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Geochemistry Assessment
Static Testing Report
Inventus Mining Corporation
Pardo Gold Project

FINAL REPORT

May 4, 2018

DST File No.: TS-NO-030045

Prepared for:

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1 *INTRODUCTION*

DST Consulting Engineers Inc. (DST) was retained by Inventus Mining Corporation (Inventus; also referred to as 'the Client') to conduct environmental baseline studies at the Pardo Gold Project, located approximately 65 km northeast of Sudbury and 25 km north-northwest of River Valley, Ontario. The Project location is shown in Figure 1 provided in Appendix A.

Inventus is currently exploring the Pardo Gold Project and is proposing to proceed to advanced exploration with the extraction of a bulk sample from a paleo-placer gold deposit hosted in conglomerate rocks of the Huronian Supergroup. An area that includes four proposed bulk sample sites has been identified as the project area for the advanced exploration project. The locations of the proposed bulk sample sites are shown in Figure 2 (Appendix A).

In anticipation of the advanced exploration project, environmental baseline studies have been completed by DST to describe the current environmental conditions at the proposed Project and surrounding area. The environmental baseline studies completed in 2017 include the following components, provided as separate reports:

1) Geochemistry for acid rock drainage and metal leaching prediction

2) Physical Environment Baseline Study
    - Hydrogeology
    - Hydrology
    - Climate

3) Aquatic Environment Baseline Study
    - Surface Water Quality
    - Sediment Quality
    - Benthic Invertebrate Community
    - Fish Habitat and Community

4) Terrestrial Environment Baseline Study
    - Vegetation and Soils
    - Species at Risk
    - Wildlife (including mammals, avifauna, bats and herpetofauna).

This report has been prepared to provide preliminary geochemical characterization of the materials expected to be encountered during advanced exploration development at the Pardo Gold Project. Specifically, this report provides the results and interpretation of preliminary static geochemical testing carried out on rock samples from the proposed bulk sample areas.

1.1 Background

The Pardo Gold Project is located within the Pardo and Clement Townships, centered at Universal Transverse Mercator (UTM) 556100 mE, 5183200 mN (North American Datum NAD83 Zone 17 North). The Project is accessed from the all-weather gravel Highway 805, which crosses through the western portion of the Project area. A network of logging roads east of Highway 805 provides additional access to the Project area.

Inventus proposes to commence an advanced exploration phase at the Pardo Project for the purpose of extracting a bulk sample from a paleo-placer gold deposit hosted in conglomerate rocks. The advanced exploration plan is understood to include drilling, blasting and excavation of approximately 50,000 tonnes of ore from the four targeted areas. It is estimated that an additional 40,000 to 50,000 tonnes of waste rock will be generated.

1.2 Scope of Work

Geochemical characterization is completed to assess the geochemical properties and the acid rock drainage and metal leaching (ARD/ML) potential of mine rock at a proposed project. The term 'mine rock' includes ore stockpiles, tailings, waste rock, waste rock for construction material and pit walls. An ARD/ML assessment is typically carried out in phases, with each phase resolving uncertainties identified by previous phases. The results of the geochemical study will be used to predict downstream effects on water quality for impact assessment and to inform design requirements for the project with respect to mitigation of identified ARD/ML issues.

The overall objective of the geochemistry baseline study is to obtain the data to support the future submission of a Closure Plan for advanced exploration, to fulfil the requirements of *Ontario Regulation 240/00: Mine Development and Closure Under Part VII of the Act* under the *Mining Act, R.S.O. 1990, c. M.14* (O. Reg. 240/00; refer to Section 3.1 for details).

The current assessment described in this report comprises the first phase of an ML-ARD assessment, based on one-time laboratory tests collectively called "static tests". The scope of work for the current assessment consisted of compiling the results of the static testing, performing graphical and statistical interpretation of the samples selected from each rock unit to be mined during the advanced exploration, and providing conclusions with respect to the potential for acid generation and metal leaching from mine rock associated with the Pardo Gold Project advanced exploration phase and recommendations for additional work, as required.

2 *SITE SETTING*

2.1 Physiography

The Pardo Gold Project is situated on the Precambrian Shield at an elevation of approximately 300 to 330 metres above sea level. The topography is generally rugged with modest topographic relief. The Site is in the Temagami Ecoregion (Ecoregion 4E), within the Great Lakes-St. Lawrence Forest Region. The vegetation in the area of the project reflects a history of forestry operations, and the recent exploration activities on the property. The area is undeveloped, with forested areas comprised of mostly white pine (*Pinus strobus*), white birch (*Betula papyrifera*) and red maple (*Acer rubrum*). The groundcover includes a variety of shrub species, dominated by bracken fern (*Pteridium aquilinum var. latiusculum*), balsam fir (*Abies balsamea*), mountain maple (*Acer spicatum*).

The landforms in the project area are characterized by bedrock knobs with an estimated 15% outcrop exposure. Soils are thin, generally less than 35 cm in thickness, overlying coarse fragmented regolith and bedrock. Overburden material also includes pockets of discontinuous drift with thicknesses of approximately one metre.

2.2 Regional Geology

The Pardo Gold Project area is located in the Southern Province of the Canadian Shield. In the project area, the Southern Province is characterized by metasediments of the Paleoproterozoic Huronian Supergroup that unconformably overlie Archean metavolcanic and metasedimentary basement rocks containing granitic and mafic intrusions (Bennett et al., 1991).

The Huronian Supergroup was deposited between 2,150 to 2,400 m.y. ago (Van Schmus, 1976) and in the Pardo Gold Project area is subdivided into three groups, from oldest to youngest: Elliot Lake Group (e.g. Matinenda and McKim Formations); Hough Lake Group (e.g. Ramsey Lake, Pecors and Mississaugi Formations); and, the Cobalt Group (e.g. Gowganda Formation).

Gabbroic to diabase rocks of the Nipissing intrusion bound the Pardo Gold Project area in the northwest and west portion of the property in Clement, Macbeth and Pardo townships as illustrated in Figure 2.1.

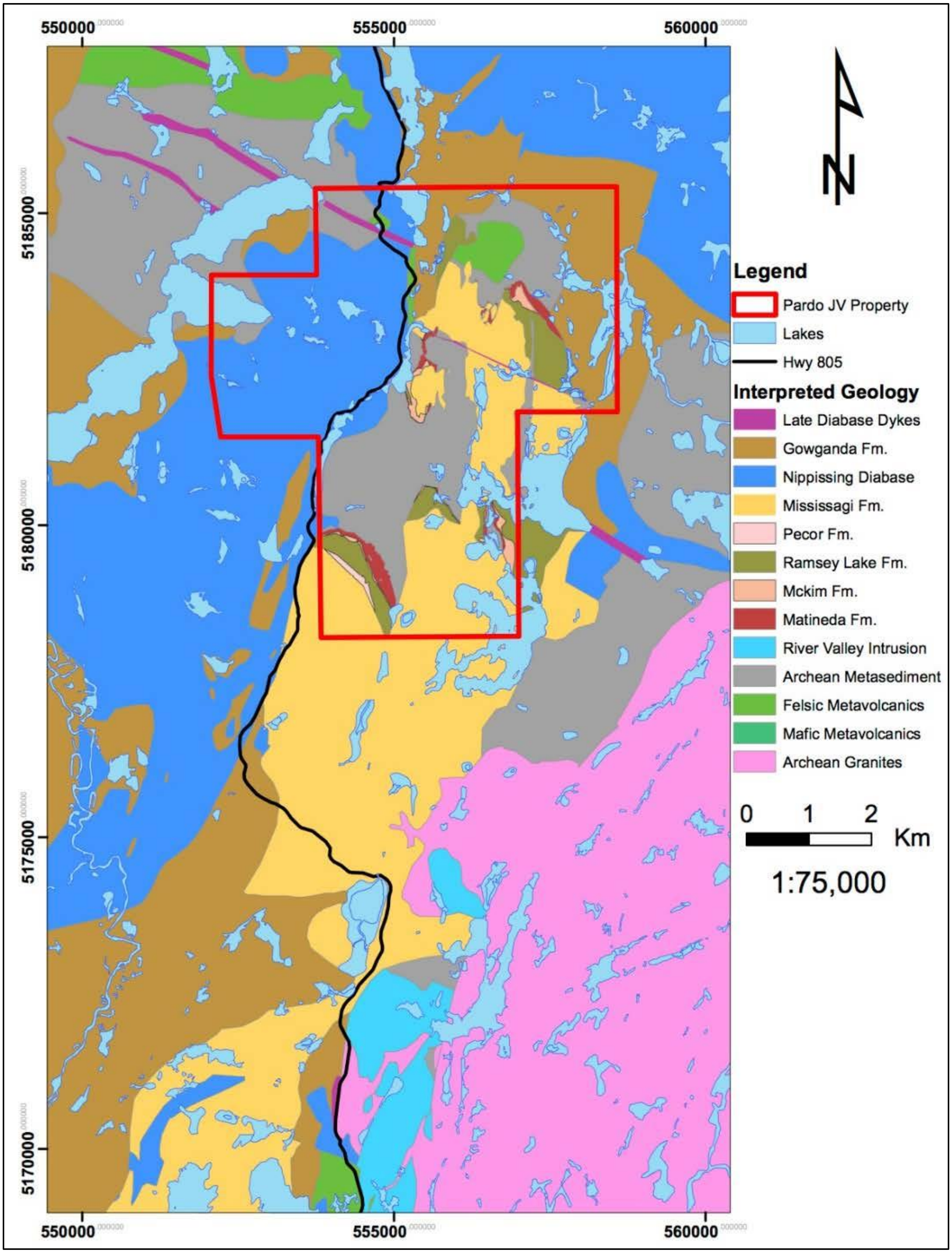

Figure 2.1. Regional Geology of the Pardo Gold Project Area (from McKracken, 2015)

2.3 Deposit Geology and Mineralization

Specific rock units encountered within the stratigraphic sequence at the proposed advanced exploration project area include:

- The Upper and Lower Mississagi (Mi) Formation, characterized as fluvial deltaic clastic deposits composed of quartz arenite, lithic arenite and various conglomerates;
- The Matinenda (Ma) Formation, consists of poor to well-sorted olgomictic to monomictic clast to matrix supported quartz pebble conglomerates with interbedded quartz arenite. The conglomerates within this formation usually contain >15% quartz pebbles and 2 - 5% pyrite.
- Archean (Ar) metasediments, comprised of massive fine-grained greywacke sandstone with minor pyrrhotite, pyrite and chalcopyrite veinlets along fractures, and usually displays boudinage quartz veining.

The gold mineralization on the Pardo property consists of basal pyrite-quartz-pebble-conglomerate within the pyrite-bearing polymictic boulder/ cobble conglomerates of the Mississagi and Matinenda Formations. Gold is visible as <2 mm grains and flakes, with an average size of 10 µm, particularly within the matrix of the Mississagi Boulder Conglomerate, which is the targeted ore body at the Pardo Gold Project.

