4	3.7	10.3	sodic	3	Dispersion
BWM_EIS-13_2.43-2.81m	Gp1	Distinctly	Siltstone; common sandstone bands throughout	9.4	334	6.9	4.7	<0.2	4.1	15.8	26.1	strongly sodic	2	Some dispersion
BWM_EIS-13_6.22-6.39m	Gp1	Extremely	Siltstone; clayey in part	9.3	315	7.3	6.7	0.3	4.6	18.9	24.2	strongly sodic	2	Some dispersion
BWM_EIS-13_10.95-11.15m	Gp1	Slightly	Siltstone	9.3	307	6.6	6.2	0.4	5	18.1	27.5	strongly sodic	2	Some dispersion
BWM_EIS-13_13.28-13.5m	Gp2	Fresh	Sandstone, medium; minor carbonaceous siltstone laminae	9.5	317	4	4.4	0.4	3.6	12.4	29.4	strongly sodic	2	Some dispersion
BWM_EIS-13_18.54-18.77m	Gp2	Fresh	Sandstone, medium; common carbonaceous laminae	9.6	297	3.3	2.2	0.2	2.6	8.4	31.2	strongly sodic	2	Some dispersion
BWM_EIS-13_27.61-27.93m	Gp2	Fresh	Siltstone	9.5	305	5.7	2.3	0.6	5.6	14.2	39.7	strongly sodic	2	Some dispersion
BWM_EIS-13_35.3-35.55m	Gp2	Fresh	Sandstone, fine-medium	9.6	395	7	1.6	0.4	4.8	13.9	34.9	strongly sodic	2	Some dispersion
BWM_EIS-13_42.92-43.12m	Gp2	Fresh	Sandstone, medium; minor sandstone laminae throughout	9.6	372	8.3	2.1	0.5	6.4	17.4	37	strongly sodic	2	Some dispersion
BWM_EIS-13_51.43-51.88m	Gp2	Fresh	Sandstone, medium; abundant siltstone sideritic nodules	9.7	340	5	1.4	0.5	3.9	10.8	36.4	strongly sodic	2	Some dispersion
BWM_EIS-13_63.05-63.25m	Gp3	Fresh	Carbonaceous Siltstone; minor sideritic laminae	8.9	216	3.3	3.3	0.4	4.8	11.9	40.3	strongly sodic	2	Some dispersion
BWM_EIS-13_73.29-73.55m	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae	9.8	373	3.2	2.9	0.3	4.1	10.5	39.2	strongly sodic	2	Some dispersion
BWM_EIS-13_84.59-84.77m	Gp2	Fresh	Siltstone; rare coaly wisps	9.8	379	3.7	2.5	0.5	4.3	11.1	38.8	strongly sodic	2	Some dispersion
BWM_EIS-13_93.81-93.96m	Gp2	Fresh	Siltstone; sandstone in part carbonaceous laminae	9.6	403	5.2	2.5	0.6	5.6	14	40.3	strongly sodic	2	Some dispersion
BWM_EIS-13_101.89-102.04m	Gp2	Fresh	Sandstone, fine; common siltstone laminae	9.7	406	2.8	2.4	0.4	3.2	8.8	36.6	strongly sodic	2	Some dispersion
BWM_EIS-13_112.26-112.43m	Gp3	Fresh	Carbonaceous Siltstone; rare coaly laminae	9.4	445	4	2.3	0.4	5.2	11.9	43.3	strongly sodic	2	Some dispersion
BWM_EIS-13_117.71-117.97m	Gp3	Fresh	Carbonaceous Siltstone	9.4	322	1.8	1.4	0.2	2.9	6.4	46	strongly sodic	2	Some dispersion
BWM_EIS-13_121.5-121.63m	Gp2	Fresh	Siltstone; sandstone laminae throughout; minor siderite	9.7	321	3.6	1.9	0.6	6.4	12.4	51.2	strongly sodic	2	Some dispersion
BWM_EIS-15_2.45-2.58m	Gp1	Distinctly	Siltstone; minor sandstone bands throughout	8.4	375	3.7	2.8	<0.2	3.9	10.4	37.5	strongly sodic	2	Some dispersion
BWM_EIS-15_7.04-7.18m	Gp1	Distinctly	Siltstone	8.5	220	4.1	4.2	<0.2	4.4	12.8	34	strongly sodic	2	Some dispersion
BWM_EIS-15_11.77-11.9m	Gp1	Slightly	Sandstone, medium; carbonaceous traces	9.4	349	4.1	4.3	0.2	4.3	13	33.2	strongly sodic	2	Some dispersion
BWM_EIS-15_16.74-17m	Gp1	Slightly	Sandstone, fine-medium; common siltstone laminae	9.5	343	3.6	5	0.3	3.9	12.8	30.4	strongly sodic	2	Some dispersion
BWM_EIS-15_18.18-18.34m	Gp2	Fresh	Sandstone, medium; common siltstone laminae	9.4	370	1.8	1.9	0.2	1.8	5.8	30.9	strongly sodic	2	Some dispersion
BWM_EIS-15_25.63-25.86m	Gp2	Fresh	Sandstone, medium; abundant siltstone laminae	9.6	320	2.9	2.1	0.2	2.7	7.9	34	strongly sodic	2	Some dispersion
BWM_EIS-15_32.93-33.08m	Gp2	Fresh	Sandstone, medium; common siltstone laminae	9.6	339	4.2	2.3	0.4	3.7	10.6	34.8	strongly sodic	2	Some dispersion
BWM_EIS-15_40.07-40.27m	Gp2	Fresh	Claystone; sandstone fragments throughout	9.6	361	3.7	1.8	0.3	3.3	9.1	35.8	strongly sodic	2	Some dispersion
BWM_EIS-15_48.29-48.44m	Gp2	Fresh	Sandstone, medium; common sideritic nodules	9.6	351	3.9	1.8	0.3	3.1	9.2	33.8	strongly sodic	2	Some dispersion
BWM_EIS-15_56.21-56.31m	Gp2	Fresh	Sandstone, fine-med.; carb. siltstone laminae	9.5	298	4.2	1.8	0.3	2.9	9.2	31.3	strongly sodic	2	Some dispersion
BWM_EIS-15_61.46-61.66m	Gp3	Fresh	Carbonaceous Siltstone	9.1	290	3.6	1.4	0.3	2.6	8	32.8	strongly sodic	2	Some dispersion
BWM_EIS-15_63.34-63.51m	Gp2	Fresh	Siltstone	9.2	221	4.8	2	0.4	3.5	10.7	32.4	strongly sodic	2	Some dispersion
BWM_EIS-15_70.99-71.19m	Gp2	Fresh	Sandstone, medium; trace calcite & siderite	9.6	369	4.2	2	0.3	2.6	9	28.5	strongly sodic	2	Some dispersion
BWM_EIS-15_78.95-79.08m	Gp2	Fresh	Sandstone, medium	9.7	345	2.7	1.8	0.2	2	6.8	30.2	strongly sodic	2	Some dispersion
BWM_EIS-15_87.23-87.36m	Gp2	Fresh	Sandstone, medium; abundant carbonaceous laminae	9.6	319	1.7	1.6	<0.2	1.6	5.1	30.8	strongly sodic	2	Some dispersion

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Drill-hole ID & Sample Interval (m)	Waste Grp	Weath.	Description	pH 1:5	EC 1:5	Exch. Ca	Exch. Mg	Exch. K	Exch. Na	CEC	ESP	Sodicity Rating	Emerson Class No. & Description	
					µS/cm	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%			
BWM_EIS-15_96.16-96.29m	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae	9.6	345	3.9	1.8	0.4	3	9	32.9	strongly sodic	2	Some dispersion
BWM_EIS-15_104.45-104.59m	Gp2	Fresh	Sandstone, fine-medium; siltstone carb. laminae	9.6	381	3	2.8	0.4	3.2	9.3	34	strongly sodic	2	Some dispersion
BWM_EIS-15_111.91-112.17m	Gp3	Fresh	Carbonaceous Siltstone	9.1	361	3.2	1.5	0.3	2.9	8	36.4	strongly sodic	2	Some dispersion
BWM_EIS-15_115.64-115.94m	Gp2	Fresh	Siltstone; abundant carbonaceous traces throughout	9.6	373	3.6	3	0.4	4.2	11.2	37.4	strongly sodic	2	Some dispersion
BWM_EIS-15_119.86-120.19m	Gp3	Fresh	Carbonaceous Siltstone	9.2	232	3.2	2.4	0.4	3.4	9.4	36.3	strongly sodic	2	Some dispersion
BWM_EIS-17_0.57-1.08m	Gp1	Extremely	Clay	8	985	16.3	8.6	<0.2	4.9	30	16.3	strongly sodic	2	Some dispersion
BWM_EIS-17_5.53-7.5m	Gp1	Distinctly	Silt	8.9	665	5.4	6.5	<0.2	4.7	16.6	28.6	strongly sodic	2	Some dispersion
BWM_EIS-17_13-15.5m	Gp1	Distinctly	Siltstone; soft	9	543	5.8	6.9	<0.2	5.6	18.4	30.1	strongly sodic	2	Some dispersion
BWM_EIS-17_20-21.52m	Gp1	Slightly	Sandstone, fine; silty bands	9.2	511	4	4.9	0.4	4.1	13.3	30.5	strongly sodic	2	Some dispersion
BWM_EIS-17_30.54-32.28m	Gp2	Fresh	Siltstone	9.4	429	5.2	3.8	0.6	5.2	14.9	35.2	strongly sodic	2	Some dispersion
BWM_EIS-17_35.27-37m	Gp2	Fresh	Sandstone, fine; silty bands	9.3	414	3.5	2	0.3	2.5	8.3	30.4	strongly sodic	2	Some dispersion
BWM_EIS-17_44.2-46.35m	Gp2	Fresh	Sandstone, fine; silty laminae in part	9.5	378	4.7	2.2	0.4	4.1	11.3	35.8	strongly sodic	2	Some dispersion
BWM_EIS-17_55.5-57.58m	Gp2	Fresh	Sandstone, fine; part silty	9.6	330	5.5	1.7	0.3	2.9	10.5	28	strongly sodic	2	Some dispersion
BWM_EIS-17_67.03-68.94m	Gp2	Fresh	Siltstone; cobbles in part	9.5	351	5.1	1.9	0.5	4.1	11.7	35.4	strongly sodic	2	Some dispersion
BWM_EIS-17_73.59-74.15m	Gp3	Fresh	Carbonaceous Siltstone	9.4	386	6.2	2.8	0.5	5.1	14.6	34.7	strongly sodic	2	Some dispersion
BWM_EIS-17_83.13-85.2m	Gp2	Fresh	Sandstone, very fine; silty laminae throughout	9.4	358	3.5	1.6	0.3	3.2	8.6	36.8	strongly sodic	2	Some dispersion
BWM_EIS-17_94.52-96.49m	Gp2	Fresh	Siltstone, sideritic	9.9	328	4.4	2.5	0.4	4.3	11.7	36.8	strongly sodic	2	Some dispersion
BWM_EIS-17_102.93-104.34m	Gp2	Fresh	Sandstone, fine, partly sideritic	9.9	399	3.5	3.2	0.4	4.9	12	41.1	strongly sodic	2	Some dispersion
BWM_EIS-17_110.76-113.06m	Gp2	Fresh	Sandstone, v. fine; coarser bands; partly sideritic	10	350	3.6	2.8	0.4	5.4	12.2	44.2	strongly sodic	2	Some dispersion
BWM_EIS-17_123.77-124.22m	Gp3	Fresh	Carbonaceous Siltstone	9.8	374	3.3	2.3	0.3	5.2	11.1	47.2	strongly sodic	2	Some dispersion
BWM_EIS-17_128.94-130.05m	Gp2	Fresh	Siltstone; part coaly and carbonaceous	10	277	3.1	2.5	0.4	7.4	13.4	55.4	strongly sodic	2	Some dispersion
BWM_EIS-17_146.47-148.97m	Gp2	Fresh	Sandstone, very fine	10.2	392	2	2	0.4	5.2	9.6	53.9	strongly sodic	2	Some dispersion
BWM-EIS19_1.55-3.1m	Gp1	Extremely	Clay; sub angular throughout	6.7	1000	5.5	8.8	0.1	5.2	19.7	26.2	strongly sodic	2	Some dispersion
BWM-EIS19_6.14-8.08m	Gp1	Weathered	Sandstone, fine-medium	9.6	566	2	3.2	<0.2	3.3	8.5	38.5	strongly sodic	2	Some dispersion
BWM-EIS19_12.61-13.92m	Gp1	Weathered	Sandstone, fine; sparse disseminated in part	8.7	359	4	7.3	<0.2	7.7	19.2	40.3	strongly sodic	2	Some dispersion
BWM-EIS19_19.1-21.13m	Gp1	Weathered	Sandstone, fine-medium	9.6	437	4.1	5.8	0.2	6.8	17.1	40.1	strongly sodic	2	Some dispersion
BWM-EIS19_27.14-28.59m	Gp2	Fresh	Sandstone, med.; partly coaly; minor calcareous	9.9	370	2.8	3.7	0.4	3.8	10.7	36	strongly sodic	2	Some dispersion
BWM-EIS19_33.63-35.15m	Gp2	Fresh	Sandstone, fine; calcareous finer bands	10	301	3.2	3.6	0.3	4.2	11.3	36.8	strongly sodic	2	Some dispersion
BWM-EIS19_41.29-42.67m	Gp2	Fresh	Sandstone, fine-medium; finer in part	10	358	2.9	3.7	0.3	3.8	10.8	35.5	strongly sodic	2	Some dispersion
BWM-EIS19_49.05-50.37m	Gp2	Fresh	Sandstone, fine-medium; finer bands in part	10.1	316	3.6	2.7	0.3	3.6	10.2	35.5	strongly sodic	2	Some dispersion
BWM-EIS19_57.17-58.41m	Gp2	Fresh	Sandstone, fine; finer bands	10	332	3.6	3	0.4	4.2	11.3	37.6	strongly sodic	2	Some dispersion
BWM-EIS19_64.19-64.64m	Gp2	Fresh	Sandstone, medium; partly sideritic	10	302	2.2	2.8	0.3	3	8.2	36.2	strongly sodic	2	Some dispersion
BWM-EIS19_72.22-73.88m	Gp2	Fresh	Sandstone, fine-medium; finer bands throughout	10	283	3.2	2.4	0.3	3.4	9.3	37	strongly sodic	2	Some dispersion
BWM-EIS19_81.82-82.79m	Gp2	Fresh	Sandstone, fine; carb. siltst. bands; calcareous	10	303	4	2	0.3	3.7	10	36.9	strongly sodic	2	Some dispersion
BWM-EIS19_83.24-83.52m	Gp3	Fresh	Carbonaceous Siltstone; coaly in part	7.5	527	6.2	2.9	0.5	5.5	15.1	36.3	strongly sodic	2	Some dispersion
BWM-EIS19_86.19-86.36m	Gp3	Fresh	Carbonaceous Siltstone; coaly wisps	9.8	272	5	2.5	0.4	5.1	13	39.2	strongly sodic	2	Some dispersion
BWM-EIS19_91.09-92.04m	Gp2	Fresh	Sandstone, fine; partly calcareous	9.8	219	4.2	2.5	0.4	4.3	11.4	37.9	strongly sodic	2	Some dispersion
BWM-EIS19_98.71-100.15m	Gp2	Fresh	Sandst., med.; partly finer; trace siderite & coaly	10.1	274	3.2	2	0.3	4.1	9.7	42.1	strongly sodic	2	Some dispersion
BWM-EIS19_112.34-113.69m	Gp2	Fresh	Sandstone, very fine; partly carbonaceous & sideritic	10	300	3.4	2	0.3	4.4	10.1	43.1	strongly sodic	2	Some dispersion

pH and EC on 1:5 (w:v) water extracts; CEC = cation exchange capacity; ESP = exchangeable sodium percentage.
Refer to report body for further explanation of data and data sources.