The Mississagi Boulder Conglomerate is described by Inventus (W. Whymark, pers. comm., 2017) as located at the base of the Mississagi Formation within the Mississagi Basal Conglomerate Member, a 1 to 15-metre-thick conglomerate package that can contains lenses of matrix supported conglomerate and sandstone.

The Mississagi Boulder Conglomerate is a clast supported, poorly sorted, polymictic conglomerate with rounded to sub-rounded clasts ranging from pebbles to boulders of felsic volcanics, metasediments, mafic volcanic, quartz, banded iron formation, and porphyry. The average packing percentage of the conglomerate is 76%. The matrix on average is composed of quartz (60%), chlorite (30%), sericite (9%), and pyrite (1%). Minor accessory minerals include biotite, zircon, monazite, uraninite, thorite, chromite, rutile and calcite. Minor accessory sulphide minerals, which are usually present as inclusions within the pyrites include chalcopyrite, pyrrhotite, galena, pentlandite, and sphalerite. The gold mineralization occurs free in the matrix with chlorite and sericite, rimming pyrite or as inclusions within the pyrite.

The nature of gold mineralization in this style of mineral deposit is highly variable due to the clustering of gold grains and heterogenous internal dilution from the clasts. It is noted that a recent 1,000 tonne bulk sample has yielded a return of 4.2 g/t gold, demonstrating a 300% increase in grade compared to the weighted average of diamond drill core assay of 1.34 g/t (Inventus, 2018).

Figure 2.2. *Bedrock exposure at the Pardo Gold Project of Matinenda Formation metasediments unconformably overlying Archean greywacke basement rock.*

3 *SAMPLING AND ANALYSIS*

3.1 Regulatory Framework

The Mine Rehabilitation Code of Ontario (Schedule 1 of Ontario Regulation (O. Reg.) 240/00 *Mine Development and Closure* under Part VII of the Mining Act), specifies that geochemical assessments need to conform to the following two documents:

- *Guidelines for Metal Leaching and Acid Rock Drainage at Mine Sites in British Columbia* (British Columbia Ministry of Energy and Mines, 1998); and,
- *Draft Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Mine Sites in British Columbia* (British Columbia Ministry of Energy and Mines, 1997).

The interpretation of the data used in this report was carried out in accordance with the two abovementioned documents. Additional reference is made to the *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials* ('MEND Manual', Price, 2009), which provides updated best practices and methodologies for ARD/ML prediction.

3.2 Sampling Methodology

The approach for preliminary geochemical sampling was to obtain samples representing the range of lithologies present in the proposed bulk sample area.

The selection and laboratory submission of samples for the current assessment was completed by Inventus personnel based on discussion between DST and Inventus geologists. A total of 29 drill core and pulp samples were selected for static testing. The samples included four 'ore' samples and samples from each of the major units that may represent excavation wall and waste rock from the bulk sample areas.

The rock anticipated to be extracted as part of the advanced exploration activities was divided into five simplified rock units: Ore, Upper Mississaugi (Mi, Upper), Lower Mississaugi (Mi, Lower), Matinenda (Ma) and Archean basement (Ar). It is understood that approximately 40,000 to 50,000 tonnes of waste rock may be generated. The number of samples selected for preliminary static testing from each rock unit was selected to exceed the minimum number recommended by Price (1997; refer to Table 3.1).

Table 3.1: Minimum number of samples for preliminary static testing (Table 6-1, Price, 1997)

TABLE 6-1
Minimum Number of Samples for Preliminary Static Testing
(from Price and Errington, 1997)

Tonnage of Unit (metric tonnes)	Minimum Number of Samples
< 10,000	3
< 100,000	8
< 1,000,000	26
<10,000,000	80

Samples were selected to represent spatial distribution of the key rock types. The samples were collected from varying depths to obtain hanging wall, footwall and ore samples from three (007, Eastern Reef and Trench 1) of the four proposed bulk sample areas, and from an additional area (labelled as 'HGZ', located west of Trench 1 and Trench 2) that was initially considered for inclusion in the advanced exploration project. The estimated tonnage of ore and waste rock and numbers of samples selected for static testing from each rock unit are presented in Table 3.2.

Table 3.2: Approximate tonnage and number of samples analyzed for each rock unit

Rock Unit	Estimated Tonnes	# Samples
1. Ore	50,000	4
2. Upper Mi	40,000 to 50,000	10
3. Lower Mi		5
4. Ma		5
5. Ar		5

3.3 Analytical Program

A total of twenty-nine samples from the proposed bulk sample area were submitted by Inventus to AGAT Laboratories for analytical testing. The static geochemical testing program included the following analyses:

- modified acid-base accounting (ABA) package;
- metals analysis by 4-acid digestion; and
- oxide summation by whole rock x-ray fluorescence (XRF).

Information pertaining to each submitted sample, including drill hole and lithology data, is provided in Table B.1 in Appendix B. Additional information regarding the analytical methods used are provided in the laboratory certificates of analysis in Appendix C.

4 *STATIC TESTING RESULTS*

Results of the static testing program are discussed below for each analytical test completed. Note that statistical interpretations provided below are related to the numbers of samples rather than the portions (tonnage or volume) of rock for each rock unit investigated. Tabulated results are provided in Tables B.2 to B.4 found in Appendix B, and laboratory Certificates of Analysis are provided in Appendix C.

4.1 Paste pH

Paste pH is used to assess the current balance of the acidity/alkalinity of a sample. De-ionized water is added to the prepared sample to form a paste and pH is measured directly from the paste slurry. Paste pH in all tested rock samples was alkaline, ranging from 8.6 to 9.6. This indicates that the samples are not currently acid generating.

4.2 Sulphur Species

Sulphur in a geologic sample can be represented in several forms and is the primary source of acidity. The primary sources of sulphur at the Pardo Project are in the form of sulphides, predominantly pyrite, with minor amounts of chalcopyrite, pyrrhotite, galena, pentlandite, and sphalerite (W. Whymark, pers. comm., 2017). The presence of leachable sulphates (e.g. gypsum) and non-leachable sulphate (e.g. barite) may also be considered for the balance of sulphur species.

The static testing included the analysis of total sulphur and leachable sulphate sulphur. Sulphide sulphur was then defined mathematically as the difference between total sulphur and sulphate sulphur.

Total sulphur in the 29 samples ranges from 0.02% S to 3.44% S, as shown in Table B.2 in Appendix B, with a median total sulphur content of 0.28% S. The samples with the highest total sulphur includes samples from the Matinenda Formation (ranging from 0.87% to 2.14% S, with a mean of 1.63 % S), as well as one Archean basement rock sample (1.12%) and one ore sample (3.44 %S), which all exhibited somewhat lower paste pH (Figure 4.1). However, the correlation between total sulphur and the limited paste pH range is poor.

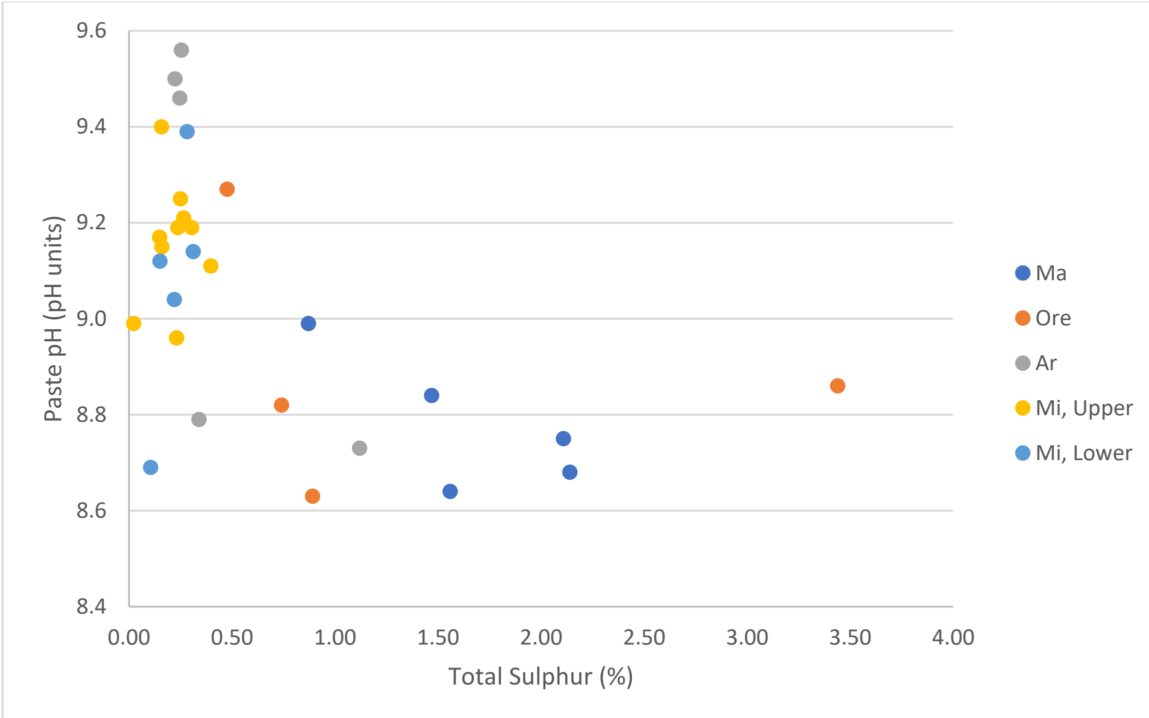

Figure 4.1. Paste pH vs. Total Sulpur for Pardo Project samples, by rock unit.

For all samples, total sulphur is predominantly comprised of potentially acid-generating sulphide (Figure 4.2). This result is supported by the mineralogical observations reported by Inventus personnel (refer to Section 2.3). Statistically, sulphide sulphur represents an average of 95% of total sulphur. Thus, the two parameters are typically interchangeable and are nearly identical for most samples.

Overall sulphide sulphur ranges from <0.02% S to 3.41% S among rock units, with a median of 0.28%. As with total sulphur, the highest sulphide content is represented by samples from the Matinenda formation, in addition to one 'ore' sample and one Archean rock sample.

Sulphate sulphur in all samples is low, ranging from 0.01% S (the analytical detection limit) to 0.03% S among rock units.