Appendix C

Geochemical Results Tables – Tailings and Reject Samples

- Table C1 – Acid-Base Characteristics of Tailings and Reject
- Table C2 – Total Element Concentrations of Tailings and Reject
- Table C3 – Geochemical Abundance Indices (GAI) of Tailings and Reject
- Table C4 – Quantitative X-Ray Diffraction Results for Tailings and Reject
- Table C5 – Soluble Major Ions, pH, Electrical Conductivity, Metal and Metalloid Concentrations in Fresh Water Extracts from Tailings and Reject
- Table C6 – Soluble Major Ions, pH, Electrical Conductivity, Metal and Metalloid Concentrations in Brackish Water Extracts from Tailings (2 g/L NaCl)
- Table C7 – Soluble Major Ions, pH, Electrical Conductivity, Metal and Metalloid Concentrations in Saline Water Extracts from Tailings (10 g/L NaCl)
- Table C8 – Soluble Major Ions, pH, Electrical Conductivity, Metal and Metalloid Concentrations in NAG Leachate Solution from Tailings
- Table C9 – Summary Oxygen Consumption (OxCon) Results from Tailings

Table C1. Acid-Base Characteristics of Tailings and Reject

Sample Type	Collection Date	pH 1:5	EC 1:5	S	Scr	SO4 as S	MPA	ANC	NAPP	ANC/ MPA ratio	ABCC ANC @pH4.5	% of ANC readily avail.	Carbonate Mineralogy?	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
			µS/cm	%			kg H_2SO_4/t				kg H_2SO_4/t				kg H_2SO_4/t			kg H_2SO_4/t	
Tailings	28/02/10	8.5	443	0.53	0.490	650	16	16	0	1.0	-	-	-	3.3	1	14	-	-	UC(PAF)
Tailings	26/03/10	8	572	2.39	2.720	1670	73	31	43	0.4	-	-	-	2.8	29	56	-	-	PAF
Tailings	28/04/10	8.2	519	0.93	0.260	1500	28	30	-1	1.0	-	-	-	3.1	46	109	-	-	UC(PAF)
Tailings	27/05/10	8	472	1.32	1.050	1060	40	56	-16	1.4	-	-	-	8.2	<0.1	<0.1	-	-	UC(PAF)
Tailings	30/06/10	8.3	524	1.83	1.560	2180	56	45	11	0.8	-	-	-	2.7	12	28	-	-	PAF
Tailings	30/07/10	8.4	505	1.41	1.280	1800	43	35	8	0.8	-	-	-	3.4	5	15	-	-	PAF
Tailings	5/10/10	8.1	455	1.77	1.820	1350	54	29	26	0.5	-	-	-	2.8	21	34	-	-	PAF
Tailings	26/03/11	8.5	443	0.53	0.490	650	16	16	0	1.0	-	-	-	3.3	1	14	-	-	UC(PAF)
Tailings	30/04/11	8.9	381	0.96	0.685	1750	29	50	-21	1.7	-	-	-	9.8	<0.1	<0.1	-	-	NAF
Tailings	31/05/11	7.2	398	0.62	0.272	1190	19	22	-3	1.2	-	-	-	8.1	<0.1	<0.1	-	-	NAF
Tailings	27/06/11	7.3	370	1.77	1.440	1220	54	38	17	0.7	-	-	-	3.1	7	25	-	-	PAF
Tailings	31/07/11	8.7	497	1.09	0.802	1830	33	31	2	0.9	-	-	-	7.0	<0.1	<0.1	-	-	UC(PAF)
Tailings	31/08/11	8.6	503	1.86	1.260	2420	57	28	29	0.5	-	-	-	3.2	6	19	-	-	PAF
Tailings	27/09/11	8.4	523	1.17	0.987	2120	36	35	1	1.0	-	-	-	3.8	2	6	-	-	PAF
Tailings	18/10/11	8.4	497	0.71	0.422	1830	22	5	17	0.2	-	-	-	2.9	7	20	-	-	PAF
Tailings	30/11/11	8.5	594	1.37	1.260	1630	42	53	-11	1.3	-	-	-	6.5	<0.1	0.4	-	-	UC(PAF)
Tailings	30/12/11	8.6	640	0.85	0.637	1720	26	19	7	0.7	-	-	-	4.1	1	11	-	-	PAF
Tailings	31/01/12	8.3	518	0.71	0.477	1460	22	21	1	1.0	-	-	-	3.7	2	15	-	-	UC(PAF)
Tailings	29/02/12	8.5	505	0.42	0.351	1450	13	22	-9	1.7	-	-	-	7.9	<0.1	<0.1	-	-	NAF
Tailings	30/03/12	8.6	561	0.62	0.557	2040	19	24	-5	1.3	-	-	-	4.3	0	11	-	-	UC(NAF)
Tailings	30/04/12	8.7	422	0.67	0.214	6250	21	28	-8	1.4	-	-	-	9.2	<0.1	<0.1	-	-	NAF
Tailings	31/05/12	8.6	901	0.81	0.534	1280	25	10	15	0.4	-	-	-	2.8	9	19	-	-	PAF
Tailings	30/06/12	8.6	453	0.81	0.713	4700	25	36	-11	1.5	-	-	-	2.9	10	23	-	-	UC(PAF)
Tailings	31/07/12	8.2	883	0.89	0.557	1170	27	22	6	0.8	-	-	-	3.3	6	22	-	-	UC(PAF)
Tailings	7/09/12	8.2	454	0.49	0.252	840	15	20	-5	1.3	-	-	-	3.9	2	17	-	-	UC(NAF)
Tailings	30/09/12	9	516	0.27	0.077	1310	8	18	-10	2.2	-	-	-	4.8	<0.1	8	-	-	NAF
Tailings	8/11/12	8.4	468	4.50	3.940	2550	138	111	27	0.8	-	-	-	3.6	6	44	-	-	PAF
Tailings	30/11/12	8.3	517	8.20	7.580	1100	251	78	173	0.3	-	-	-	2.3	35	53	-	-	PAF
Tailings	20/12/12	8.7	575	3.30	2.660	1720	101	39	62	0.4	-	-	-	2.6	43	52	-	-	PAF
Tailings	31/01/13	8	810	5.75	5.120	1450	176	113	63	0.6	-	-	-	2.5	43	51	-	-	PAF
Tailings	28/02/13	8.4	392	8.24	7.560	760	252	129	123	0.5	-	-	-	2.5	72	126	-	-	PAF
Tailings	2/04/13	8.1	460	3.60	2.420	1190	110	41	69	0.4	-	-	-	2.5	42	53	-	-	PAF
Tailings	29/04/13	8.3	615	3.31	2.460	870	101	<0.5	101	0.0	-	-	-	2.6	48	56	-	-	PAF
Tailings	31/05/13	9.1	421	4.75	3.690	1460	145	41	105	0.3	-	-	-	2.4	70	82	-	-	PAF
Tailings	27/06/13	8.2	647	12.10	9.330	1280	371	51	319	0.1	-	-	-	2.0	195	212	-	-	PAF
Tailings	31/07/13	8.3	687	13.20	12.90	1630	404	58	347	0.1	-	-	-	1.9	167	192	-	-	PAF
Tailings	29/08/13	8.6	450	2.98	2.620	950	91	83	8	0.9	-	-	-	3.0	16	30	-	-	UC(PAF)
Tailings	26/09/13	8	600	3.08	2.400	1690	94	38	57	0.4	-	-	-	2.9	28	51	-	-	PAF
Tailings	31/10/13	8.6	918	0.86	0.590	1190	26	39	-12	1.5	-	-	-	8.1	<0.1	<0.1	-	-	NAF
Tailings	28/11/13	8.5	728	0.99	0.760	1080	30	18	12	0.6	-	-	-	3.1	9	22	-	-	PAF
Tailings	28/11/13	8.6	704	0.94	0.659	1170	29	18	11	0.6	-	-	-	3.1	8	19	-	-	PAF

Table C1. Acid-Base Characteristics of Tailings and Reject

Sample Type	Collection Date	pH 1:5	EC 1:5	S	Scr	SO4 as S	MPA	ANC	NAPP	ANC/ MPA ratio	ABCC ANC @pH4.5	% of ANC readily avail.	Carbonate Mineralogy?	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
			µS/cm	%			kg H_2SO_4/t				kg H_2SO_4/t				kg H_2SO_4/t			kg H_2SO_4/t	
Tailings	31/12/13	8.4	1110	0.96	0.577	2910	29	23	6	0.8	-	-	-	3.3	6	14	-	-	UC(PAF)
Tailings	4/02/14	8.8	472	1.21	1.080	1400	37	24	13	0.7	-	-	-	3.4	4	16	-	-	PAF
Tailings	27/02/14	8.4	1100	1.55	1.170	2490	47	22	26	0.5	-	-	-	3.4	4	20	-	-	PAF
Tailings	1/04/14	8.5	822	0.85	0.740	2680	26	30	-3	1.1	-	-	-	4.0	3	14	-	-	UC(PAF)
Tailings	1/05/14	8.9	407	5.04	3.930	1490	154	59	96	0.4	-	-	-	3.0	27	57	-	-	PAF
Tailings	29/05/14	8.7	460	8.70	6.540	3300	266	90	177	0.3	-	-	-	2.3	106	141	-	-	PAF
Tailings	26/06/14	8.5	483	10.80	8.080	1880	331	45	285	0.1	-	-	-	2.1	126	168	-	-	PAF
Tailings	31/07/14	8.2	722	6.81	5.420	1880	209	102	107	0.5	-	-	-	2.4	59	70	-	-	PAF
Tailings	28/08/14	8.3	643	13.70	11.60	1450	420	58	361	0.1	-	-	-	2.0	226	295	-	-	PAF
Tailings	29/09/14	9.4	688	9.36	6.790	1660	287	66	221	0.2	-	-	-	2.3	118	156	-	-	PAF
Tailings	30/10/14	8.5	861	2.24	1.680	1580	69	64	5	0.9	-	-	-	5.3	<0.1	2	-	-	UC(PAF)
Tailings	27/11/14	8.9	521	1.87	1.560	1170	57	27	30	0.5	-	-	-	3.3	14	37	-	-	PAF
Tailings	19/01/15	9	737	16.50	10.10	2670	505	48	457	0.1	-	-	-	1.9	221	245	-	-	PAF
Tailings	4/02/15	8.2	418	4.96	0.191	780	152	60	92	0.4	-	-	-	2.6	45	64	-	-	UC(PAF)
Tailings	2/03/15	7.1	517	7.05	6.110	1030	216	99	117	0.5	-	-	-	2.4	72	120	-	-	PAF
Tailings	1/04/15	8.6	533	2.97	2.280	980	91	116	-25	1.3	-	-	-	3.9	2	13	-	-	UC(PAF)
Tailings	29/04/15	8.8	403	6.80	4.910	1410	208	95	113	0.5	-	-	-	2.5	50	68	-	-	PAF
Tailings	31/05/15	8.2	464	6.10	4.440	1220	187	45	142	0.2	-	-	-	2.7	40	73	-	-	PAF
Tailings	30/06/15	8	549	3.27	2.450	1210	100	71	30	0.7	-	-	-	3.1	15	25	-	-	PAF
Tailings	31/07/15	7.9	432	3.12	2.760	1230	96	69	26	0.7	-	-	-	3.7	2	12	-	-	PAF
Tailings	31/08/15	7.8	571	4.91	4.190	1490	150	63	87	0.4	-	-	-	2.6	40	62	-	-	PAF
Tailings	30/09/15	8.4	660	1.55	1.300	1220	47	61	-13	1.3	-	-	-	8.3	<0.1	<0.1	-	-	UC(PAF)
Tailings	5/11/15	8.2	707	0.97	0.643	2020	30	29	1	1.0	-	-	-	4.0	1	16	-	-	UC(PAF)
Tailings	7/12/15	8.1	735	1.13	0.759	2530	35	32	3	0.9	-	-	-	3.5	4	21	-	-	UC(PAF)
Tailings	31/01/16	8.6	671	0.90	0.540	2890	28	30	-2	1.1	-	-	-	4.5	<0.1	25	-	-	UC(NAF)
Tailings	29/02/16	8.5	612	1.41	0.953	2470	43	33	11	0.8	-	-	-	3.3	11	45	-	-	UC(PAF)
Tailings	31/03/16	8.8	554	1.25	0.578	1150	38	44	-5	1.1	-	-	-	3.8	2	12	-	-	UC(NAF)
Tailings	7/05/16	8.6	644	0.79	0.460	2880	24	21	4	0.8	-	-	-	6.3	<0.1	1	-	-	UC(NAF)
Tailings	31/05/16	8.6	542	0.82	0.550	1810	25	38	-12	1.5	-	-	-	8.7	<0.1	<0.1	-	-	UC(NAF)
Tailings	29/06/16	8.4	419	0.92	0.631	1600	28	18	10	0.6	-	-	-	3.2	8	23	-	-	PAF
Tailings	1/08/16	8.7	465	0.68	0.324	1290	21	35	-14	1.7	-	-	-	9.0	<0.1	<0.1	-	-	NAF
Tailings	31/08/16	8.3	463	0.77	0.602	450	24	24	0	1.0	-	-	-	3.5	4	19	-	-	UC(PAF)
Tailings	30/09/16	8.4	467	0.81	0.626	2350	25	24	1	1.0	-	-	-	4.0	2	17	-	-	UC(PAF)
Tailings	31/10/16	8.7	473	0.58	0.314	2440	18	23	-5	1.3	-	-	-	3.9	4	17	-	-	UC(NAF)
Tailings	30/11/16	8.4	-	0.73	0.441	-	22	29	-6	1.3	-	-	-	8.4	<0.1	<0.1	-	-	NAF
Tailings	20/12/16	8.5	791	1.44	1.240	4550	44	55	-11	1.2	-	-	-	8.4	<0.1	<0.1	-	-	NAF-S
Tailings	31/01/17	8.6	657	1.16	0.205	1610	36	35	1	1.0	-	-	-	6.4	<0.1	2	-	-	NAF-S
Tailings	7/03/17	8.5	741	0.72	0.451	2030	22	30	-8	1.4	-	-	-	6.3	<0.1	4	-	-	NAF
Tailings	31/03/17	8.5	612	0.96	0.577	1760	29	32	-3	1.1	-	-	-	3.4	16	49	-	-	UC(NAF)
Tailings	31/05/17	8.9	597	0.41	0.216	980	13	29	-17	2.3	-	-	-	8.9	<0.1	<0.1	-	-	NAF
Tailings	30/06/17	8.9	490	0.69	0.408	1280	21	22	-1	1.1	-	-	-	3.8	3	18	-	-	UC(NAF)