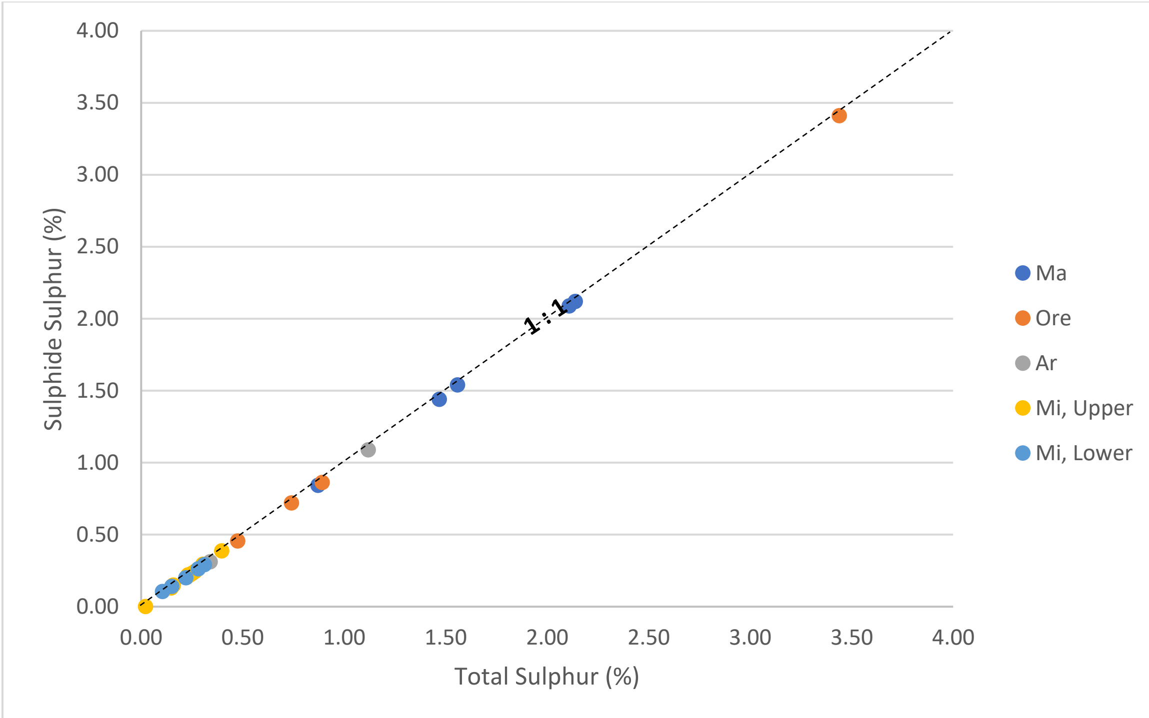

Figure 4.2. Sulphide Sulphur vs. Total Sulpur for Pardo Project samples, by rock unit.

To roughly estimate the potential presence of insoluble sulphate, sulphate in the form of barite was calculated by assuming all barium in the samples (based on metals by 4-acid digestion results, Section 4.6) occurred as barite. It was determined that the sulphur occurring as barium sulphate would be less than 0.02% S and would, therefore, not impact the balance of total sulphur with the soluble sulphate and sulphide sulphur species.

4.3 Acid Generation Potential

Acid generation potential is a measure of a sample's potential to generate future acidity from sulphur minerals and is generally the result of the oxidation of sulphide minerals. Acid generation potential values are calculated as maximum potential acidity (MPA) from the sulphide sulphur content of a rock sample that would be theoretically neutralized by calcite ($CaCO_3$).

Consistent with sulphide sulphur from which it was calculated, the Matinenda rock samples, as well as one 'ore' sample and one Archean rock sample generally exhibited the highest calculated MPA values. The Matinenda samples exhibited MPA values ranging from 26.3 to 66.3 kg $CaCO_3$/tonne with a median of 48.1 kg $CaCO_3$/tonne and a mean of 50.2 kg $CaCO_3$/tonne. The median and mean MPA for all other samples, 7.3 kg $CaCO_3$/tonne and 14.3 kg $CaCO_3$/tonne, respectively, are significantly lower than for the Matienda samples. One ore sample exhibited 106.6 kg $CaCO_3$/tonne MPA compared to the median of 7.0 kg $CaCO_3$/tonne for the rock unit, suggestive of the heterogeneity of the rock units.

4.4 Neutralization Potential

Neutralization potential (NP) measures the capacity of a sample to neutralize an acid. Two methods were used to assess neutralizing capacities, both expressed in units of kg $CaCO_3$/tonne. The first method measures the bulk NP as the ability of the sample to neutralize a known volume of acid, hereafter referred to as NP. The neutralization potential from carbonate minerals was also calculated based on a laboratory calculation of total inorganic carbon, reported by the laboratory as '$CaCO_3$ Equivalents', hereafter referred to as Carb NP.

NP values ranged from 6.6 to 15.9 kg $CaCO_3$/tonne, with a median of 11.5 kg $CaCO_3$/tonne. Calculated Carb NP values ranged from less than 1.67 to 10.0 kg $CaCO_3$/tonne, with a median of 3.33 kg $CaCO_3$/tonne. Carb NP was less than NP for all rock types analyzed, as indicated on Figure 4.4. Bulk NP values are typically higher than Carb NP by 5 to 20 kg $CaCO_3$/tonne (Price and Kwong, 1997). To estimate the proportion of bulk NP that consists of fast-neutralizing carbonate minerals, NP was compared to Carb NP as presented in Figure 4.3. The relationship between bulk NP and Carb NP was poor, in part due to the relatively low and non-detect, concentrations of carbonate, suggesting that that less-reactive non-carbonate alkaline minerals (e.g. aluminum silicates) contribute mainly to the NP, with only a small portion of rapidly available NP from carbonate minerals. Subsequent kinetic testing and mineralogical analysis of the rock types would provide further insight into the mineral types and reactivity of the suspected non-carbonate NP. For the current assessment, to account for the uncertainty of the reactivity of the non-carbonate NP, neutralization potential ratios (Section 4.5) have been calculated using both Carb NP and NP for comparative purposes.

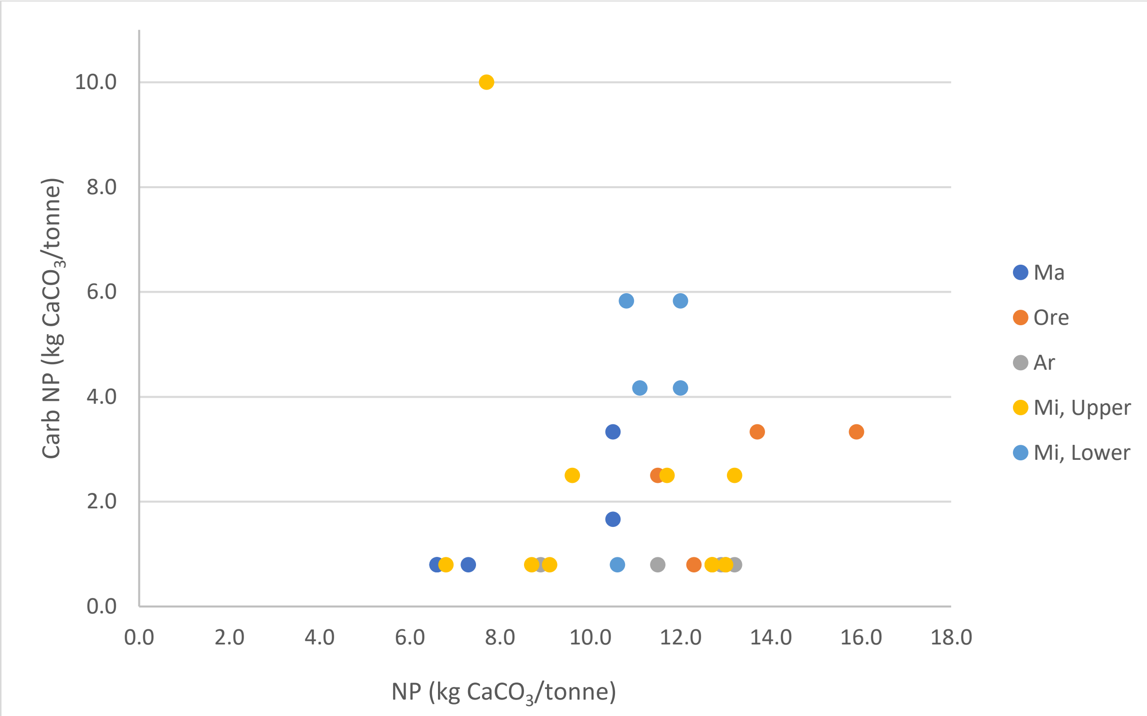

Figure 4.3. Carb NP vs. bulk NP for Pardo Project samples, by rock unit.

4.5 Neutralization Potential Ratios

The net balances of acid generation potential and neutralization potentials provide for an estimate of a sample's likelihood to be net acid generating or net neutralizing. Net balances calculated using both division (Neutralization Potential Ratio, NPR) and subtraction (Net Neutralization Potential, NNP) are provided in Table B.2 in Appendix B; however, NPR is discussed here in comparison with established generic criteria. As discussed in the previous section, Carb NPR results have been evaluated in addition to the bulk NPR values for comparative purposes, with the Carb NPR assumed to represent the most conservative results based on readily available neutralization potential from carbonates. For both NPR and Carb NPR calculations, where input values are less than the detection limit, the detection limited has been used.

Based on the generic NPR criteria suggested when site-specific criteria are not established (Price, 2009):

- a sample with a NPR <1 is potentially acid generating (PAG);
- the maximum NPR capable of generating acid will have an NPR between 1 and 2, and for the purpose of this assessment 1<NPR<2 is considered possibly PAG; and
- an NPR of greater than 2 is indefinitely net neutralizing and considered non-PAG.

The NPR, Carb NPR and the numbers of samples that are classified as PAG, possibly PAG and non-PAG for all twenty-nine samples are summarized in Table 4.1. Classification of the samples is also depicted graphically on Figure 4.4 and Figure 4.5.

Table 4.1. Summary of NPR and Carb NPR results, by rock unit.

Rock Unit	Total # of Samples	Neutralization Potential Ratio (NPR)			Carbonate Neutralization Potential Ratio (Carb NPR)		
		PAG	possibly PAG	non-PAG	PAG	possibly PAG	non-PAG
Ma	5	5	0	0	5	0	0
Ore	4	3	1	0	4	0	0
Mi, Upper	10	1	6	3	9	0	1
Mi, Lower	5	0	3	2	3	2	0
Ar	5	1	3	1	5	0	0

Note:
- PAG indicates NPR <1.
- Possibly PAG indicates 1<NPR<2.
- Non-PAG indicates NPR <2.

The NPR results suggest that 10 (34%) of the 29 samples analyzed are net acid generating, including all five Matinenda samples, three ore samples, one Upper Mississaugi samples and one Archean sample. Thirteen additional samples (45%), including one ore, six Upper Mississaugi, three Lower Mississaugi and three Archean samples, are possibly PAG.

In contrast, the Carb NPR, which is interpreted to exclude low-reactive, non-carbonate neutralizing minerals, suggests a larger proportion of PAG samples. The calculated Carb NPR suggests that 26 (90%) of the 29 rock samples are PAG. An additional two Lower Mississaugi samples (7%) are possibly acid generating, and Upper Mississaugi sample is non-PAG.

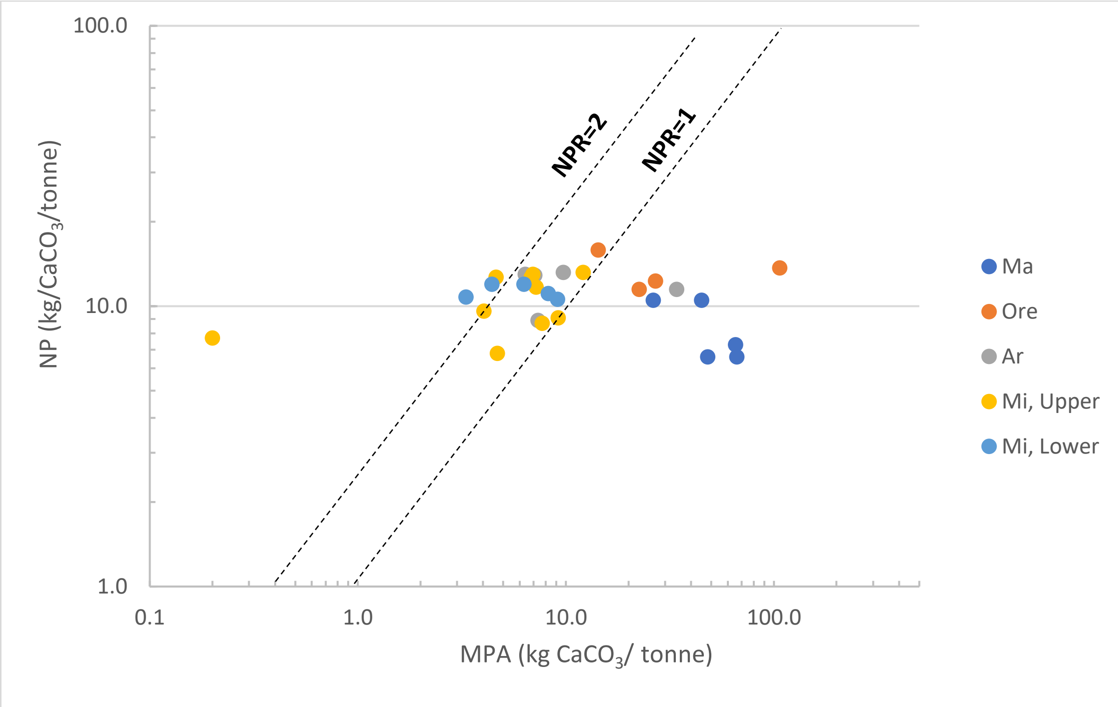

Figure 4.4. Bulk NP vs. MPA for Pardo Project samples, by rock unit.

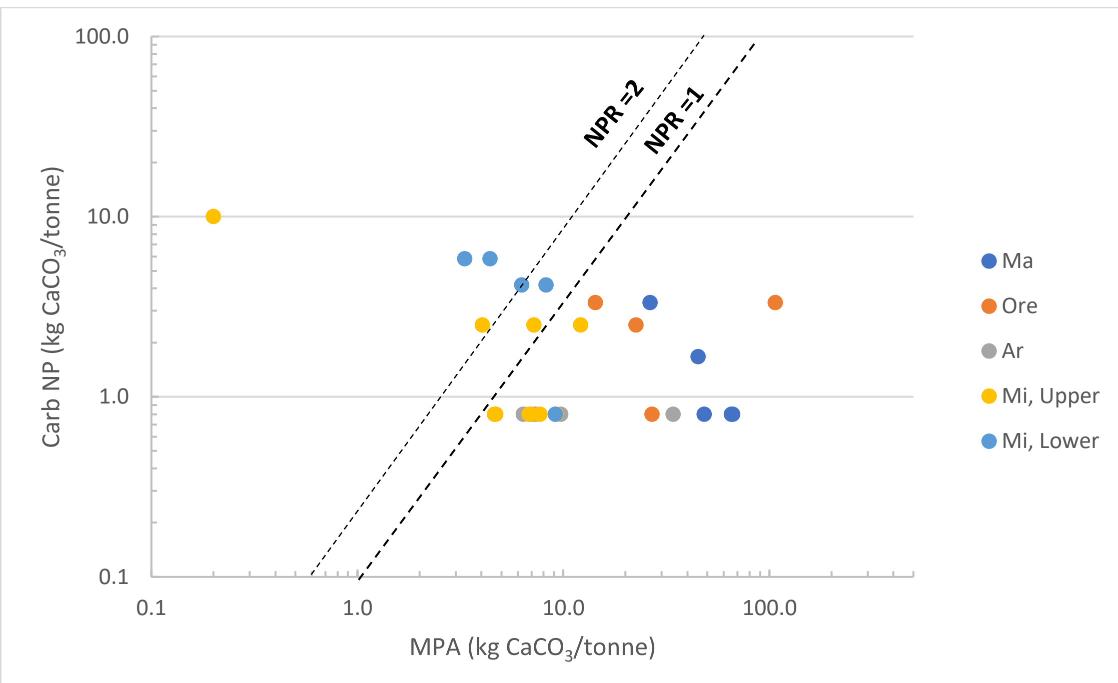

Figure 4.5. Carb NP vs. MPA for Pardo Gold Project samples, by rock unit.

The correlation of NPR with total sulphur is strong and appears to provide a reliable estimate of a sample's likelihood to be net neutralizing or net PAG, as shown in Figure 4.6. In general, samples with total sulphur below approximately 0.2% S appear to be net neutralizing and samples with total sulphur above 0.7% S are expected to be PAG. Samples within the total sulphur range of approximately 0.2% S to 0.7% S are identified as being possibly PAG (1<NPR<2).

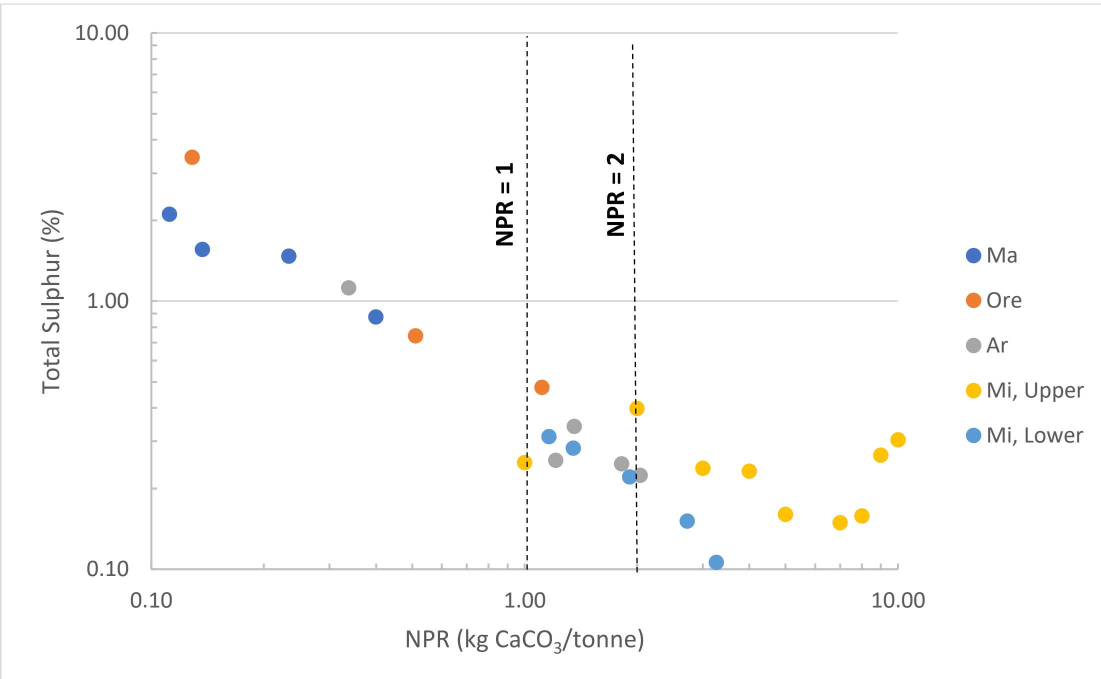

Figure 4.6. Total Sulphur vs. NPR for Pardo Project samples, by rock unit.

Although the general trend of increasing Carb NPR to decreasing sulphur content is present, the correlation of Carb NPR with total sulphur is relatively poor (Figure 4.7). This is interpreted to be a result of the very low proportion of carbonate minerals contributing to the overall NP for each rock sample. Again, future kinetic testing will evaluate the presence and reactivity of the non-carbonate NP components.

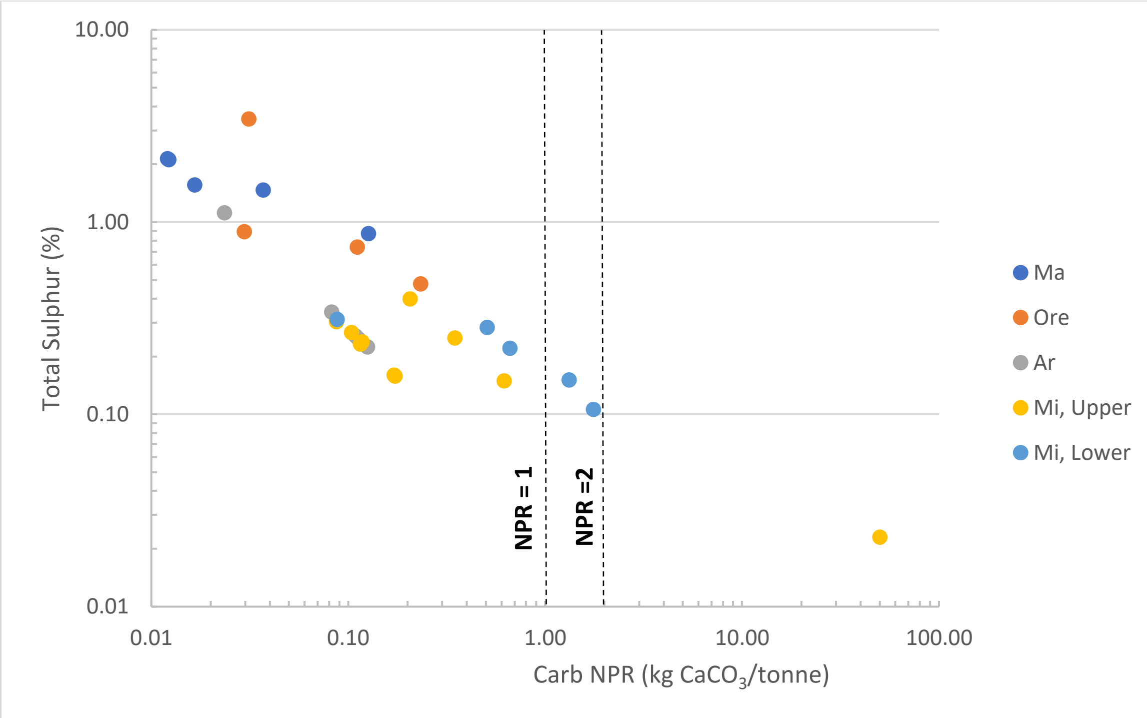

Figure 4.7. Total Sulphur vs. Carb NPR for Pardo Project samples, by rock unit.