Table C1. Acid-Base Characteristics of Tailings and Reject

Sample Type	Collection Date	pH 1:5	EC 1:5	S	Scr	SO4 as S	MPA	ANC	NAPP	ANC/ MPA ratio	ABCC ANC @pH4.5	% of ANC readily avail.	Carbonate Mineralogy?	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
			µS/cm	%			kg H_2SO_4/t				kg H_2SO_4/t				kg H_2SO_4/t			kg H_2SO_4/t	
Tailings	1/08/17	8.4	430	20.5	16.30	6440	628	45	583	0.1	-	-	-	1.8	377	406	-	-	PAF
Tailings	1/09/17	8.8	474	2.19	0.893	960	67	34	33	0.5	-	-	-	2.9	27	40	-	-	UC(PAF)
Tailings	25/09/17	8.7	479	11.9	9.620	1690	364	57	308	0.2	-	-	-	2.1	156	201	-	-	PAF
Tailings	31/10/17	9	429	0.24	0.143	1210	7	23	-16	3.2	-	-	-	7.9	<0.1	<0.1	-	-	NAF
Tailings	1/12/17	8.7	490	0.55	0.308	1910	17	21	-4	1.2	-	-	-	8.1	<0.1	<0.1	-	-	UC(NAF)
Tailings	28/12/17	8.8	380	0.56	0.336	1510	17	44	-27	2.6	-	-	-	9.3	<0.1	<0.1	-	-	NAF
Tailings	1/02/18	8.9	404	0.71	0.501	730	22	37	-15	1.7	-	-	-	8.2	<0.1	<0.1	-	-	UC(NAF)
Tailings	16/04/18	9.1	347	0.55	0.353	920	17	35	-18	2.1	-	-	-	9.1	<0.1	<0.1	-	-	NAF
Tailings	16/04/18	8.9	355	0.58	0.381	1430	18	34	-16	1.9	-	-	-	8.4	<0.1	<0.1	-	-	NAF
Tailings	16/04/18	9	381	0.69	0.462	880	21	40	-19	1.9	-	-	-	8.6	<0.1	<0.1	-	-	NAF
Tailings	16/04/18	8.8	385	1.29	1.240	1110	40	38	2	0.9	-	-	-	4.2	1	7	-	-	PAF
Tailings	30/04/18	8.8	4980	0.83	0.437	5580	25				-	-	-	7.6	<0.1	<0.1	-	-	UC(NAF)
Tailings	30/06/18	9.1	316	0.71	0.334	620	22	21	1	1.0	-	-	-	3.7	2	12	-	-	UC(PAF)
Tailings	31/07/18	8.6	495	0.96	0.705	3780	29	21	8	0.7	-	-	-	3.1	6	15	-	-	PAF
Tailings	31/08/18	9.1	1460	0.54	0.258	1820	17	28	-11	1.7	-	-	-	3.5	35	40	-	-	UC(PAF)
Tailings	30/09/18	8.7	551	0.96	0.602	1600	29	31	-2	1.1	-	-	-	5.8	<0.1	1	-	-	UC(NAF)
Tailings	31/10/18	8.6	714	0.76	0.494	2150	23	23	1	1.0	-	-	-	4.7	<0.1	5	-	-	UC(NAF)
Tailings	30/11/18	8.4	564	0.68	0.453	1510	21	38	-17	1.8	-	-	-	8.5	<0.1	<0.1	-	-	UC(NAF)
Tailings	2/01/19	8.8	384	0.58	0.319	2860	18	42	-25	2.4	-	-	-	8.4	<0.1	<0.1	-	-	NAF
Tailings	25/01/19	8.9	478	0.69	0.479	1280	21	27	-6	1.3	-	-	-	5.2	<0.1	5	-	-	UC(NAF)
Tailings	28/02/19	8.3	2480	0.73	0.513	3010	22	51	-29	2.3	-	-	-	8.6	<0.1	<0.1	-	-	NAF
Tailings	29/03/19	8.4	665	1.80	1.690	2160	55	53	2	1.0	-	-	-	3.0	10	22	-	-	UC(PAF)
Tailings	23/04/19	8.8	1540	0.58	0.561	1360	18	41	-24	2.3	-	-	-	8.3	<0.1	<0.1	-	-	NAF
Tailings	10/05/19	8.6	1180	1.93	1.400	2620	59	32	27	0.5	-	-	-	3.0	20	35	-	-	PAF
Tailings	3/06/19	9.2	801	0.81	0.530	1040	25	25	0	1.0	-	-	-	3.9	2	15	-	-	UC(NAF)
Tailings	30/07/19	8.9	697	1.22	0.860	1120	37	18	19	0.5	-	-	-	3.5	12	34	-	-	PAF
Tailings	31/08/19	9.2	589	0.67	0.366	770	21	24	-4	1.2	-	-	-	4.1	2	19	-	-	UC(NAF)
Tailings	10/09/19			0.65	0.519	-	20	33	-13	1.6	15.9	49%	Fe.Dol.	4.8	<0.1	3	-	-	UC(PAF)
Tailings	27/09/19	9.5	752	0.57	0.338	860	17	36	-19	2.1	-	-	-	8.4	<0.1	<0.1	-	-	NAF
Tailings	23/10/19	8.6	599	1.26	0.892	-	39	38	0	1.0	24.0	63%	Fe.Dol.	4.0	1	11	5.8	<0.1	PAF
Tailings	29/10/19	9.5	803	0.77	0.540	930	24	43	-20	1.8	-	-	-	8.8	<0.1	<0.1	-	-	NAF
Tailings	2/11/19	8.4	594	0.95	0.635	2010	29	64	-35	2.2	-	-	-	9.1	<0.1	<0.1	-	-	NAF
Tailings	20/11/19			0.45	0.277	-	14	47	-34	3.4	25.9	55%	Fe.Dol.	8.7	<0.1	<0.1	-	-	NAF
Tailings	6/12/19	8.9	516	1.37	0.217	2430	42	45	-3	1.1	-	-	-	8.6	<0.1	<0.1	-	-	NAF-S
Tailings	9/12/19			0.37	0.269	-	11	39	-27	3.4	-	-	-	8.6	<0.1	<0.1	-	-	NAF
Tailings	10/12/19	9.1	779	0.39	0.306	-	12	38	-26	3.2	-	-	-	8.6	<0.1	<0.1	-	-	NAF
Tailings	30/01/20	8.5	1330	0.68	0.548	1860	21	49	-28	2.3	-	-	-	8.4	<0.1	<0.1	-	-	NAF
Tailings	25/02/20	8.3	977	0.63	0.404	1160	19	33	-14	1.7	-	-	-	3.8	3	24	-	-	UC(NAF)
Tailings	27/03/20	8.8	521	0.56	0.367	3900	17	55	-37	3.2	-	-	-	9.0	<0.1	<0.1	-	-	NAF
Tailings	30/04/20	9.3	538	0.72	0.580	1810	22	34	-12	1.5	-	-	-	4.4	0	6	-	-	UC(NAF)
Tailings	29/05/20	9	1710	0.35	0.152	1500	11	29	-18	2.7	-	-	-	7.8	<0.1	<0.1	-	-	NAF

Table C1. Acid-Base Characteristics of Tailings and Reject

Sample Type	Collection Date	pH 1:5	EC 1:5	S	Scr	SO4 as S	MPA	ANC	NAPP	ANC/ MPA ratio	ABCC ANC @pH4.5	% of ANC readily avail.	Carbonate Mineralogy?	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
			µS/cm	%			kg H_2SO_4/t				kg H_2SO_4/t				kg H_2SO_4/t			kg H_2SO_4/t	
Tailings	25/06/20	9.7	1170	0.75	0.532	1070	23	41	-18	1.8	-	-	-	8.1	<0.1	<0.1	-	-	NAF
Tailings	14/08/20	8.5	888	0.45	0.290	2940	14	28	-14	2.0	-	-	-	7.9	<0.1	<0.1	-	-	NAF
Tailings	31/08/20	8.5	872	1.03	0.639	-	32	31	1	1.0	8	26%		3.1	9	24	2.9 / 4.1	8 / 8	PAF
Tailings	1/09/20	8.4	933	1.44	1.05	-	44	49	-5	1.1	33	66%	Dol. & Fe.Dol.	3.9	2	14	7.2	4	UC(PAF)
Tailings	2/09/20	8.5	983	1.82	1.37	-	56	36	20	0.6	-	-	-	2.7	20	33	3.7	23	PAF
Tailings	3/09/20	8.5	1040	2.33	1.71	-	71	39	32	0.5	24	61%	-	2.6	28	42	3.5	31	PAF
Tailings	4/09/20	9.1	1290	1.21	0.715	-	37	42	-5	1.1	28	67%	Fe.Dol.	6.6/8.5	<0.1	1	-	-	NAF-S
Tailings	5/09/20	9	1130	0.89	0.608	-	27	37	-10	1.4	24	65%	-	6.3	<0.1	4	-	-	UC(NAF)
Tailings	6/09/20	9.1	1140	0.76	0.548	-	23	29	-6	1.3	15	50%	Fe.Dol.	5.1	<0.1	4	-	-	UC(NAF)
Tailings	7/09/20	8.5	1310	1.87	1.39	-	57	24	33	0.4	-	-	-	2.6	27	44	3.7	33	PAF
Tailings	8/09/20	9	1380	0.95	0.624	-	29	33	-4	1.1	17	52%	-	4	2	11	5.9	<0.1 / <0.1	UC(PAF)
Tailings	9/09/20	8.9	1140	0.74	0.445	-	23	25	-3	1.1	6	23%	Sid.; some Fe.Dol.	3.3	6	17	3.5 / 4.3	3 / 4	PAF-LC
Tailings	10/09/20	8.9	894	1.07	0.687	-	33	20	13	0.6	4	21%	Sid.; some Fe.Dol.	3.3	7	25	2.8	7	PAF
Tailings	1/10/20	8.8	1450	0.99	0.733	2050	30	44	-14	1.5	-	-	-	7.2	<0.1	<0.1	-	-	UC(NAF)
Tailings	16/10/20	8.5	930	1.3	0.923	-	40	28	12	0.7	11	41%	Fe.Dol. & Sid.	3.3	7	21	4.3	14	PAF
Tailings	17/10/20	9.4	720	0.34	0.163	-	10	34	-24	3.3	-	-	-	8.6	<0.1	<0.1	-	-	NAF
Tailings	18/10/20	9.6	955	0.28	0.127	-	9	49	-40	5.7	36	73%	Dol. & Fe.Dol.	9.4	<0.1	<0.1	-	-	NAF
Tailings	20/10/20	9.5	843	0.41	0.2	-	13	31	-18	2.4	-	-	-	8.6	<0.1	<0.1	-	-	NAF
Tailings	21/10/20	9.2	718	0.45	0.242	-	14	36	-22	2.6	-	-	-	8.7	<0.1	<0.1	-	-	NAF
Tailings	22/10/20	9.4	820	0.39	0.184	-	12	26	-14	2.2	13	52%	Fe.Dol.	8.6	<0.1	<0.1	-	-	NAF
Tailings	23/10/20	9.2	827	0.53	0.234	-	16	31	-15	1.9	-	-	-	8.4	<0.1	<0.1	-	-	NAF
Tailings	24/10/20	9.2	749	0.64	0.368	-	20	30	-10	1.5	16	53%	Fe.Dol.; minor Dol.	7.7	<0.1	<0.1	-	-	NAF
Tailings	25/10/20	9.2	814	0.42	0.168	-	13	30	-17	2.3	-	-	-	8.7	<0.1	<0.1	-	-	NAF
Tailings	26/10/20	9.2	769	0.49	0.259	-	15	45	-30	3.0	-	-	-	9.2	<0.1	<0.1	-	-	NAF
Tailings	27/10/20	9	752	0.54	0.333	-	17	35	-18	2.1	-	-	-	8.3	<0.1	<0.1	-	-	NAF
Tailings	28/10/20	9.1	274	0.92	0.554	-	28	22	6	0.8	9	43%	Fe.Dol. & Sid.	3.7	8	26	4.6	8	UC(PAF)
Tailings	28/10/20	8.8	1370	0.80	0.545	1640	25	31	-6	1.3	-	-	-	4.3	2	9	-	-	UC(NAF)
Tailings	29/10/20	9	868	0.88	0.631	-	27	36	-9	1.3	26	72%	-	7.6	<0.1	<0.1	-	-	UC(NAF)
Tailings	30/10/20	8.5	1060	1.15	0.888	-	35	17	18	0.5	-	-	-	3	9	25	2.8 / 4.0	42675	PAF
Tailings	31/10/20	8.8	727	0.34	0.137	-	10	23	-12	2.2	9	38%	Fe.Dol.; minor Sid.	7.9	<0.1	<0.1	-	-	NAF
Tailings	1/11/20	8.8	928	0.49	0.267	-	15	20	-5	1.3	-	-	-	5.5	<0.1	3	-	-	UC(NAF)
Tailings	2/11/20	8.5	750	0.47	0.228	-	14	31	-16	2.1	23	74%	Fe.Dol.	8.3	<0.1	<0.1	-	-	NAF
Tailings	3/11/20	8.8	1150	0.4	0.226	-	12	42	-30	3.5	-	-	-	9.7	<0.1	<0.1	-	-	NAF
Tailings	4/11/20	8.4	727	0.52	0.271	-	16	24	-8	1.5	-	-	-	6.9	<0.1	0.3	-	-	NAF
Tailings	6/11/20	8.6	928	0.93	0.645	-	28	24	4	0.9	16 / 21	66% / 86%	Fe.Dol.	4	1	10	6.1 / 5.3	<0.1 / /2	PAF-LC
Tailings	7/11/20	8.6	896	0.65	0.38	-	20	23	-3	1.2	-	-	-	7.1	<0.1	<0.1	-	-	UC(NAF)
Tailings	8/11/20	8.7	775	0.66	0.431	-	20	22	-2	1.1	-	-	-	7.2	<0.1	<0.1	-	-	UC(NAF)
Tailings	9/11/20	8.8	791	0.68	0.399	-	21	22	-1	1.0	14	65%	Fe.Dol.	6.9	<0.1	0.7	-	-	UC(NAF)
Tailings	10/11/20	8.6	968	0.59	0.361	-	18	29	-11	1.6	22	77%	Fe.Dol. / Dol.	8	<0.1	<0.1	-	-	NAF
Tailings	12/11/20	8.4	893	1.42	1	-	43	26	18	0.6	-	-	-	2.5	21	36	3.6	20	PAF
Tailings	14/11/20	8.5	870	0.77	0.577	-	24	38	-14	1.6	24	62%	Fe.Dol.; minor Dol.	7.2	<0.1	<0.1	-	-	UC(NAF)