4.6 Oxide Summation

The whole-rock summations of oxides were analysed by XRF after lithium tetraborate fusion digestion. This method combines lithium tetraborate flux to a pulverized sample (to lower the melting point of the mixture), which is then fused in a furnace at approximately 1100 ºC. The resulting melt is cooled and elemental analysis is subsequently completed by XRF spectrometry. The oxide concentrations are calculated from the resulting elemental concentration. The sum of a whole rock analysis, including loss on ignition (LOI), will typically approximate 100%. A significant deviation from 100% can indicate the presence of large amounts of sulphides, carbonates, phyllosilicates and/or hydrated minerals. The LOI reflects the loss from the samples of sulphur, carbon and/or water. The results of the summation of oxides analyses completed on the rock samples are summarized in Table B.3 in Appendix B.

Overall, the dominant whole-rock components of the 29 samples are silica and alumina, reflecting the silicate and aluminosilicate minerals that dominate the rock types (Section 2.3). Iron is also relatively abundant, as are potassium, magnesium and LOI substances. Calcium oxide represents only 0.1 % to 1.93 % of the samples, supporting the ABA results that there is low availability of calcite to contribute to NP.

4.7 Metals Content

Total metals of the rock samples were measured by ICP-MS analysis after a four-acid digestion. This method is considered a near-total digestion of most minerals in the sample, with the exception of some resistant silicates (Price, 2009). Metals analysis provides an understanding of the elemental characteristics of the rock. The results of the metals analyses completed on the rock samples are summarized in Table B.4 in Appendix B.

Overall, the dominant metals analysed by this method are consistent with the whole-rock analytical results discussed in the previous section. Sulphur content measured by this method ranges from 0.03 to 3.55% S in the samples, supporting the total sulphur results from the ABA tests.

To identify the metals that occurred at relatively high levels in the rock, each element was compared with average crustal abundances (Turekian and Wedepohl, 1961), as recommended by Price (1997). Any level greater than three times the maximum average value for granitic and basaltic rocks was identified. The results suggest that cadmium, tin and uranium are elevated in most samples; and arsenic is elevated in Matinenda samples only. Elevated solid-phase levels of metals do not necessarily mean they will leach into water at high concentrations. Leachable metals and leaching rates may be characterized through subsequent kinetic testing.

Solid-phase correlations of elements can sometimes reveal mineralogical associations and/or associations with ABA results. Selected metals plotted against total sulphur identify very weak correlations within rock units, for example, iron (Figure 4.8), copper (Figure 4.9) and nickel (Figure 4.10). No apparent correlations were identified between sulphur and the metals with comparatively high levels in most samples: cadmium (Figure 4.11), tin (Figure 4.12) and uranium (Figure 4.13), suggesting that these metals are not necessarily associated with sulphides.

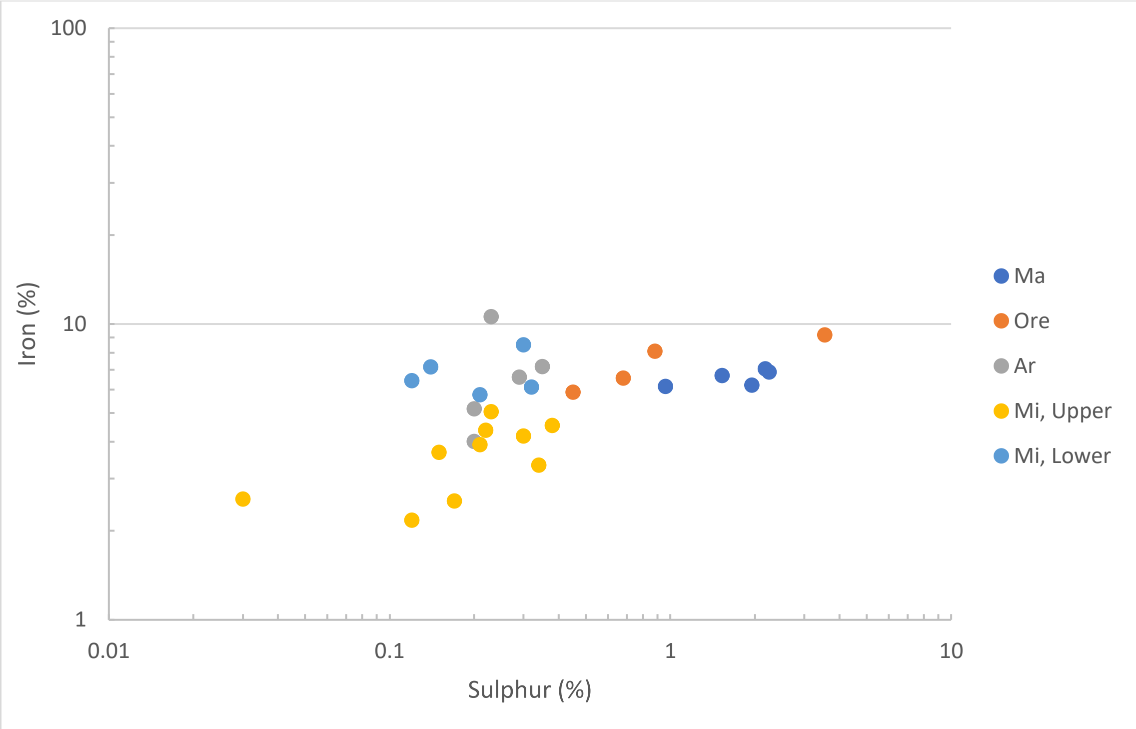

Figure 4.8. Iron vs. Sulphur for Pardo Project samples, by rock unit.

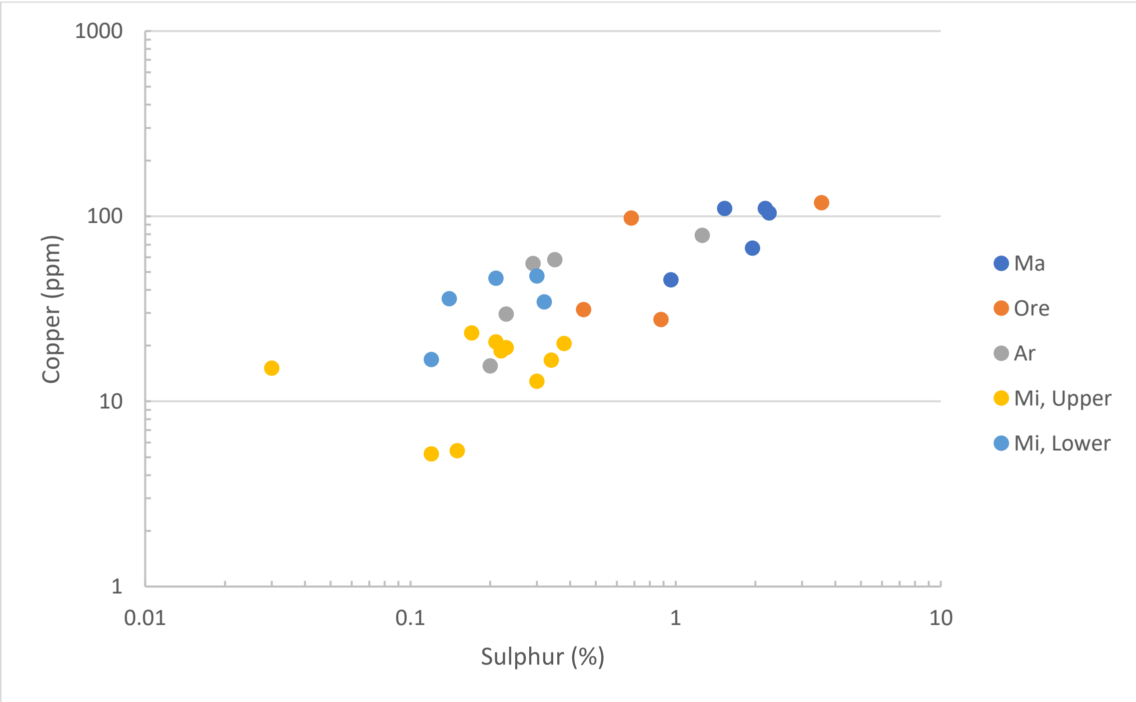

Figure 4.9. Copper vs. Sulphur for Pardo Project Samples, by rock unit.

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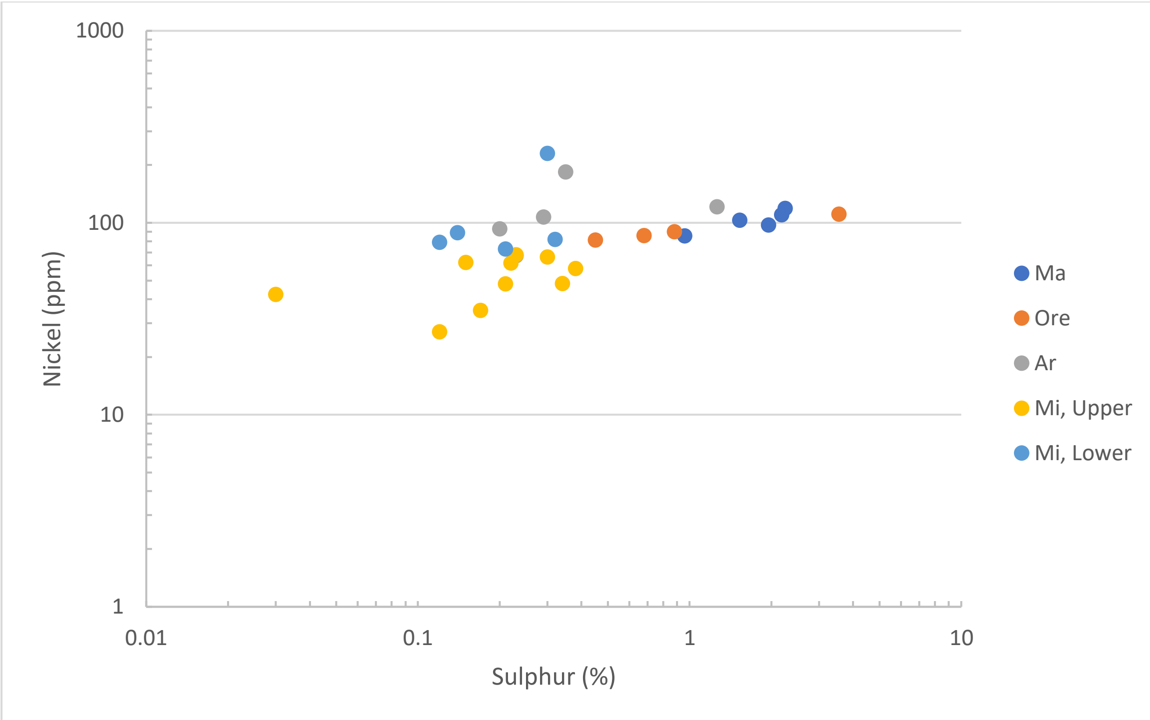

Figure 4.10. Nickel vs. Sulphur for Pardo Project Samples, by rock unit.