Table C1. Acid-Base Characteristics of Tailings and Reject

Sample Type	Collection Date	pH 1:5	EC 1:5	S	Scr	SO4 as S	MPA	ANC	NAPP	ANC/ MPA ratio	ABCC ANC @pH4.5	% of ANC readily avail.	Carbonate Mineralogy?	NAG pH	NAG@ pH4.5	NAG@ pH7.0	Ext. NAGpH	Ext. NAG Capacity	Acid Classification
			µS/cm	%			kg H_2SO_4/t				kg H_2SO_4/t				kg H_2SO_4/t			kg H_2SO_4/t	
Tailings	15/11/20	8.6	918	1.15	0.805	-	35	51	-16	1.5	-	-	-	7.3	<0.1	<0.1	-	-	UC(PAF)
				Sequential NAG: Stg1 NAGpH=6.9. Total NAG @ pH4.5 & pH7.0 = <0.1 & 0.1 kg H2SO4/t															
Tailings	16/11/20	8.4	943	1.36	0.897	-	42	46	-4	1.1	26	57%	Fe.Dol.	3.3/3.9	4	15	5.5 / 4.3	1	UC(PAF)
				Sequential NAG: Stg1 NAGpH=3.63; Stg2 NAGpH=3.7; Stg3 NAGpH=3.5; Stg4 NAGpH=4.5; Stg5 NAGpH=4.0; Total NAG @ pH4.5 & pH7.0 = 2.8 & 66 kg H2SO4/t														
Tailings	17/11/20	8.8	910	0.68	0.416	-	21	34	-13	1.6	-	-	-	7.6	<0.1	<0.1	-	-	NAF
Tailings	18/11/20	8.8	801	0.73	0.525	-	22	34	-12	1.5	-	-	-	7.6	<0.1	<0.1	-	-	UC(NAF)
Tailings	19/11/20	9.1	711	0.76	0.446	-	23	44	-20	1.9	-	-	-	9.3	<0.1	<0.1	-	-	NAF
Tailings	20/11/20	8.9	745	0.55	0.359	-	17	32	-15	1.9	18	55%	Fe.Dol.	8.5	<0.1	<0.1	-	-	NAF
Tailings	21/11/20	9	631	0.52	0.316	-	16	31	-15	1.9	-	-	-	8.5	<0.1	<0.1	-	-	NAF
Tailings	22/11/20	8.8	579	0.44	0.26	-	13	21	-7	1.5	10	48%	Fe.Dol.; minor Sid.	4/3.2	2	23	6.5 / 5.7	<0.1	UC(NAF)
Tailings	27/11/20	9	1160	0.56	0.553	1420	17	32	-15	1.9	-	-	-	7.8	<0.1	<0.1	-	-	NAF
Tailings	28/01/21	8.9	733	0.95	0.593	1140	29	36	-7	1.2	-	-	-	5.1	<0.1	2	-	-	UC(NAF)
Tailings	22/02/21	9	1030	0.41	0.318	1360	13	39	-26	3.1	-	-	-	8.7	<0.1	<0.1	-	-	NAF
Tailings	29/03/21	8.9	1440	0.76	0.479	1620	23	33	-10	1.4	-	-	-	5.9	<0.1	3	-	-	UC(NAF)
Tailings	28/04/21	9.2	1020	0.63	0.348	1190	19	29	-9	1.5	-	-	-	7.4	<0.1	<0.1	-	-	NAF
Tailings	25/05/21	9.5	463	0.25	0.291	1330	8	32	-24	4.1	-	-	-	7.6	<0.1	<0.1	-	-	NAF
Tailings	28/06/21	9.2	780	1.04	0.633	1060	32	14	18	0.4	-	-	-	3.0	8	16	-	-	PAF
Tailings	29/07/21	9.5	748	0.63	0.500	860	19	27	-8	1.4	-	-	-	3.5	4	17	-	-	UC(NAF)
Reject	19/01/10 (R14)	7.7	1800	0.65	0.29	-	20	18	2	0.9	6.7	37%		-	-	-	-	-	UC(PAF)
Reject	19/01/10 (R14)	6.4	1060	0.16	-	-	5	26	-21	5.4	-	-	-	-	-	-	-	-	NAF
Reject	19/01/10 (R16)	7.8	1380	0.42	-	-	13	52	-39	4.0	-	-	-	-	-	-	-	-	NAF
Reject	19/01/10 (R16)	9	657	0.17	-	-	5	47	-42	9.1	-	-	-	-	-	-	-	-	NAF
Reject	19/01/10 (R28)	8.8	753	0.49	-	-	15	41	-25	2.7	-	-	-	-	-	-	-	-	NAF
Reject	19/01/10 (R28)	8.6	535	0.55	-	-	17	68	-51	4.1	49.9	73%		-	-	-	-	-	NAF
Reject	19/01/10 (R29)	8	1120	0.62	-	-	19	47	-28	2.5	-	-	-	-	-	-	-	-	NAF
Reject	19/01/10 (R29)	7.9	903	0.50	-	-	15	39	-23	2.5	15.1	39%		-	-	-	-	-	NAF
Reject	19/01/10 (R34/36)	7.6	1530	0.32	-	-	10	56	-46	5.7	-	-	-	-	-	-	-	-	NAF
Reject	19/01/10 (R34/36)	8.2	861	0.52	-	-	16	53	-37	3.3	9.0	17%	-	-	-	-	-	-	NAF
Reject	19/01/10 (R34/36)	7.6	1380	0.40	-	-	12	28	-16	2.3	-	-	-	-	-	-	-	-	NAF
Reject	19/01/10 (R40)	8.3	451	0.54	0.19	-	17	10	7	0.6	-	-	-	-	-	-	-	-	PAF-LC
Reject	19/01/10 (R40)	5.3	1810	0.64	0.14	-	20	3	17	0.1	-	-	-	-	-	-	-	-	PAF-LC
Reject	19/01/10 (R58)	4	1300	0.49	-	-	15	1	15	0.0	-	-	-	-	-	-	-	-	PAF
Reject	19/01/10 (R58)	4.3	2020	0.38	-	-	12	1	11	0.0	-	-	-	-	-	-	-	-	PAF

Tailings samples collected from the CHPP. Reject samples collected from reject stockpiles at ramp (R) numbers indicated. pH & EC 1:5 (w:v) water extracts [on pulp]; S = total sulfur; Scr = sulfide [chromium reducible sulfur]; SO4 = sulfate (as S); MPA = maximum potential acidity [calculated from total S]; ANC = acid neutralising capacity; NAPP = net acid producing potential [calculated from MPA and ANC]; NAG = net acid generation; Selected samples underwent extended boil NAG test and/or sequential NAG test and/or acid buffering characterisation curve (ABCC) test to refine the acid classification. Refer to report body for further explanation.

Table C2. Total Element Concentrations of Tailings and Reject

Sample Type	Collection Date	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	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	mg/kg
Tailings	10/09/19	0.046	0.68	3.51	572	0.64	0.564	0.89	0.123	7.53	6.5	4.98	2.84	34.1	2.02	1.79	0.082	0.09	0.071	0.043	0.15	2.77	8	0.25	213	0.82
Tailings	23/10/19	0.042	0.58	5.43	241	0.54	0.318	1.16	0.098	10.1	6.81	5.66	2.09	28.7	5.19	1.605	0.104	0.094	0.104	0.037	0.15	3.69	6.9	0.37	872	0.96
Tailings	20/11/19	0.049	0.65	6.79	319	0.66	0.413	1.48	0.105	8.8	7.03	5.43	3.17	31.4	2.06	1.715	0.079	0.108	0.094	0.036	0.15	3.33	6.3	0.27	373	1.39
Tailings	9/12/19	0.051	0.42	4.46	389	0.59	0.364	0.95	0.108	7.89	9.48	4.78	2.27	32.8	1.99	1.185	0.053	0.084	0.066	0.044	0.13	3.09	2.7	0.31	270	1.17
Tailings	10/12/19	0.044	0.49	4.99	393	0.63	0.4	1.06	0.09	7.79	9.86	4.88	2.17	33.5	2.09	1.295	0.049	0.094	0.072	0.037	0.15	3.03	3.5	0.33	297	1.14
Tailings	31/08/20	0.031	0.43	4.3	229	0.38	0.348	0.8	0.06	7.47	4.47	3.24	1.435	20.9	1.78	1.045	0.13	0.086	0.088	0.025	0.11	2.61	4.7	0.18	296	0.78
Tailings	1/09/20	0.058	0.45	9.54	112	0.46	0.475	1.55	0.095	7.53	7.21	3.89	2.5	34.3	1.7	1.25	0.085	0.096	0.156	0.031	0.12	2.67	4	0.22	242	1.44
Tailings	2/09/20	0.041	0.56	6.22	87.4	0.5	0.477	1.19	0.076	8.74	5.63	4.58	2.03	28.3	2.49	1.505	0.075	0.099	0.119	0.033	0.13	3.04	5.5	0.23	322	0.85
Tailings	3/09/20	0.064	0.49	7.05	54.3	0.54	0.46	1.12	0.1	8.15	5.92	4.18	2.91	36.3	2.61	1.31	0.073	0.107	0.142	0.039	0.14	2.86	4.5	0.24	284	1.04
Tailings	4/09/20	0.054	0.48	7.56	214	0.56	0.386	1.35	0.098	8.11	6.17	3.72	2.55	32.5	2.2	1.275	0.07	0.092	0.144	0.032	0.14	2.95	4.7	0.26	348	0.8
Tailings	7/09/20	0.038	0.54	5.65	54.6	0.64	0.451	0.66	0.091	8.98	7.08	3.74	2.34	27.1	3.11	1.39	0.072	0.101	0.058	0.029	0.14	3.37	5.4	0.19	388	0.57
Tailings	8/09/20	0.046	0.64	4	248	0.72	0.538	1.02	0.091	9.79	5.88	4.73	2.72	31	2.23	1.675	0.07	0.109	0.057	0.036	0.14	3.65	6.9	0.23	359	0.63
Tailings	9/09/20	0.043	0.66	2.64	264	0.66	0.556	0.69	0.08	9.33	3.83	4.49	2.68	31	1.81	1.675	0.067	0.116	0.061	0.032	0.14	3.6	7	0.21	332	0.54
Tailings	10/09/20	0.029	0.41	6.92	203	0.54	0.335	0.41	0.104	9.6	8.13	3.16	1.755	25.8	2.99	0.865	0.064	0.089	0.065	0.025	0.12	3.58	4.1	0.19	443	0.54
Tailings	16/10/20	0.039	0.62	5.57	133	0.5	0.323	0.88	0.072	9.93	5.94	5.71	2.15	28.7	2.51	1.9	0.072	0.107	0.103	0.034	0.15	3.49	6.4	0.26	321	0.92
Tailings	18/10/20	0.05	0.61	5.32	535	0.59	0.287	1.26	0.079	7.92	5.91	6.75	2.77	36.2	1.88	1.855	0.044	0.087	0.071	0.033	0.14	2.92	7.8	0.37	346	0.62
Tailings	22/10/20	0.033	0.51	5.15	1030	0.57	0.363	0.73	0.077	9.06	7.8	4.8	2.24	28.7	1.92	1.465	0.066	0.103	0.061	0.026	0.13	3.39	5.1	0.24	296	0.48
Tailings	23/10/20	0.032	0.44	5.94	577	0.53	0.51	0.83	0.075	8.52	6.9	4.2	1.76	25.3	1.82	1.16	0.116	0.09	0.071	0.028	0.12	3.16	4.2	0.22	335	0.56
Tailings	24/10/20	0.037	0.42	6.18	403	0.52	0.491	0.86	0.081	8.02	6.95	4.05	1.645	24.7	2	1.08	0.12	0.092	0.076	0.026	0.11	3	4	0.22	358	0.57
Tailings	28/10/20	0.032	0.3	6.96	172	0.48	0.242	0.49	0.066	8.73	7.86	3.77	1.465	24.1	2.25	0.764	0.091	0.086	0.082	0.023	0.12	3.27	2.3	0.18	359	0.62
Tailings	29/10/20	0.042	0.46	10.4	272	0.7	0.294	0.98	0.099	11.3	9.02	6	2.53	33.3	2.61	1.24	0.049	0.11	0.111	0.038	0.17	4.24	2.7	0.34	369	0.8
Tailings	30/10/20	0.033	0.44	11.45	161	0.59	0.266	0.56	0.125	13.35	11.25	3.89	1.815	28.2	3.58	1.11	0.083	0.085	0.081	0.032	0.14	4.98	3.3	0.24	495	0.81
Tailings	3/11/20	0.063	0.77	9.31	635	0.71	0.346	1.56	0.098	10.2	7.7	6.95	3.76	40.6	1.87	2.1	0.041	0.098	0.113	0.04	0.18	3.62	9.1	0.33	310	1.36
Tailings	6/11/20	0.048	0.53	6.08	250	0.62	0.26	0.88	0.1	7.67	7.58	5.47	2.25	33.8	2.08	1.445	0.061	0.104	0.109	0.032	0.15	2.81	4.8	0.27	286	0.8
Tailings	12/11/20	0.052	0.52	5.43	126	0.54	0.293	0.87	0.084	7.71	4.95	4.66	2.71	33.2	1.83	1.315	0.077	0.104	0.073	0.031	0.13	2.69	5.6	0.21	232	1.21
Tailings	14/11/20	0.05	0.77	7.09	185	0.67	0.343	1.3	0.098	10.2	8.05	6.23	2.86	35	1.92	2.32	0.093	0.15	0.127	0.04	0.2	3.87	7.3	0.3	322	1.3
Tailings	15/11/20	0.061	0.79	12	120	0.67	0.335	1.71	0.106	10.15	8.38	7	3.12	36.4	2.23	2.43	0.078	0.146	0.147	0.044	0.2	3.64	8.1	0.32	310	1.28
Tailings	16/11/20	0.042	0.73	6.69	110	0.61	0.503	1.54	0.108	9.93	7.3	5.57	2.56	30.5	2.61	2.06	0.094	0.133	0.115	0.035	0.17	3.64	8	0.3	425	1.32
Tailings	17/11/20	0.049	0.77	5.98	155	0.68	0.411	1.11	0.088	9.79	7.53	6.7	2.15	30.3	2.17	2.12	0.075	0.125	0.092	0.04	0.16	3.65	9	0.33	351	0.81
Tailings	18/11/20	0.044	0.89	5.91	156	0.7	0.404	1.12	0.087	9.93	7.7	7.24	2.15	31.3	2.16	2.39	0.091	0.182	0.112	0.04	0.19	3.63	9.3	0.33	359	0.78
Tailings	19/11/20	0.042	0.66	7.82	263	0.57	0.42	1.46	0.08	8.8	6.37	5.46	2.07	29.2	1.71	1.775	0.093	0.125	0.106	0.036	0.15	3.17	7.5	0.26	263	0.95
Tailings	20/11/20	0.043	0.62	8.49	288	0.55	0.253	1.01	0.107	8.95	6.02	5.24	2.05	28.6	1.76	1.635	0.089	0.117	0.114	0.036	0.14	3.18	7.4	0.26	321	0.78
Tailings	21/11/20	0.037	0.71	8.01	293	0.58	0.257	0.94	0.086	8.85	6.17	5.43	2.03	28.6	1.63	1.71	0.09	0.119	0.083	0.037	0.15	3.16	7.8	0.26	299	0.76
Tailings	22/11/20	0.056	0.41	4.55	445	0.62	0.193	0.61	0.242	6.71	7.73	4.15	1.725	27.4	0.83	1.075	0.124	0.102	0.115	0.026	0.11	2.52	3.9	0.18	155.5	0.52
Reject	19/01/10 (R14)	-	0.628	5	-	-	-	0.931	<1	-	7	9	-	38	2.45	-	-	-	-	-	0.097	-	-	0.386	460	3
Reject	19/01/10 (R16)	-	0.319	6	-	-	-	1.9	<1	-	10	7	-	38	4.62	-	-	-	-	-	0.091	-	-	0.635	799	17
Reject	19/01/10 (R28)	-	0.482	<5	-	-	-	1.46	2	-	9	6	-	39	9.78	-	-	-	-	-	0.108	-	-	0.551	2170	<2
Reject	19/01/10 (R34/36)	-	0.329	<5	-	-	-	1.3	2	-	11	4	-	22	8.86	-	-	-	-	-	0.067	-	-	0.455	2130	<2
Reject	19/01/10 (R40)	-	0.277	<5	-	-	-	0.48	<1	-	2	3	-	20	1.11	-	-	-	-	-	0.054	-	-	0.115	145	<2
Reject	19/01/10 (R58)	-	0.303	5	-	-	-	0.176	<1	-	14	18	-	32	2.82	-	-	-	-	-	0.063	-	-	0.076	231	<2

Tailings samples collected from the CHPP. Reject samples collected from reject stockpiles at ramp (R) numbers indicated.

Table C2. Total Element Concentrations of Tailings and Reject

Sample Type	Collection Date	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
Tailings	10/09/19	0.108	0.023	12.15	0.105	11.3	8.28	0.0004	0.61	0.259	3.52	0.421	0.65	203	<0.005	0.056	2.04	0.001	0.029	0.359	15.2	0.255	5.67	38.9	3.64
Tailings	23/10/19	0.083	0.027	10.85	0.127	10.6	7.51	0.0003	1.19	0.291	4.84	0.59	0.47	157.5	<0.005	0.085	2.39	0.001	0.021	0.38	17.9	0.081	8.21	41.6	3.53
Tailings	20/11/19	0.083	0.025	11	0.159	15.7	8.92	0.0011	0.31	0.949	3.91	0.634	0.69	145.5	<0.005	0.05	2.03	0.001	0.014	0.377	17.7	0.29	8.38	39.6	4.19
Tailings	9/12/19	0.118	0.021	12.5	0.064	11.75	6.86	0.0004	0.33	0.305	3.82	0.486	0.48	194	<0.005	0.049	1.9	0.001	0.027	0.319	14.6	0.103	5.67	52.8	3.26
Tailings	10/12/19	0.141	0.024	13	0.064	11.75	7.4	0.0005	0.35	0.344	4.27	0.523	0.47	203	<0.005	0.051	1.87	0.001	0.018	0.331	15.7	0.098	5.67	47.2	3.47
Tailings	31/08/20	0.126	0.041	6.52	0.171	7	5.36	0.0005	0.82	0.137	2.38	0.418	0.46	112	<0.005	0.062	1.72	0.001	0.006	0.335	12.1	0.088	6.17	32	2.9
Tailings	1/09/20	0.105	0.032	11.6	0.104	10.85	7.93	0.0008	1.19	0.299	3.64	0.591	0.55	141.5	<0.005	0.072	1.895	0.001	0.026	0.363	14.7	0.075	6.74	44.1	3.64
Tailings	2/09/20	0.126	0.031	8.72	0.174	9.74	7.19	0.0004	1.63	0.162	3.52	0.564	0.59	149.5	<0.005	0.071	2.15	0.001	0.013	0.389	14.5	0.113	7.47	40.9	3.72
Tailings	3/09/20	0.121	0.031	10.7	0.087	11.45	8.68	0.0009	1.93	0.259	3.85	0.593	0.61	111.5	<0.005	0.085	1.96	0.001	0.024	0.368	15.9	0.069	7.14	44.7	3.79
Tailings	4/09/20	0.147	0.028	10.95	0.091	9.91	7.82	0.0007	0.92	0.238	3.8	0.537	0.51	135.5	<0.005	0.066	2.03	0.001	0.029	0.335	14.3	0.055	7.05	43.2	3.26
Tailings	7/09/20	0.162	0.028	11.7	0.11	9.25	7.04	0.0004	1.66	0.183	2.94	0.371	0.57	160	<0.005	0.057	2.04	0.001	0.014	0.38	10.2	0.095	6.98	37.4	3.45
Tailings	8/09/20	0.183	0.03	11	0.136	9.53	8.11	0.0003	0.8	0.17	3.3	0.36	0.68	185	<0.005	0.055	2.27	0.001	0.026	0.416	13.5	0.083	7.7	39.5	4.1
Tailings	9/09/20	0.161	0.032	8.22	0.153	10.65	8.01	0.0003	0.59	0.145	3.03	0.327	0.59	158	<0.005	0.05	2.23	0.001	0.019	0.433	12.9	0.066	7.51	37.3	4.18
Tailings	10/09/20	0.142	0.03	14	0.063	7.14	6.04	0.0005	0.85	0.137	2.29	0.338	0.42	105	<0.005	0.046	2.02	0.001	0.014	0.276	10.4	0.046	5.96	35.4	2.94
Tailings	16/10/20	0.129	0.034	9.13	0.171	9.87	7.64	0.0003	1.13	0.113	3.97	0.474	0.52	161.5	<0.005	0.057	2.64	0.001	0.01	0.386	16.1	0.071	8.23	43.2	3.51
Tailings	18/10/20	0.209	0.015	12.25	0.061	9.79	8.39	0.0005	0.15	0.132	4.63	0.39	0.5	217	<0.005	0.055	2	0.001	0.015	0.305	17.3	0.023	7.2	41.9	3.24
Tailings	22/10/20	0.209	0.03	12.25	0.072	9.49	7.11	0.0004	0.27	0.139	3.47	0.296	0.49	153.5	<0.005	0.041	2.09	0.001	0.011	0.318	13.1	0.056	6.01	35.7	3.43
Tailings	23/10/20	0.158	0.04	11.25	0.105	7.9	6.08	0.0005	0.36	0.203	3.11	0.409	0.63	123.5	<0.005	0.043	1.815	0.001	0.01	0.334	13.1	0.175	7.04	33.9	3.28
Tailings	24/10/20	0.137	0.042	11.2	0.102	7.39	5.7	0.0005	0.47	0.209	3.03	0.38	0.66	118	<0.005	0.041	1.74	0.001	0.01	0.325	12.9	0.175	6.81	32.4	3.26
Tailings	28/10/20	0.161	0.039	12.5	0.041	7.08	5.36	0.0004	0.75	0.167	2.6	0.366	0.33	88.4	<0.005	0.043	1.865	0.001	0.006	0.255	10.8	0.045	4.96	27.8	2.72
Tailings	29/10/20	0.157	0.018	17.35	0.068	9.62	8.58	0.0004	0.84	0.163	3.91	0.34	0.44	148.5	<0.005	0.056	2.62	0.001	0.026	0.353	16	0.024	7.08	42.1	3.88
Tailings	30/10/20	0.153	0.024	19.6	0.115	8.59	6.48	0.0004	1.07	0.215	3.44	0.407	0.39	124.5	<0.005	0.056	2.85	0.001	0.018	0.422	12	0.04	7.61	41.3	2.94
Tailings	3/11/20	0.317	0.02	14.65	0.141	13.45	10.75	0.0011	0.36	0.233	4.91	0.743	0.59	270	<0.005	0.077	2.85	0.001	0.032	0.473	20	0.021	9.56	52.3	3.65
Tailings	6/11/20	0.146	0.026	13.35	0.065	9.94	7.57	0.0015	0.84	0.213	3.62	0.383	0.44	156	<0.005	0.056	2.07	0.001	0.034	0.334	17.6	0.022	5.86	44.5	3.93
Tailings	12/11/20	0.13	0.038	9.64	0.149	9.32	7.81	0.0009	1.24	0.188	3.95	0.492	0.42	182.5	<0.005	0.062	2	0.001	0.011	0.36	15.6	0.05	9.06	36.5	4.05
Tailings	14/11/20	0.132	0.106	13.55	0.143	12	12.65	0.0009	0.76	0.259	5.03	0.624	0.55	201	0.007	0.068	2.95	0.006	0.026	0.543	22.2	0.066	8.56	51.5	5.63
Tailings	15/11/20	0.15	0.125	15.55	0.121	12.6	13.1	0.0008	1.07	0.303	5.14	0.684	0.6	219	0.007	0.076	2.79	0.011	0.043	0.472	23	0.074	8.21	69.6	5.75
Tailings	16/11/20	0.125	0.083	11.5	0.191	10.85	10.65	0.0005	1.21	0.265	4.25	0.646	0.62	215	0.005	0.067	2.52	0.005	0.016	0.47	19.5	0.158	8.92	48	5.45
Tailings	17/11/20	0.145	0.072	13.55	0.117	9.78	9.43	0.0006	0.64	0.211	4.81	0.451	0.62	183	<0.005	0.056	2.39	0.007	0.009	0.392	22.4	0.107	8.36	44.8	5.55
Tailings	18/11/20	0.131	0.102	14.2	0.115	9.97	10.55	0.0005	0.66	0.214	5.13	0.49	0.65	178.5	0.007	0.056	2.42	0.009	0.012	0.416	25	0.146	8.38	46.6	5.96
Tailings	19/11/20	0.13	0.06	11.55	0.111	9.19	8.35	0.0004	0.64	0.228	3.87	0.44	0.64	194	<0.005	0.057	2.13	0.004	0.018	0.354	18.9	0.149	7.92	39	4.76
Tailings	20/11/20	0.118	0.05	11.45	0.1	8.57	7.78	0.0007	0.48	0.202	4.34	0.48	0.45	142	<0.005	0.051	2.21	0.002	0.012	0.368	18.8	0.046	8.62	39.5	4.71
Tailings	21/11/20	0.111	0.046	11.65	0.099	8.84	8.46	0.0005	0.44	0.188	4.38	0.492	0.47	140.5	<0.005	0.055	2.24	0.003	0.008	0.367	20.2	0.043	8.51	39.6	4.67
Tailings	22/11/20	0.102	0.063	14.85	0.08	7.5	7.19	0.0013	0.35	0.222	3.28	0.718	0.32	128.5	<0.005	0.042	1.59	0.003	0.01	0.629	16.9	0.031	6.72	39.1	4.01
Reject	19/01/10 (R14)	0.247	-	11	0.057	11	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	45	-
Reject	19/01/10 (R16)	0.119	-	11	0.072	9	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	58	-
Reject	19/01/10 (R28)	0.111	-	12	0.239	9	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	42	-
Reject	19/01/10 (R34/36)	0.043	-	14	0.044	<5	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	29	-
Reject	19/01/10 (R40)	0.054	-	4	0.108	5	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	17	-
Reject	19/01/10 (R58)	0.052	-	23	0.027	7	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	84	-

Tailings samples collected from the CHPP. Reject samples collected from reject stockpiles at ramp (R) numbers indicated.

Table C3. Geochemical Abundance Indices (GAI) of Tailings and Reject

Sample Type	Collection Date	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo
	Avg. abundance in soil (units shown)	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
		0.05	7.1	6	500	0.3	0.2	1.5	0.35	50	8	70	4	30	4	20	1	6	0.06	1	1.4	40	25	0.5	1000	1.2
Tailings	10/09/19	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	23/10/19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	20/11/19	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	9/12/19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	10/12/19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	31/08/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	1/09/20	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Tailings	2/09/20	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	3/09/20	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Tailings	4/09/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Tailings	7/09/20	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	8/09/20	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	9/09/20	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	10/09/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	16/10/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	18/10/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	22/10/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	23/10/20	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	24/10/20	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	28/10/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	29/10/20	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	30/10/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	3/11/20	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	6/11/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	12/11/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	14/11/20	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	15/11/20	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Tailings	16/11/20	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	17/11/20	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	18/11/20	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	19/11/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	20/11/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	21/11/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tailings	22/11/20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reject	19/01/10 (R14 stockpile)	nr	-	-	nr	nr	nr	-	-	nr	-	-	nr	-	-	nr	nr	nr	nr	nr	-	nr	nr	-	-	1
Reject	19/01/10 (R16 stockpile)	nr	-	-	nr	nr	nr	-	-	nr	-	-	nr	-	-	nr	nr	nr	nr	nr	-	nr	nr	-	-	3
Reject	19/01/10 (R28 stockpile)	nr	-	-	nr	nr	nr	-	2	nr	-	-	nr	-	1	nr	nr	nr	nr	nr	-	nr	nr	-	1	-
Reject	19/01/10 (R34/36 stockpile)	nr	-	-	nr	nr	nr	-	2	nr	-	-	nr	-	1	nr	nr	nr	nr	nr	-	nr	nr	-	1	-
Reject	19/01/10 (R40 stockpile)	nr	-	-	nr	nr	nr	-	-	nr	-	-	nr	-	-	nr	nr	nr	nr	nr	-	nr	nr	-	-	-
Reject	19/01/10 (R58 stockpile)	nr	-	-	nr	nr	nr	-	-	nr	-	-	nr	-	-	nr	nr	nr	nr	nr	-	nr	nr	-	-	-

Geochemical abundance index (GAI) was calculated from the average element abundance in soil in the earth's crust (AusIMM 2011; Bowen 1979). Refer to report body for further explanation. " - " = GAI <1; "nr" = no result