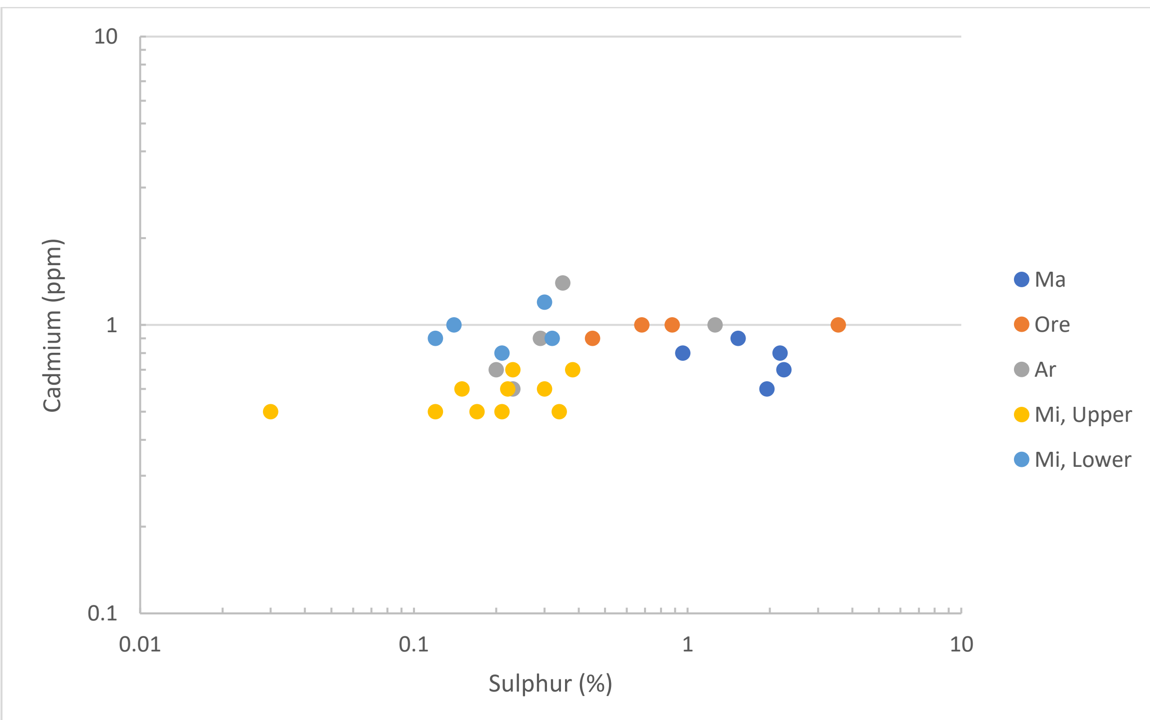

Figure 4.11. Cadmium vs. Sulphur for Pardo Project Samples, by rock unit.

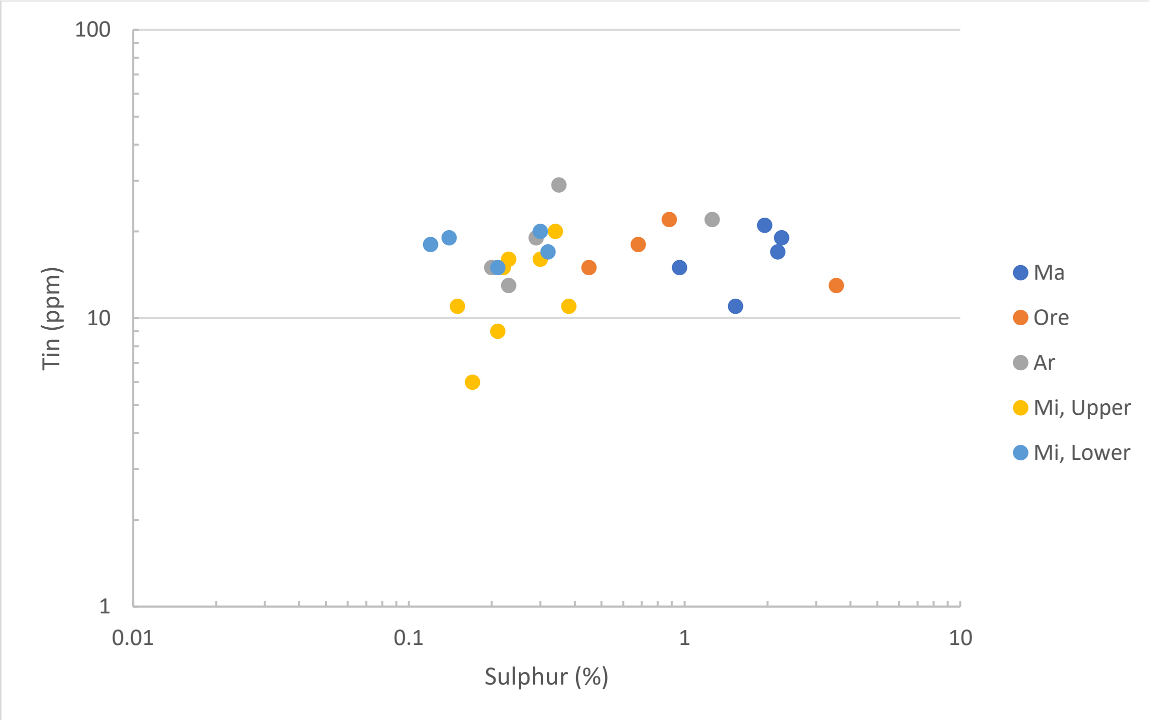

Figure 4.12. Tin vs. Sulphur for Pardo Project Samples, by rock unit.

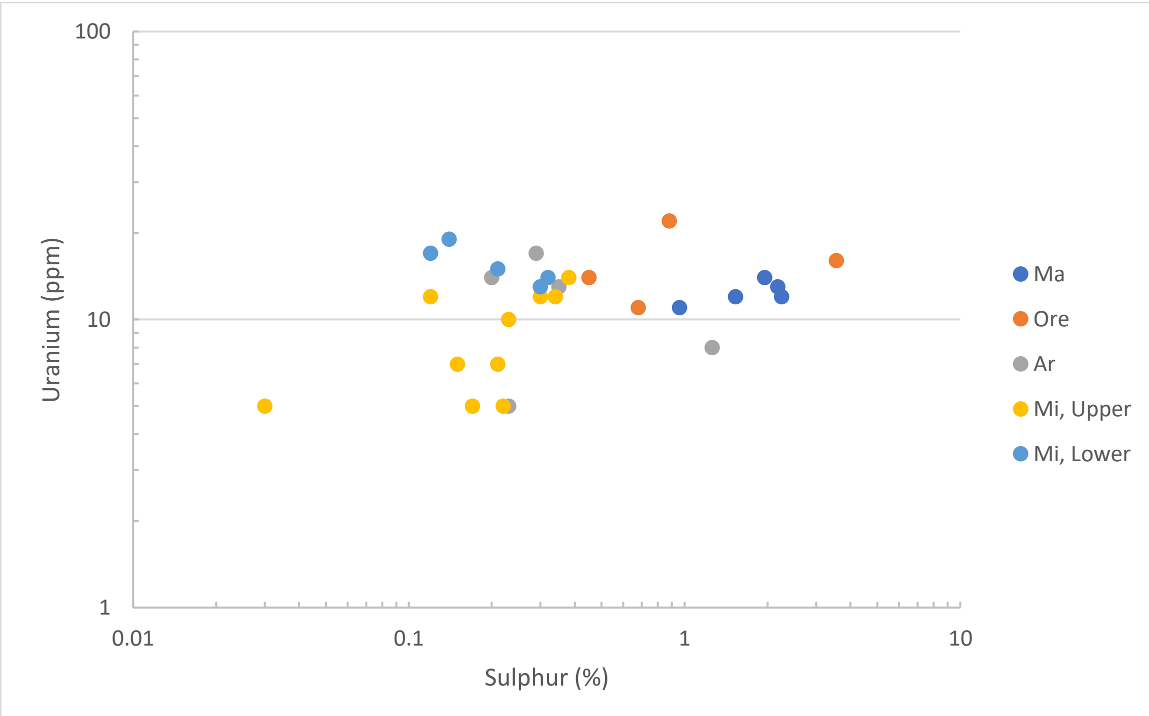

Figure 4.13. Uranium vs. Sulphur for Pardo Project Samples, by rock unit.

Similarly, there were no correlations identified for calcium and magnesium with respect to bulk neutralization potential (Figure 4.14 and Figure 4.15).

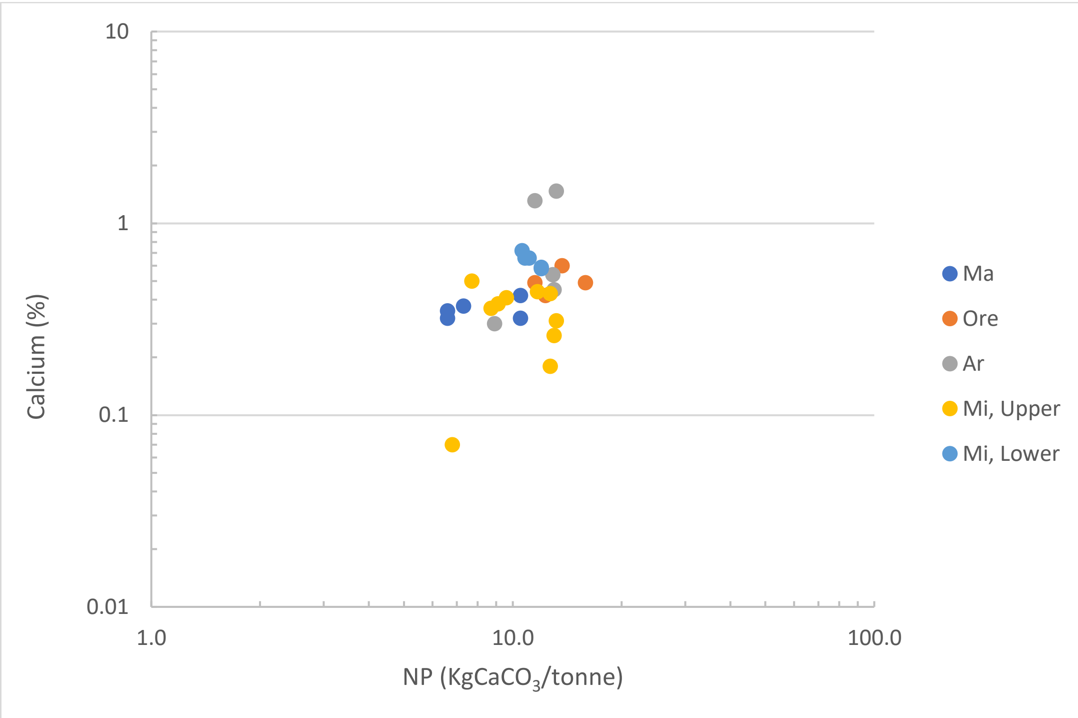

Figure 4.14. Calcium vs. NP for Pardo Project samples, by rock unit.