Table C3. Geochemical Abundance Indices (GAI) of Tailings and Reject

Sample Type	Collection Date	Avg. abundance in soil (units shown)	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
			0.5	10	50	0.08	35	150	0.0004	0.07	1	7	0.4	4	250	2	0.01	9	0.5	0.2	2	90	1.5	40	90	400
Tailings	10/09/19		-	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	23/10/19		-	-	-	-	-	-	-	4	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
Tailings	20/11/19		-	-	-	-	-	-	1	2	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	9/12/19		-	-	-	-	-	-	-	2	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	10/12/19		-	-	-	-	-	-	-	2	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	31/08/20		-	-	-	1	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	1/09/20		-	-	-	-	-	-	-	4	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	2/09/20		-	-	-	1	-	-	-	4	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	3/09/20		-	-	-	-	-	-	1	4	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
Tailings	4/09/20		-	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	7/09/20		-	-	-	-	-	-	-	4	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	8/09/20		-	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	9/09/20		-	-	-	-	-	-	-	2	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	10/09/20		-	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	16/10/20		-	-	-	1	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	18/10/20		-	-	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	22/10/20		-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Tailings	23/10/20		-	-	-	-	-	-	-	2	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	24/10/20		-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Tailings	28/10/20		-	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	29/10/20		-	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	30/10/20		-	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	3/11/20		-	-	-	-	-	-	1	2	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	6/11/20		-	-	-	-	-	-	1	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	12/11/20		-	-	-	-	-	-	1	4	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	14/11/20		-	-	-	-	-	-	1	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	15/11/20		-	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	16/11/20		-	-	-	1	-	-	-	4	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	17/11/20		-	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	18/11/20		-	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	19/11/20		-	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	20/11/20		-	-	-	-	-	-	-	2	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	21/11/20		-	-	-	-	-	-	-	2	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Tailings	22/11/20		-	-	-	-	-	-	1	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Reject	19/01/10 (R14 stockpile)		-	nr	-	-	-	nr	nr	nr	nr	nr	-	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	-	nr
Reject	19/01/10 (R16 stockpile)		-	nr	-	-	-	nr	nr	nr	nr	nr	-	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	-	nr
Reject	19/01/10 (R28 stockpile)		-	nr	-	1	-	nr	nr	nr	nr	nr	-	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	-	nr
Reject	19/01/10 (R34/36 stockpile)		-	nr	-	-	-	nr	nr	nr	nr	nr	-	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	-	nr
Reject	19/01/10 (R40 stockpile)		-	nr	-	-	-	nr	nr	nr	nr	nr	-	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	-	nr
Reject	19/01/10 (R58 stockpile)		-	nr	-	-	-	nr	nr	nr	nr	nr	-	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	-	nr

Geochemical abundance index (GAI) was calculated from the average element abundance in soil in the earth's crust (AusIMM 2011; Bowen 1979). Refer to report body for further explanation. " - " = GAI <1; "nr" = no result

Table C4. Quantitative X-Ray Diffraction (QXRD) Results for Tailings

Sample Type	Collection Date	Pyrite	Marcasite	Jarosite	Calcite	Ankerite	Siderite	Rhodochrosite	Illite-smectite	Illite-muscovite	Kaolinite	Quartz	Albite	Chlorite	Anatase	Rutile	Amorphous /coal
		Sulfide	Sulfide	Sulfate	Carb.	Carb.	Carb.	Carb.	Clay	Clay	Clay	Quartz	Feldspar	Silicate	Oxide	Oxide	non-crystalline
		wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%	wt%
Tailings	31/08/20	1.5	0.3	0.4	1.2	0.1	3.9	<0.1	10.9	1.7	12.4	8	0.5	<0.1	0.2	0.1	58.8
Tailings	3/09/20	3.5	0.6	<0.1	2.2	0.4	1.7	0.8	19.2	1.4	17.7	15.4	0.8	<0.1	0.2	0.2	35.9
Tailings	4/09/20	1	0.2	0.1	1.3	0.8	2.9	1.1	19.7	2.5	16.9	13.9	0.6	<0.1	0.3	0.1	38.6
Tailings	9/09/20	0.8	0.1	<0.1	0.1	0.1	2.6	0.5	19.4	2.6	19.9	12.1	0.6	0.5	0.6	0.1	40
Tailings	18/10/20	0.6	0.2	<0.1	1	1.6	2.3	0.3	25.1	0.5	29.7	15.4	1.6	<0.1	0.2	<0.1	21.5
Tailings	14/11/20	0.6	0.2	<0.1	1.2	0.6	2.5	<0.1	26	0.1	21.5	14.3	0.7	0.8	<0.1	<0.1	31.5
Tailings	16/11/20	0.6	0.3	<0.1	0.9	0.5	4.3	<0.1	20.9	0.1	19.8	11.5	0.8	<0.1	<0.1	<0.1	40.3
Tailings	20/11/20	0.2	0.1	<0.1	0.6	0.4	2.3	<0.1	16.8	0.1	20.4	10.5	1.2	<0.1	<0.1	<0.1	47.4
Tailings	22/11/20	0.1	<0.1	<0.1	0.1	0.3	1.2	<0.1	14.3	0.1	17.6	10	<0.1	<0.1	<0.1	<0.1	56.3

Tailings samples collected from the CHPP. Refer to report body for further explanation of data.

Table C5. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Fresh Water Extracts from Tailings and Reject

Sample Type	Collection Date	pH 1:5	EC 1:5	Total Alk.	HCO_3	CO_3	Acidity	SO_4	Cl	F	Ca	Mg	Na	K	Al	As	B	Ba	Be	Bi	Cd
			µS/cm	mg CaCO3/L				mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Tailings	23/10/19	8.6	599	1460	1442	17.2	<1	168	44	0.224	22	8	104	12	<0.02	<0.002	<0.2	0.054	<0.002	<0.002	<0.002
Tailings	10/12/19	9.1	779	1322	1270	51.6	<1	108	114	0.304	4	<2	162	8	0.02	0.006	<0.2	0.076	<0.002	<0.002	<0.002
Tailings	31/08/20	8.0	1040	64	64	<1	<1	221	142	0.3	16	7	182	10	0.28	0.001	0.08	0.088	<0.001	<0.001	<0.0001
Tailings	1/09/20	7.9	1030	67	67	<1	<1	264	109	0.3	30	12	158	13	0.02	0.002	0.11	0.098	<0.001	<0.001	<0.0001
Tailings	3/09/20	8.0	1050	71	71	<1	<1	254	118	0.5	19	10	174	15	0.03	0.003	0.11	0.066	<0.001	<0.001	<0.0001
Tailings	4/09/20	7.7	1120	66	66	<1	<1	228	159	0.4	8	4	209	9	0.06	0.008	0.11	0.067	<0.001	<0.001	<0.0001
Tailings	7/09/20	8.0	1300	75	75	<1	<1	340	148	0.3	24	10	226	14	0.03	0.002	0.11	0.139	<0.001	<0.001	<0.0001
Tailings	8/09/20	8.2	1070	72	72	<1	<1	213	149	0.4	8	3	204	9	0.37	0.004	0.1	0.107	<0.001	<0.001	<0.0001
Tailings	9/09/20	8.2	990	81	81	<1	<1	179	136	0.4	8	2	189	10	0.07	0.002	0.1	0.104	<0.001	<0.001	<0.0001
Tailings	10/09/20	8.1	915	66	66	<1	<1	182	120	0.4	7	3	173	8	0.09	0.014	0.11	0.068	<0.001	<0.001	<0.0001
Tailings	18/10/20	9.2	862	102	77	25	<1	137	112	0.3	2	<1	177	4	0.18	0.023	0.15	0.065	<0.001	<0.001	<0.0001
Tailings	22/10/20	8.8	846	93	80	12	<1	130	116	0.4	3	1	169	6	0.12	0.009	0.14	0.08	<0.001	<0.001	<0.0001
Tailings	23/10/20	8.7	400	47	43	4	<1	61	46	0.2	3	1	76	4	0.27	0.007	0.06	0.078	<0.001	<0.001	<0.0001
Tailings	24/10/20	8.4	253	36	34	2	<1	36	27	<0.1	4	1	45	3	0.23	0.004	0.06	0.085	<0.001	<0.001	<0.0001
Tailings	28/10/20	8.2	1290	55	55	<1	<1	234	223	0.4	9	5	244	7	0.06	0.019	0.14	0.078	<0.001	<0.001	<0.0001
Tailings	29/10/20	8.3	750	52	52	<1	<1	142	100	0.4	6	3	135	8	0.08	0.034	0.15	0.052	<0.001	<0.001	<0.0001
Tailings	3/11/20	8.9	1110	88	77	11	<1	182	173	0.4	2	<1	223	6	0.14	0.022	0.16	0.074	<0.001	<0.001	<0.0001
Tailings	14/11/20	8.5	870	2090	2090	<1.0	<1.0	247	136		19	9	174	18	<0.02	<0.002	<0.2	0.026	<0.002	<0.002	<0.002
Tailings	15/11/20	8.6	918	3950	3930	17.3	<1.0	246	142		16	7	186	16	<0.02	0.002	<0.2	0.033	<0.002	<0.002	<0.002
Tailings	16/11/20	8.4	943	2770	2770	<1.0	6.6	320	139		34	15	179	16	<0.02	<0.002	<0.2	0.019	<0.002	<0.002	<0.002
Tailings	17/11/20	8.8	910	1580	1560	17.3	<1.0	226	159		10	6	196	10	<0.02	<0.002	<0.2	0.038	<0.002	<0.002	<0.002
Tailings	18/11/20	8.8	801	2780	2780	<1.0	<1.0	209	131		9	5	176	11	<0.02	<0.002	<0.2	0.036	<0.002	<0.002	<0.002
Tailings	19/11/20	9.1	711	3900	3860	34.7	<1.0	189	106		6	3	159	9	<0.02	<0.002	<0.2	0.038	<0.002	<0.002	<0.002
Tailings	20/11/20	8.9	745	1230	1200	34.7	<1.0	141	122		5	2	152	11	0.02	0.003	<0.2	0.03	<0.002	<0.002	<0.002
Tailings	21/11/20	9.0	631	1180	1180	<1.0	<1.0	118	106		4	<2	139	9	0.02	0.004	<0.2	0.05	<0.002	<0.002	<0.002
Tailings	22/11/20	8.8	579	1600	1600	<1.0	<1.0	119	100		4	3	140	10	0.03	0.002	<0.2	0.092	<0.002	<0.002	<0.002
Reject	19/01/10 (R14)	7.1	1430	1072	1072	<0.2		310	70		8	8	198	4	<0.2	<0.02	<0.2				<0.02
Reject	19/01/10 (R16)	8.4	1019	1920	1920	<0.2		472	34		54	34	146	8	<0.2	<0.02	<0.2				<0.02
Reject	19/01/10 (R28)	8.0	1012	1162	1162	<0.2		492	32		70	32	136	8	<0.2	<0.02	<0.2				<0.02
Reject	19/01/10 (R34/36)	7.8	1257	1636	1636	<0.2		754	32		180	78	56	8	<0.2	<0.02	<0.2				<0.02
Reject	19/01/10 (R40)	6.8	1131	568	568	<0.2		384	32		104	26	58	4	<0.2	<0.02	<0.2				<0.02
Reject	19/01/10 (R58)	4.2	1660	<0.2	<0.2	<0.2		812	48		164	88	46	6	1.4	<0.02	<0.2				<0.02

Water extract tests undertaken as 1:5 (w:v). Tailings analysed by ICP-MS; Reject analysed by ICP-AES.
Tailings samples collected from the CHPP. Reject samples collected from reject stockpiles at ramp (R) numbers indicated. Refer to report body for further explanation of data.

Table C5. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Fresh Water Extracts from Tailings and Reject

Sample Type	Collection Date	Co	Cr	Cu	Fe	Hg	Mn	Mo	Ni	P	Pb	Sb	Se	Sn	Sr	Th	Ti	U	V	W	Zn	Zr
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Tailings	23/10/19	<0.002	<0.002	<0.002	<0.2	<0.0001	0.008	0.012	<0.002	<2	<0.002	<0.002	<0.02	<0.02	1	<0.002	<0.02	<0.002	<0.02		<0.01	<0.01
Tailings	10/12/19	<0.002	<0.002	<0.002	<0.2	<0.0001	<0.002	0.03	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.4	<0.002	<0.02	<0.002	<0.02		<0.01	<0.01
Tailings	31/08/20	<0.001	<0.001	0.002	0.2	<0.0001	0.008	0.024	0.001		<0.001	<0.001	<0.01	<0.001	0.992	<0.001	<0.01	<0.001	<0.01	<0.001	0.009	<0.005
Tailings	1/09/20	<0.001	<0.001	0.002	<0.05	<0.0001	0.01	0.034	0.002		<0.001	0.001	<0.01	<0.001	1.59	<0.001	<0.01	<0.001	<0.01	<0.001	0.011	<0.005
Tailings	3/09/20	<0.001	<0.001	0.002	<0.05	<0.0001	0.005	0.03	0.002		<0.001	0.002	0.01	0.001	0.901	<0.001	<0.01	<0.001	<0.01	<0.001	0.006	<0.005
Tailings	4/09/20	<0.001	<0.001	0.001	<0.05	<0.0001	0.001	0.03	0.001		<0.001	0.001	0.01	<0.001	0.479	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	7/09/20	<0.001	<0.001	0.003	<0.05	<0.0001	0.009	0.015	0.001		<0.001	<0.001	<0.01	<0.001	1.8	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	8/09/20	<0.001	<0.001	0.002	0.13	<0.0001	0.004	0.015	0.002		<0.001	<0.001	<0.01	<0.001	0.604	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	9/09/20	<0.001	<0.001	0.003	0.06	<0.0001	0.002	0.013	<0.001		<0.001	<0.001	<0.01	0.002	0.546	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	10/09/20	<0.001	0.002	0.002	<0.05	<0.0001	0.002	0.019	0.002		<0.001	0.001	<0.01	<0.001	0.55	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	18/10/20	<0.001	0.002	0.001	<0.05	<0.0001	<0.001	0.017	<0.001		<0.001	0.002	0.01	0.001	0.151	<0.001	<0.01	<0.001	0.02	<0.001	<0.005	<0.005
Tailings	22/10/20	<0.001	0.003	0.002	<0.05	<0.0001	<0.001	0.01	<0.001		<0.001	0.001	<0.01	<0.001	0.241	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	23/10/20	<0.001	0.001	<0.001	<0.05	<0.0001	<0.001	0.006	<0.001		<0.001	<0.001	<0.01	0.001	0.2	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	24/10/20	<0.001	0.001	0.002	<0.05	<0.0001	<0.001	0.003	<0.001		<0.001	<0.001	<0.01	<0.001	0.198	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	28/10/20	<0.001	0.003	0.002	<0.05	<0.0001	0.001	0.021	0.002		<0.001	0.002	<0.01	<0.001	0.485	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	29/10/20	<0.001	0.002	<0.001	<0.05	<0.0001	<0.001	0.018	<0.001		<0.001	0.002	<0.01	<0.001	0.319	<0.001	<0.01	<0.001	0.01	<0.001	0.01	<0.005
Tailings	3/11/20	<0.001	<0.001	0.003	<0.05	<0.0001	<0.001	0.03	<0.001		<0.001	0.004	0.02	0.002	0.238	<0.001	<0.01	<0.001	0.01	<0.001	<0.005	<0.005
Tailings	14/11/20	<0.002	<0.002	<0.002	<0.2	<0.0001	0.009	0.016	<0.002	<2	<0.002	<0.002	<0.02	<0.02	1.5	<0.002	<0.02	<0.002	<0.02		<0.010	<0.01
Tailings	15/11/20	<0.002	<0.002	<0.002	<0.2	<0.0001	0.004	0.019	<0.002	<2	<0.002	<0.002	<0.02	<0.02	1.2	<0.002	<0.02	<0.002	<0.02		<0.010	<0.01
Tailings	16/11/20	<0.002	<0.002	<0.002	<0.2	<0.0001	0.029	0.011	<0.002	<2	<0.002	<0.002	<0.02	<0.02	2.5	<0.002	<0.02	<0.002	<0.02		<0.010	<0.01
Tailings	17/11/20	<0.002	<0.002	<0.002	<0.2	<0.0001	0.003	0.013	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.8	<0.002	<0.02	<0.002	<0.02		<0.010	<0.01
Tailings	18/11/20	<0.002	<0.002	<0.002	<0.2	<0.0001	0.002	0.012	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.7	<0.002	<0.02	<0.002	<0.02		<0.010	<0.01
Tailings	19/11/20	<0.002	<0.002	<0.002	<0.2	<0.0001	<0.002	0.013	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.5	<0.002	<0.02	<0.002	<0.02		<0.010	<0.01
Tailings	20/11/20	<0.002	<0.002	<0.002	<0.2	<0.0001	<0.002	0.014	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.4	<0.002	<0.02	<0.002	<0.02		<0.010	<0.01
Tailings	21/11/20	<0.002	<0.002	<0.002	<0.2	<0.0001	<0.002	0.015	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.3	<0.002	<0.02	<0.002	<0.02		<0.010	<0.01
Tailings	22/11/20	<0.002	<0.002	<0.002	<0.2	<0.0001	0.003	0.012	<0.002	<2	<0.002	<0.002	<0.02	<0.02	0.2	<0.002	<0.02	0.004	<0.02		<0.010	<0.01
Reject	19/01/10 (R14)	<0.02	<0.02	<0.02	<0.2		0.04	<0.02	0.44		<0.02	<0.02	<0.02								<0.02	
Reject	19/01/10 (R16)	<0.02	<0.02	<0.02	<0.2		0.48	<0.02	0.02		<0.02	<0.02	<0.02								<0.02	
Reject	19/01/10 (R28)	<0.02	<0.02	<0.02	<0.2		0.02	<0.02	<0.02		<0.02	<0.02	<0.02								<0.02	
Reject	19/01/10 (R34/36)	<0.02	<0.02	<0.02	<0.2		0.26	<0.02	<0.02		<0.02	<0.02	<0.02								<0.02	
Reject	19/01/10 (R40)	<0.02	<0.02	<0.02	<0.2		0.20	<0.02	<0.02		<0.02	<0.02	<0.02								<0.02	
Reject	19/01/10 (R58)	0.54	<0.02	<0.02	0.4		13.5	<0.02	0.56		<0.02	<0.02	<0.02								1.60	