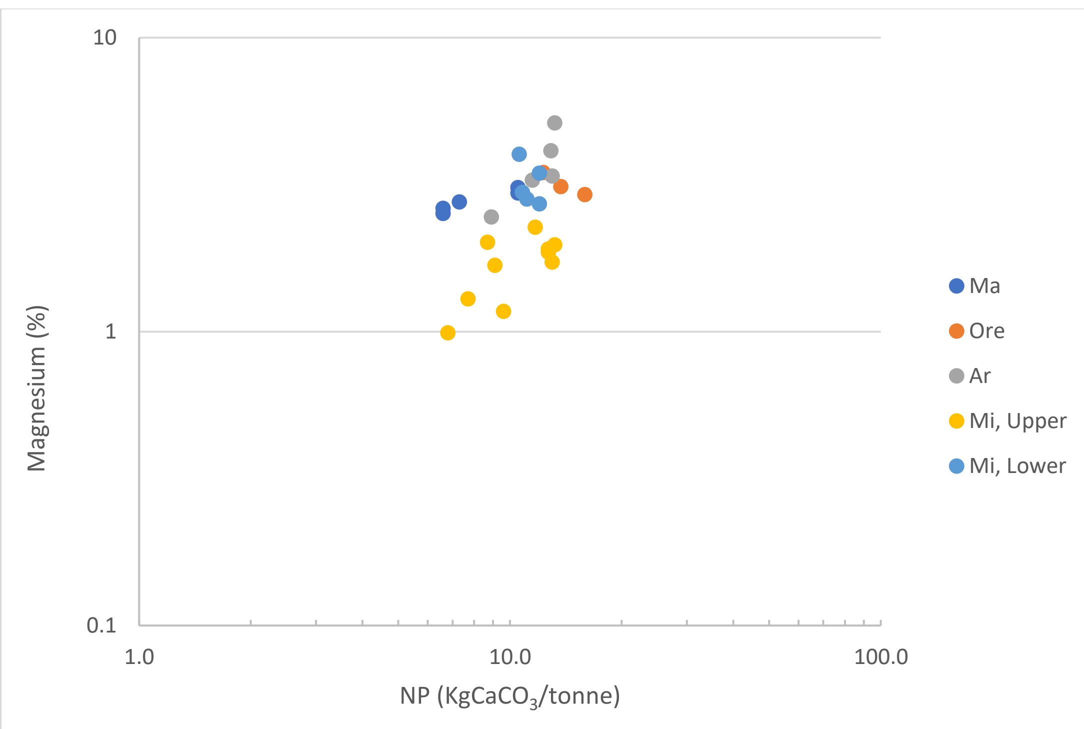

Figure 4.15. Magnesium vs. NP for Pardo Project samples, by rock unit.

4.8 Quality Assurance and Quality Control

All selected rock samples were submitted to AGAT Laboratories in Burnaby, British Columbia by Inventus personnel. A review of the laboratory Quality Control Data identified several issues with the metals and oxide summation analytical data, as summarized in Table 4.2 below.

Table 4.2. **Laboratory Quality Control Data**

Analysis/Sample ID/ Parameters Affected	QA/QC Issue	Interpreted Material Effect on Conclusions of this Report	Justification
XRF by lithium borate fusion/ 8962559/ BaO; P_2O_5	The recovery of the material was 112% (BaO) and 89% (P_2O_5), which is outside the QC limits of 90% to 110%.	None	As this recovery was only 2% (BaO) above and 1% below (P_2O_5) the quality limit and occurred once in the QC analysis, this discrepancy does not materially affect the conclusions of this report.
Metals by 4-acid digestion / 8962559/ Co, Cu, Ni and Rb	The recovery of the material was 114% (Co), 85% (Cu), 85% (Ni) and 122% (Rb), which are outside the QC limits of 90% to 110%.	Unlikely	The concentrations of these metals reported for the 29 samples did not suggest any discrepancies that may materially affect the conclusions of this report. Lab replicate analyses for these metals were within the acceptable limits.
Metals by 4-acid digestion / 8962577/ Be, Ce, Cr, Cu, La, Mn, P, Ti, U, Zn	The recovery of the material was 78% (Be), 88% (Ce), 76% (Cr), 88% (Cu), 89% (La), 88% (Mn), 114% (P), 80% (Ti), 128% (U), and 88% (Zn), which are outside the QC limits of 90% to 110%.	Unlikely	According to the contract laboratory, the discrepancies observed reflect the recovery of the elements during the 4-acid digestion. As the values are low and still within the detection limit, this discrepancy does not materially affect the conclusions of this report.
Metals by 4-acid digestion/8962559-8962587/ As, Sb	Values may be low due to digestion losses.	Possible for As	Arsenic was flagged as elevated in two Matinenda samples; there is potential that arsenic may be elevated in additional samples due to possible low bias of result. Most samples were identified with elevated tin; potential low bias unlikely to change result.

No quality control issues are identified with respect to the ABA tests. Based on the above laboratory comments, the above referenced laboratory QC issues are not expected to have a material effect on the conclusions of this report.

5 *CONCLUSIONS AND RECOMMENDATIONS*

This report addresses preliminary ‘static tests’ carried out for the geochemistry assessment of mine rock for the Pardo Gold Project advanced exploration phase. Static testing makes many assumptions about the types of minerals and the reaction rates of those minerals. These preliminary predictions will therefore require subsequent refinement and confirmation by ‘kinetic tests’.

5.1 Summary of Results

A total of 29 drill core and pulp samples from five rock units, identified as representative of potential waste rock and ore, were selected by Inventus and submitted to AGAT Laboratories for acid-base accounting (ABA), total metals by 4-acid digestion and XRF oxide summation.

Results of the ABA testing are summarized in the following bullet points.

- Paste pH of all samples was alkaline, indicating that no samples were acid-producing at the time of analysis.
- Total sulphur of all samples ranged from 0.02% S to 3.44% S, which was predominantly comprised of sulphide.
- Neutralization Potential (NP) values ranged from 6.6 to 15.9 kg $CaCO_3$/tonne, with a median of 11.5 kg $CaCO_3$/tonne. The relationship between bulk NP and the calculated carbonate NP suggests that less-reactive non-carbonate alkaline minerals (e.g. aluminum silicates) contribute mainly to the NP, with only a small portion of rapidly available NP from carbonate minerals. Kinetic testing and additional mineralogical analysis of the rock types would provide further insight into the mineral types and reactivity of the suspected non-carbonate NP.
- Neutralization Potential Ratios (NPR) were evaluated against generic non-site-specific criteria to identify PAG, possibly PAG and non-PAG rock. Based on the NPR values, ten (34%) of the samples are expected to be PAG, including all samples from the Matinenda Formation. Thirteen (45%) of the 29 rock samples had the potential for acid generation, and six samples were characterized as non-PAG.
- To account for the uncertainty of the reactivity of non-carbonate minerals contributing to NP, neutralization potential ratios were also calculated using Carb NP. The Carb NPR suggested a larger proportion of PAG samples, with 26 (90%) of the 29 rock samples

characterized as PAG. An additional two Lower Mississaugi samples (7%) are possibly acid generating, and Upper Mississaugi sample is non-PAG.

- Based on the limited number of samples included in the preliminary geochemical assessment, the results suggest that the Matinenda Formation is the rock unit with the highest potential to produce ARD of the five units tested, and is the unit with the greatest sulphide mass to produce ARD. The other waste rock and ore units also have the potential to produce ARD; however, the sulphide mass capable of producing acidity appears to be lower – this should be assessed through additional kinetic testing.

Results of the whole rock XRF and total metals analyses include the following:

- The dominant whole-rock components are silica and alumina, reflecting the silicate and aluminosilicate minerals that dominate the rock types. Iron is also relatively abundant, as are potassium, magnesium and LOI parameters. Calcium oxide represents only 0.1 % to 1.93 % of the samples, supporting the ABA results that there is low availability of calcite to contribute to NP.
- Compared to three times published values for average crustal abundances of metals, the results of the total metals analysis by 4-acid digestion identify cadmium, tin and uranium as elevated in most samples; and arsenic as elevated in Matinenda samples only.
- Sulphur content exhibits very weak correlations with iron, copper and nickel. No apparent correlations were identified between sulphur and cadmium, tin and uranium.

5.2 Conclusions

The results of the acid-base accounting, whole-rock and metals analyses completed as part of this assessment indicate that it is likely for acid rock drainage to occur from waste rock and ore produced during the advanced exploration at the Pardo Gold Project. Based on the limited number of samples and lithologies included in this preliminary geochemical assessment, the results suggest that the Matinenda Formation has the highest potential to produce ARD, both in terms of acid generating potential and having relatively high sulphide mass to produce acidity.

For all rock units, the geochemistry is characterized by sulphur content ranging from 0.02% to 3.44% S, with almost all sulphur occurring as sulphides, and relatively low carbonate availability, ranging from non-detect to the equivalent of 10.0 kg per tonne of $CaCO_3$. Compared to the laboratory-measured neutralization potential ratios, the significantly lower NPRs calculated by DST using the carbonate levels obtained from the carbon analyses, and supported by the low calcium content identified in the metals and whole-rock analyses, suggest that most of the neutralization capacity of the rocks are due to low-reactive alkaline silicate minerals rather than fast-reacting carbonate. Subsequent kinetic testing could help to determine whether the measured neutralization potential is available and sufficiently reactive to neutralize the initial acidity produced by sulphide oxidation.

5.3 Recommendations

Based on the preliminary static testing carried out on rock samples from the proposed bulk sample pit areas for the Pardo Gold Project advanced exploration phase, the following recommendations are provided to further evaluate and refine the predictions for ML/ARD.

- The static testing included assumptions on mineralogy, reactivity of minerals, and leaching rates. Although the report provides conclusions regarding materials that are PAG and non-PAG, not all samples identified as potentially acid generating may actually produce acid. Mine rock may also leach high concentrations of metals at near-neutral as well as acidic pH conditions. Therefore, long-term kinetic tests are recommended to refine the potential for the Pardo Gold Project rock to produce ARD and leach metals. Kinetic testing would support predictions about whether rock identified in this assessment as possibly PAG would actually be PAG or non-PAG, the time until onset of acid generation and the duration of acid generation for each rock unit, and the types and concentrations of metals leached at near-neutral as well as acidic pH conditions throughout the weathering process.
- If sulphur content has been analysed as part of the Pardo Project's assay database, this data could support the prediction of acid rock drainage (ARD) for a larger sample set. This may provide a useful tool to develop estimates of PAG and non-PAG rock volumes and their 3-dimensional distribution.

6 *LIMITATIONS OF REPORT*

The information, conclusions and recommendations given herein are specific to this project and this Client only; and for the scope of work described herein. This report may not be relied upon, in whole or in part, by other parties for any purposes whatsoever. Any use which a third party makes of this report, or any part thereof, or any reliance on or decisions made based on it, are the responsibility of such third parties. DST does not accept responsibility for damages, if any, suffered by any third party due to decisions or actions made based on this report.