Water extract tests undertaken as 1:5 (w:v). Tailings analysed by ICP-MS; Reject analysed by ICP-AES.
Tailings samples collected from the CHPP. Reject samples collected from reject stockpiles at ramp (R) numbers indicated. Refer to report body for further explanation of data.

Table C6. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Brackish Water Extracts from Tailings (2 g/L NaCl)

Sample Type	Collection Date	pH 1:5	EC 1:5	Total Alk.	HCO_3	CO_3	OH	Acidity	SO_4	Cl	F	Ca	Mg	Na	K	Al	As	B	Ba	Be	Bi	Cd
			µS/cm	mg CaCO3/L					mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Tailings	31/08/20	7.59	4670	59	59	<1	<1	2	239	-	0.3	34	19	-	15	0.03	<0.001	0.08	0.169	<0.001	<0.001	<0.0001
Tailings	1/09/20	7.71	4630	60	60	<1	<1	2	282	-	0.3	53	26	-	18	0.05	0.002	0.08	0.134	<0.001	<0.001	<0.0001
Tailings	3/09/20	7.78	4690	64	64	<1	<1	2	270	-	0.5	41	28	-	22	0.02	0.002	0.09	0.125	<0.001	<0.001	<0.0001
Tailings	4/09/20	7.75	4690	58	58	<1	<1	2	230	-	0.3	27	19	-	17	0.04	0.004	0.09	0.153	<0.001	<0.001	<0.0001
Tailings	7/09/20	7.83	4840	65	65	<1	<1	2	337	-	0.2	44	22	-	20	0.03	0.002	0.08	0.166	<0.001	<0.001	<0.0001
Tailings	8/09/20	7.82	4540	54	54	<1	<1	1	190	-	0.3	28	12	-	16	0.06	0.002	0.07	0.192	<0.001	<0.001	<0.0001
Tailings	9/09/20	7.82	4490	58	58	<1	<1	1	149	-	0.3	28	11	-	17	0.02	0.001	0.07	0.191	<0.001	<0.001	<0.0001
Tailings	10/09/20	7.73	4540	51	51	<1	<1	1	165	-	0.3	26	13	-	15	0.18	0.007	0.08	0.164	<0.001	<0.001	<0.0001
Tailings	18/10/20	8.03	4450	60	60	<1	<1	<1	130	-	0.3	13	6	-	12	0.04	0.007	0.12	0.237	<0.005	<0.005	<0.0001
Tailings	22/10/20	7.79	4570	60	60	<1	<1	1	144	-	0.3	20	10	-	14	0.03	0.004	0.1	0.189	<0.001	<0.001	<0.0001
Tailings	23/10/20	7.84	3990	27	27	<1	<1	<1	28	-	<0.1	11	3	-	4	0.13	0.003	<0.05	0.466	<0.001	<0.001	<0.0001
Tailings	24/10/20	7.42	3990	23	23	<1	<1	1	22	-	<0.1	10	3	-	3	0.16	0.002	<0.05	0.454	<0.001	<0.001	<0.0001
Tailings	28/10/20	7.34	3990	18	18	<1	<1	1	29	-	<0.1	8	4	-	3	0.06	0.006	<0.05	0.171	<0.001	<0.001	<0.0001
Tailings	29/10/20	7.44	4090	26	26	<1	<1	1	52	-	0.2	16	8	-	9	0.09	0.014	0.06	0.163	<0.001	<0.001	<0.0001
Tailings	3/11/20	7.93	4870	69	69	<1	<1	<1	202	-	0.4	17	9	-	15	0.03	0.008	0.13	0.176	<0.001	<0.001	<0.0001

Sample Type	Collection Date	Co	Cr	Cu	Fe	Hg	Li	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	U	V	W	Zn	Zr
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Tailings	31/08/20	<0.001	<0.001	<0.001	<0.05	<0.0001	0.016	0.016	0.023	0.001	<0.001	<0.001	<0.01	<0.001	2.86	<0.001	<0.01	<0.001	<0.01	<0.001	0.016	<0.005
Tailings	1/09/20	<0.001	<0.001	<0.001	<0.05	<0.0001	0.011	0.017	0.029	0.002	<0.001	0.001	<0.01	<0.001	3.59	<0.001	<0.01	<0.001	<0.01	<0.001	0.019	<0.005
Tailings	3/09/20	<0.001	<0.001	<0.001	<0.05	<0.0001	0.015	0.013	0.027	0.002	<0.001	0.001	<0.01	<0.001	2.56	<0.001	<0.01	<0.001	<0.01	<0.001	0.009	<0.005
Tailings	4/09/20	<0.001	<0.001	0.001	<0.05	<0.0001	0.015	0.005	0.03	0.002	<0.001	0.001	<0.01	<0.001	2.22	<0.001	<0.01	<0.001	<0.01	<0.001	0.005	<0.005
Tailings	7/09/20	<0.001	<0.001	<0.001	<0.05	<0.0001	0.016	0.021	0.012	0.002	<0.001	<0.001	<0.01	<0.001	4.4	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	8/09/20	<0.001	<0.001	<0.001	<0.05	<0.0001	0.012	0.005	0.013	<0.001	<0.001	<0.001	<0.01	<0.001	2.61	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	9/09/20	<0.001	<0.001	<0.001	<0.05	<0.0001	0.013	0.006	0.01	<0.001	<0.001	<0.001	<0.01	<0.001	2.55	<0.001	<0.01	<0.001	<0.01	<0.001	0.007	<0.005
Tailings	10/09/20	<0.001	<0.001	<0.001	0.07	<0.0001	0.015	0.005	0.015	0.002	<0.001	0.001	<0.01	<0.001	2.5	<0.001	0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	18/10/20	<0.001	0.002	0.003	<0.05	<0.0001	0.021	<0.001	0.017	<0.001	<0.005	<0.005	<0.01	<0.005	2.15	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	22/10/20	<0.001	0.003	0.001	<0.05	<0.0001	0.018	0.002	0.009	<0.001	<0.001	<0.001	<0.01	<0.001	2.28	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	23/10/20	<0.001	<0.001	<0.001	<0.05	<0.0001	0.004	0.001	0.003	<0.001	<0.001	<0.001	<0.01	<0.001	0.868	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	24/10/20	<0.001	<0.001	0.001	<0.05	<0.0001	0.003	0.001	0.002	<0.001	<0.001	<0.001	<0.01	<0.001	0.588	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	28/10/20	<0.001	<0.001	0.003	<0.05	<0.0001	0.004	0.001	0.003	<0.001	<0.001	<0.001	<0.01	<0.001	0.451	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	29/10/20	<0.001	<0.001	0.002	<0.05	<0.0001	0.006	0.003	0.006	<0.001	<0.001	<0.001	<0.01	<0.001	0.933	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	3/11/20	<0.001	0.001	0.001	<0.05	<0.0001	0.014	0.002	0.033	<0.001	<0.001	0.004	0.01	<0.001	2.68	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005

Leaching solution spiked at 2 g/L NaCl. Water extract tests undertaken as 1:5 (w:v). Analysis by ICP-MS; Tailings samples collected from the CHPP. Refer to report body for further explanation of data.

Table C7. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in Saline Water Extracts from Tailings (10 g/L NaCl)

Sample Type	Collection Date	pH 1:5	EC 1:5	Total Alk.	HCO_3	CO_3	OH	Acidity	SO_4	Cl	F	Ca	Mg	Na	K	Al	As	B	Ba	Be	Bi	Cd
			µS/cm	mg CaCO3/L					mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Tailings	31/08/20	7.64	17400	57	57	<1	<1	3	254	-	0.4	78	38	-	25	0.11	<0.005	0.64	1.22	<0.005	<0.005	<0.0005
Tailings	1/09/20	7.64	15800	56	56	<1	<1	3	276	-	0.4	128	56	-	32	0.08	<0.005	0.92	1.47	<0.005	<0.005	<0.0005
Tailings	3/09/20	7.75	17400	64	64	<1	<1	3	280	-	0.3	111	64	-	37	<0.05	<0.005	0.09	0.319	<0.005	<0.005	<0.0005
Tailings	4/09/20	7.73	17500	54	54	<1	<1	2	241	-	0.3	87	54	-	32	0.33	<0.005	0.08	0.439	<0.005	<0.005	<0.0005
Tailings	7/09/20	7.75	17600	61	61	<1	<1	3	341	-	0.2	119	52	-	33	<0.05	<0.005	0.08	0.34	<0.005	<0.005	<0.0005
Tailings	8/09/20	7.68	17700	54	54	<1	<1	3	272	-	0.3	107	44	-	32	0.11	<0.005	0.08	0.488	<0.005	<0.005	<0.0005
Tailings	9/09/20	7.73	17600	57	57	<1	<1	2	185	-	0.2	103	37	-	35	<0.05	<0.005	0.07	0.626	<0.005	<0.005	<0.0005
Tailings	10/09/20	7.68	17700	51	51	<1	<1	2	203	-	0.4	91	41	-	29	0.39	0.007	0.07	0.438	<0.005	<0.005	<0.0005
Tailings	18/10/20	7.85	17800	65	65	<1	<1	2	225	-	0.3	82	36	-	31	0.24	<0.005	0.12	0.628	<0.005	<0.005	<0.0005
Tailings	22/10/20	7.8	17700	54	54	<1	<1	2	153	-	0.2	79	37	-	27	0.09	<0.005	0.09	0.644	<0.005	<0.005	<0.0005
Tailings	23/10/20	7.85	17300	34	34	<1	<1	<1	43	-	<0.1	31	12	-	10	0.1	<0.005	<0.05	1.28	<0.005	<0.005	<0.0005
Tailings	24/10/20	7.73	17300	31	31	<1	<1	1	36	-	<0.1	24	9	-	8	0.09	<0.005	<0.05	1.24	<0.005	<0.005	<0.0005
Tailings	28/10/20	7.49	17400	27	27	<1	<1	2	70	-	0.1	29	15	-	10	0.05	0.008	<0.05	0.523	<0.005	<0.005	<0.0005
Tailings	29/10/20	7.56	17700	46	46	<1	<1	3	222	-	0.4	115	66	-	37	<0.05	0.013	0.11	0.343	<0.005	<0.005	<0.0005
Tailings	3/11/20	7.85	18200	70	70	<1	<1	2	298	-	0.3	88	46	-	35	0.08	0.006	0.12	0.405	<0.005	<0.005	<0.0005

Sample Type	Collection Date	Co	Cr	Cu	Fe	Hg	Li	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	U	V	W	Zn	Zr
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Tailings	31/08/20	<0.005	<0.005	<0.005	0.05	<0.0001	0.022	0.032	0.018	<0.005	<0.005	<0.005	<0.05	<0.005	6.08	<0.005	<0.05	<0.005	<0.05	<0.005	0.159	<0.025
Tailings	1/09/20	<0.005	<0.005	0.023	<0.05	<0.0001	0.018	0.031	0.027	<0.005	<0.005	<0.005	<0.05	<0.005	8.11	<0.005	<0.05	<0.005	<0.05	<0.005	0.261	<0.025
Tailings	3/09/20	<0.005	<0.005	<0.005	<0.05	<0.0001	0.022	0.029	0.02	<0.005	<0.005	<0.005	<0.05	<0.005	6.14	<0.005	<0.05	<0.005	<0.05	<0.005	0.025	<0.025
Tailings	4/09/20	<0.005	<0.005	<0.005	<0.05	<0.0001	0.022	0.012	0.025	<0.005	<0.005	<0.005	<0.05	<0.005	6.34	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.025
Tailings	7/09/20	<0.005	<0.005	<0.005	<0.05	<0.0001	0.021	0.044	0.01	<0.005	<0.005	<0.005	<0.05	<0.005	10.1	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.025
Tailings	8/09/20	<0.005	<0.005	<0.005	<0.05	<0.0001	0.024	0.016	0.015	<0.005	<0.005	<0.005	<0.05	<0.005	9.24	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.025
Tailings	9/09/20	<0.005	<0.005	<0.005	<0.05	<0.0001	0.024	0.02	0.01	<0.005	<0.005	<0.005	<0.05	<0.005	8.44	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.025
Tailings	10/09/20	<0.005	<0.005	<0.005	0.27	<0.0001	0.021	0.019	0.015	<0.005	<0.005	<0.005	<0.05	<0.005	7.72	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.025
Tailings	18/10/20	<0.005	<0.005	<0.005	<0.05	<0.0001	0.04	<0.005	0.023	<0.005	<0.005	<0.005	<0.05	<0.005	12.1	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.025
Tailings	22/10/20	<0.005	<0.005	<0.005	<0.05	<0.0001	0.026	0.006	0.008	<0.005	<0.005	<0.005	<0.05	<0.005	8	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.025
Tailings	23/10/20	<0.005	<0.005	<0.005	<0.05	<0.0001	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	2.42	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.025
Tailings	24/10/20	<0.005	<0.005	<0.005	<0.05	<0.0001	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	1.79	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.025
Tailings	28/10/20	<0.005	<0.005	<0.005	<0.05	<0.0001	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	1.86	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.025
Tailings	29/10/20	<0.005	0.044	<0.005	<0.05	<0.0001	0.024	0.012	0.021	<0.005	<0.005	<0.005	<0.05	<0.005	6.47	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.025
Tailings	3/11/20	<0.005	<0.005	<0.005	<0.05	<0.0001	0.023	0.006	0.037	<0.005	<0.005	<0.005	<0.05	<0.005	12	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.025

Leaching solution spiked at 10 g/L NaCl. Water extract tests undertaken as 1:5 (w:v). Analysis by ICP-MS; Tailings samples collected from the CHPP. Refer to report body for further explanation of data.

Table C8. Soluble Major Ions, pH, Electrical Conductivity (EC), Metal and Metalloid Concentrations in NAG Leachate Solution from Tailings

Sample Type	Collection Date	NAGpH	EC	Total Alk.	HCO_3	CO_3	OH	Acidity	SO_4	Cl	F	Ca	Mg	Na	K	Al	As	B	Ba	Be	Bi	Cd
			µS/cm	mg CaCO3/L					mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Tailings	31/08/20	3.34	813	<1	<1	<1	<1	272	247	8	0.1	45	12	28	3	4.87	<0.001	0.25	0.089	0.002	<0.001	0.0006
Tailings	1/09/20	4.02	926	<1	<1	<1	<1	94	396	7	<0.1	118	15	27	3	3.93	<0.001	0.18	0.066	0.002	<0.001	0.0009
Tailings	2/09/20	2.80	1400	<1	<1	<1	<1	283	485	7	0.3	78	14	28	4	5.82	<0.001	0.11	0.052	0.003	<0.001	0.0007
Tailings	3/09/20	2.57	1950	<1	<1	<1	<1	354	616	6	0.4	93	17	28	4	6.77	<0.001	0.08	0.04	0.004	<0.001	0.001
Tailings	4/09/20	5.15	756	2	2	<1	<1	7	313	9	<0.1	90	17	34	3	0.05	<0.001	0.12	0.041	<0.001	<0.001	0.0003
Tailings	7/09/20	2.72	1520	<1	<1	<1	<1	358	504	7	0.4	47	12	32	4	6.1	<0.001	0.1	0.048	0.004	<0.001	0.0008
Tailings	8/09/20	3.95	629	<1	<1	<1	<1	98	208	7	0.1	52	10	29	3	4.7	<0.001	0.09	0.042	0.002	<0.001	0.0008
Tailings	9/09/20	3.60	621	<1	<1	<1	<1	175	173	7	0.1	31	10	31	3	6.39	<0.001	0.08	0.042	0.003	<0.001	0.0007
Tailings	10/09/20	4.30	585	<1	<1	<1	<1	197	220	5	0.2	24	10	25	3	3.11	<0.001	0.09	0.038	0.002	<0.001	0.0006
Tailings	16/10/20	3.21	955	<1	<1	<1	<1	230	345	6	0.3	54	15	30	3	5.5	<0.001	0.41	0.089	0.003	<0.001	0.0007
Tailings	18/10/20	8.46	305	35	33	3	<1	<1	38	8	<0.1	32	<1	36	2	0.05	0.002	0.95	0.306	<0.001	<0.001	<0.0001
Tailings	22/10/20	6.97	350	14	14	<1	<1	1	75	7	<0.1	32	7	33	2	0.01	<0.001	0.13	0.181	<0.001	<0.001	<0.0001
Tailings	23/10/20	6.68	401	11	11	<1	<1	2	108	6	<0.1	39	11	30	2	0.02	<0.001	0.05	0.096	<0.001	<0.001	<0.0001
Tailings	24/10/20	5.71	488	9	9	<1	<1	9	142	6	<0.1	36	13	29	2	0.07	<0.001	0.09	0.081	<0.001	<0.001	0.0001
Tailings	28/10/20	4.63	633	<1	<1	<1	<1	180	233	10	0.1	38	12	31	2	2.15	<0.001	0.14	0.068	0.002	<0.001	0.0006
Tailings	29/10/20	5.94	654	5	5	<1	<1	4	258	8	<0.1	62	26	34	4	<0.01	<0.001	0.11	0.06	<0.001	<0.001	<0.0001
Tailings	30/10/20	4.17	776	<1	<1	<1	<1	225	323	8	0.4	36	16	30	3	3.1	<0.001	0.35	0.055	0.002	<0.001	0.0008
Tailings	31/10/20	-	-	-	-	-	-	-	51	-	-	-	-	-	-	0.02	<0.001	0.11	0.2	<0.001	<0.001	<0.0001
Tailings	2/11/20	-	-	-	-	-	-	-	84	-	-	-	-	-	-	0.04	<0.001	0.11	0.319	<0.001	<0.001	<0.0001
Tailings	3/11/20	8.73	392	40	33	7	<1	<1	70	12	<0.1	44	<1	42	3	0.05	0.004	1.17	0.287	<0.001	<0.001	<0.0001
Tailings	6/11/20	4.44	646	<1	<1	<1	<1	48	239	6	<0.1	57	16	29	4	3.8	<0.001	0.11	0.075	0.002	<0.001	0.0008
Tailings	10/11/20	-	-	-	-	-	-	-	125	-	-	-	-	-	-	0.02	<0.001	0.1	0.244	<0.001	<0.001	<0.0001
Tailings	12/11/20	2.85	1220	<1	<1	<1	<1	288	384	7	0.2	52	13	28	3	5.22	<0.001	0.16	0.078	0.003	<0.001	0.0007

Sample Type	Collection Date	Co	Cr	Cu	Fe	Hg	Li	Mn	Mo	Ni	Pb	Sb	Se	Sn	Sr	Th	Ti	U	V	W	Zn	Zr
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Tailings	31/08/20	0.035	0.011	0.181	80.8	<0.0001	0.019	2.4	<0.001	0.053	0.005	<0.001	<0.01	<0.001	0.612	0.002	<0.01	<0.001	<0.01	<0.001	0.3	0.011
Tailings	1/09/20	0.055	0.01	0.249	18.7	<0.0001	0.015	1.85	<0.001	0.1	0.003	<0.001	<0.01	<0.001	0.934	<0.001	<0.01	<0.001	<0.01	<0.001	0.339	0.006
Tailings	2/09/20	0.043	0.011	0.198	63.7	<0.0001	0.021	2.53	<0.001	0.067	0.009	<0.001	<0.01	<0.001	0.937	0.001	<0.01	0.001	<0.01	<0.001	0.325	<0.005
Tailings	3/09/20	0.054	`	0.266	65.1	<0.0001	0.021	2.28	<0.001	0.1	0.02	<0.001	<0.01	<0.001	0.806	0.002	<0.01	0.002	<0.01	<0.001	0.388	<0.005
Tailings	4/09/20	0.017	<0.001	0.019	<0.05	<0.0001	0.012	1.61	<0.001	0.039	<0.001	<0.001	<0.01	<0.001	0.815	<0.001	<0.01	<0.001	<0.01	<0.001	0.041	<0.005
Tailings	7/09/20	0.054	0.01	0.199	101	<0.0001	0.022	3.12	<0.001	0.086	0.009	<0.001	<0.01	<0.001	1.05	<0.001	<0.01	0.001	<0.01	<0.001	0.286	<0.005
Tailings	8/09/20	0.034	0.011	0.201	19.3	<0.0001	0.019	2.13	<0.001	0.07	0.002	<0.001	<0.01	<0.001	0.873	<0.001	<0.01	0.001	<0.01	<0.001	0.23	0.005
Tailings	9/09/20	0.022	0.012	0.256	43.7	<0.0001	0.023	2.26	<0.001	0.054	0.003	<0.001	<0.01	<0.001	0.808	0.001	<0.01	0.001	<0.01	<0.001	0.289	0.007
Tailings	10/09/20	0.052	0.007	0.146	74.7	<0.0001	0.013	2.55	<0.001	0.109	0.002	<0.001	<0.01	<0.001	0.565	<0.001	<0.01	<0.001	<0.01	<0.001	0.204	<0.005
Tailings	16/10/20	0.039	0.012	0.215	63.9	<0.0001	0.022	2.53	<0.001	0.064	0.003	<0.001	<0.01	<0.001	1.01	0.001	<0.01	0.001	<0.01	<0.001	0.332	<0.005
Tailings	18/10/20	<0.001	0.009	0.001	0.06	<0.0001	0.011	0.004	0.006	<0.001	<0.001	<0.001	<0.01	<0.001	0.729	<0.001	<0.01	<0.001	0.01	<0.001	<0.005	<0.005
Tailings	22/10/20	<0.001	<0.001	0.001	0.12	<0.0001	0.011	0.011	0.004	<0.001	<0.001	<0.001	<0.01	<0.001	0.616	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	23/10/20	<0.001	<0.001	0.002	<0.05	<0.0001	0.009	0.076	0.003	<0.001	<0.001	<0.001	<0.01	<0.001	0.512	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	24/10/20	0.017	<0.001	0.024	<0.05	<0.0001	0.012	1.16	<0.001	0.036	<0.001	<0.001	<0.01	<0.001	0.55	<0.001	<0.01	<0.001	<0.01	<0.001	0.027	<0.005
Tailings	28/10/20	0.053	0.009	0.148	68.1	<0.0001	0.01	2.35	<0.001	0.094	0.001	<0.001	<0.01	<0.001	0.484	<0.001	<0.01	<0.001	<0.01	<0.001	0.197	<0.005
Tailings	29/10/20	0.003	<0.001	0.001	<0.05	<0.0001	0.01	0.728	<0.001	0.006	<0.001	<0.001	<0.01	<0.001	0.602	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	30/10/20	0.087	0.009	0.127	86.5	<0.0001	0.014	3.41	<0.001	0.156	0.002	<0.001	<0.01	<0.001	0.715	<0.001	<0.01	0.001	<0.01	<0.001	0.252	<0.005
Tailings	31/10/20	<0.001	<0.001	0.002	<0.05	<0.0001		0.028	0.006	<0.001	<0.001	<0.001	<0.01	<0.001	0.472	<0.001	<0.01	<0.001	<0.01	<0.001	0.007	<0.005
Tailings	2/11/20	<0.001	0.003	0.002	<0.05	<0.0001		0.021	0.008	0.003	<0.001	<0.001	<0.01	0.001	0.84	<0.001	<0.01	<0.001	<0.01	<0.001	0.02	<0.005
Tailings	3/11/20	<0.001	0.007	0.002	0.05	<0.0001	0.011	0.003	0.013	<0.001	<0.001	0.001	<0.01	<0.001	0.893	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.005
Tailings	6/11/20	0.044	0.014	0.208	4.85	<0.0001	0.015	1.74	<0.001	0.094	<0.001	<0.001	<0.01	<0.001	0.784	<0.001	<0.01	0.001	<0.01	<0.001	0.212	<0.005
Tailings	10/11/20	<0.001	<0.001	0.001	<0.05	<0.0001		0.016	0.005	<0.001	<0.001	<0.001	<0.01	<0.001	0.789	<0.001	<0.01	<0.001	<0.01	<0.001	0.008	<0.005
Tailings	12/11/20	0.03	0.012	0.245	65.9	<0.0001	0.02	1.68	<0.001	0.062	0.007	<0.001	<0.01	<0.001	0.988	0.001	<0.01	0.001	<0.01	<0.001	0.269	<0.005

NAG leachate solution. Analysis by ICP-MS; Tailings samples collected from the CHPP. Refer to report body for further explanation of data.

Table C9. Summary Oxygen Consumption (OxCon) Results from Tailings

Sample Type	Collection Date	Avg. Ox Consump. Rate	Max. acidity generation Rate	Pyrite oxydation rate	Longevity of sulfide oxidation	Lag time till ANC is exhausted	Peak net acidity generation rate	Acid drainage (AD) risk	Neutral & metalliferous drainage (NMD) risk	Saline drainage (SD) risk
		mmol/O2/kg/day	kg H2SO4/t/year	wt.% pyrite/year	year	year	kg H2SO4/t/year			
Tailings	31/08/20	0.48	9.3	55	10	4	1.2	Moderate	n/a	Low
Tailings	3/09/20	0.31	5.9	12	35	9	2.1	Moderate-High	n/a	Low
Tailings	4/09/20	0.6	11	53	10	n/a	<0.1	Unlikely	Unlikely	Low
Tailings	9/09/20	0.51	9.7	80	5	<1	8.3	Moderate	n/a	Unlikely
Tailings	18/10/20	0.43	8.2	0.57	2	n/a	<0.1	none	Unlikely	Unlikely

Sample Type	Collection Date	pH	EC	Total Alk.	Acidity	SO4	Cl	Ca	Mg	Na	K	Ag	Al	As	B	Bi	Cd	Co
			µS/cm	mg CaCO3/L		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Tailings	31/08/20	7.9	896	187	<5	432	12	93	38	28	4	<0.001	<0.01	<0.001	<0.05	<0.001	<0.0001	<0.001
Tailings	3/09/20	7.99	934	165	<5	434	23	70	37	64	7	<0.001	<0.01	<0.001	0.06	<0.001	<0.0001	<0.001
Tailings	4/09/20	8.04	823	198	<5	204	72	22	15	104	6	<0.001	<0.01	<0.001	<0.05	<0.001	<0.0001	<0.001
Tailings	9/09/20	8.24	485	341	<5	63	23	7	4	78	4	<0.001	<0.01	<0.001	<0.05	<0.001	<0.0001	<0.001
Tailings	18/10/20	8.72	495	3470	<5	1570	5210	<10	<10	94	12	<0.001	0.03	<0.001	<0.05	<0.001	<0.0001	<0.001

Sample Type	Collection Date	Cr	Cu	Fe	Hg	Mn	Mo	Ni	P	Pb	Sb	Se	Sn	Te	Tl	U	V	Zn
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Tailings	31/08/20	<0.001	<0.001	<0.05	<0.0001	0.098	0.001	<0.001	<0.01	<0.001	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001	<0.01	<0.005
Tailings	3/09/20	<0.001	<0.001	<0.05	<0.0001	0.072	0.005	0.001	0.03	<0.001	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001	<0.01	<0.005
Tailings	4/09/20	<0.001	<0.001	<0.05	<0.0001	0.018	0.017	<0.001	<0.01	<0.001	<0.001	0.01	<0.001	<0.005	<0.001	<0.001	<0.01	<0.005
Tailings	9/09/20	<0.001	<0.001	<0.05	<0.0001	0.004	0.005	<0.001	<0.01	<0.001	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001	<0.01	<0.005
Tailings	18/10/20	<0.001	0.001	<0.05	<0.0001	<0.001	0.011	0.001	<0.01	<0.001	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001	<0.01	<0.005

OxCon summary results and post-OxCon deionised water leach solution results. Leach analysis by ICP-MS; Tailings samples collected from the CHPP. Refer to report body for further explanation of data.

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