The data, conclusions and recommendations which are presented in this report, and the quality thereof, are based on a scope of work authorized by the Client. This report cannot warranty that all conditions on, or off, the Site are represented by those identified at specific locations. For example, conditions between sampling locations may differ from those encountered in the investigation and observed or measured conditions may change with time.

Any recommendations and conclusions provided, that are based on conditions or assumptions reported herein, will inherently include any uncertainty associated with those conditions or assumptions. Many aspects involving professional judgment such as subsurface models and remediation criteria contain a degree of uncertainty. This uncertainty should be managed by periodic review and refinement as additional information becomes available.

Note also that standards, guidelines and practices related to environmental investigations may change with time. Those which were applied at the time of this investigation may be obsolete or unacceptable at a later date.

Any topographic benchmarks and elevations or coordinates documented in this report are primarily used to establish relative elevation differences between test locations and should not be used for other purposes such as grading, excavation, planning, development, etc.

Any comments given in this report on potential remediation problems and possible methods are intended only for the guidance of the designer. The scope of work may not be sufficient to determine all of the factors that may affect construction or clean-up methods and costs.

Any results from laboratory or other subcontractors reported herein have been carried out by others, and DST Consulting Engineers Inc. cannot warrant their accuracy. Similarly, DST cannot warrant the accuracy of information supplied by the Client or others.

7 *CLOSURE*

We trust this report meets your present requirements and appreciate this opportunity to provide environmental consulting services to you. If you have any questions or comments, please contact the undersigned.

For **DST CONSULTING ENGINEERS INC.**

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Laura Ritchie, P.Geo.
Geoscientist / Project Manager

Curtis Schmidt, P.Eng.
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Appendix A

Figures

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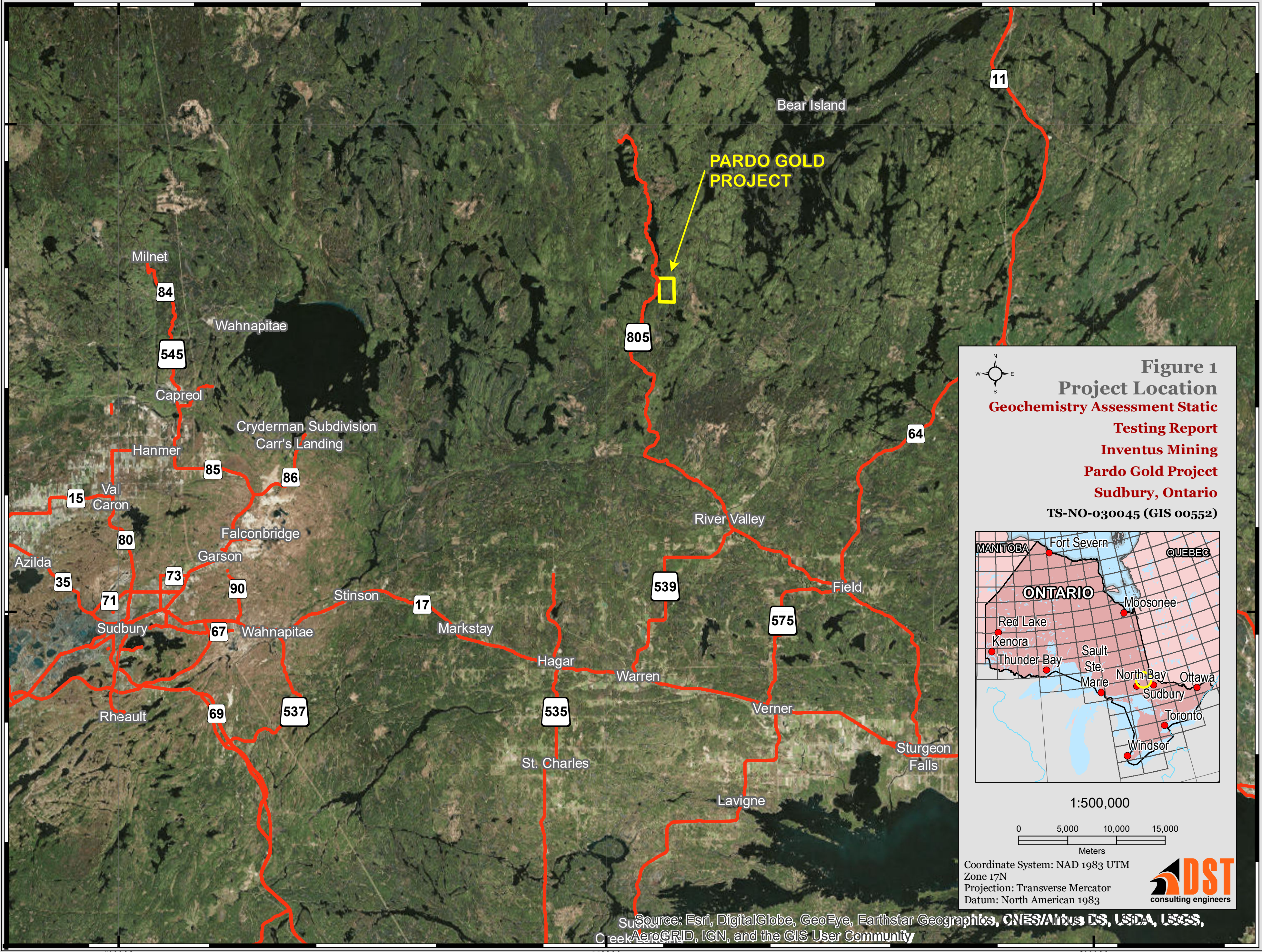

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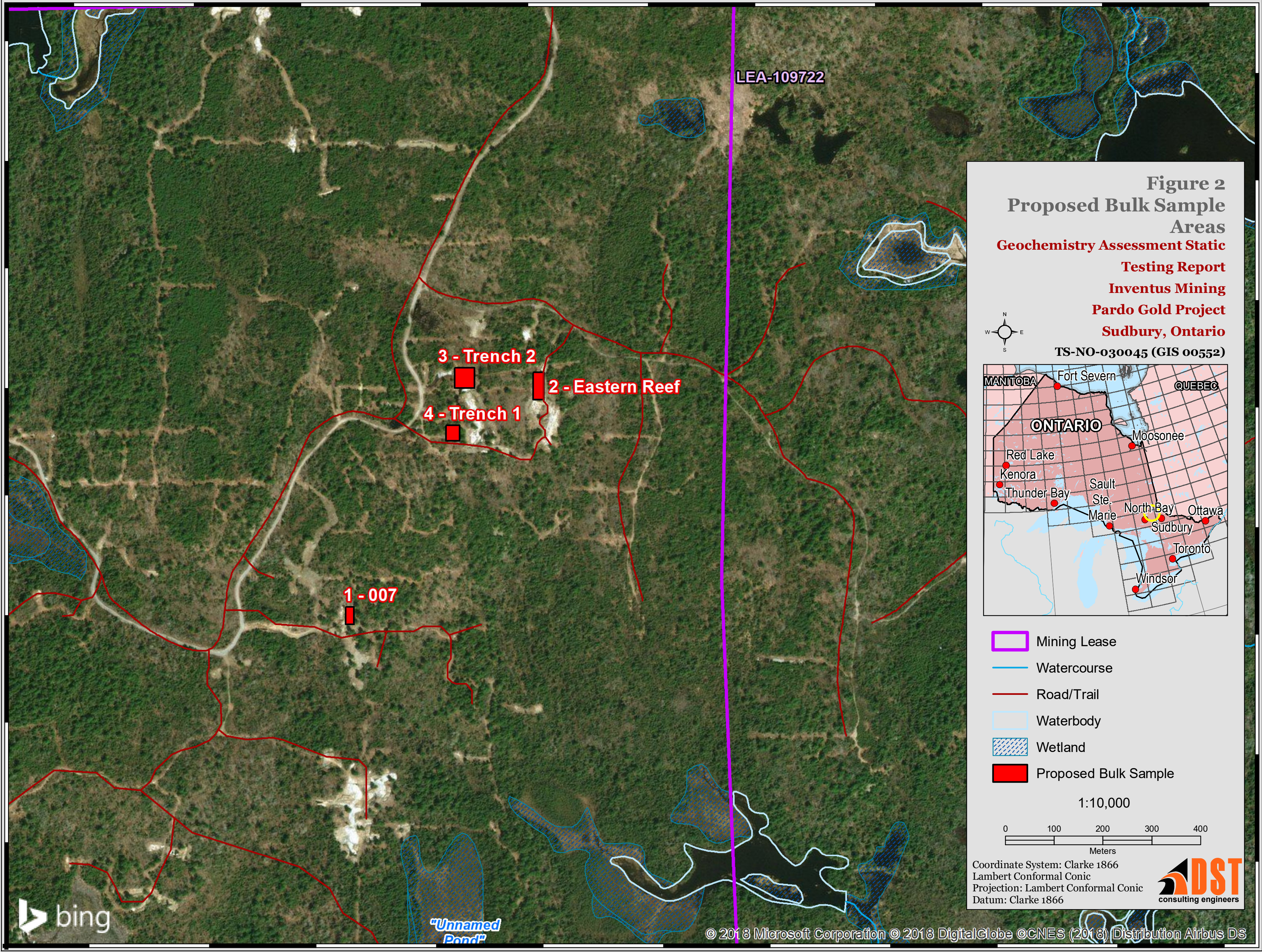

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Appendix B

Static Test Results Tables

Table B.1
Sample Information

Sample ID	Drill Hole ID	Area	Type	Location		Depth From (m)	Depth To (m)	Interval (m)	Rock Type	Description	Estimated Pyrite
				Easting (m)	Northing (m)						
168138	TR1-17-7	Trench 1	Footwall	556397	5183364	4.67	5.20	0.53	Ma	Conglomerate	1%
168146	TR1-17-8	Trench 1	Footwall	556397	5183369	3.52	4.30	0.78	Ma	Conglomerate	1%
168157	TR1-17-9	Trench 1	Footwall	556402	5183354	5.30	6.00	0.70	Ma	Conglomerate	1%
168164	TR1-17-10	Trench 1	Footwall	556402	5183359	4.90	5.60	0.70	Ma	Conglomerate	1%
168173	TR1-17-11	Trench 1	Footwall	556402	5183364	3.80	4.55	0.75	Ma	Conglomerate	1%
168193	Surface	Trench 1	Ore	556405	5183355	Surface	Surface	NA	Ore	Conglomerate	2%
168195	PD-17-09	Trench 1	Hanging Wall	556402	5183354	0.00	0.30	0.30	Mi, Upper	Conglomerate	trace
168199	PD-17-08	Trench 1	Hanging Wall	556397	5183369	0.00	0.30	0.30	Mi, Upper	Conglomerate	trace
168200	PD-17-10	Trench 1	Hanging Wall	556402	5183359	0.00	0.40	0.40	Mi, Upper	Conglomerate	trace
168201	PD-17-11	Trench 1	Hanging Wall	556402	5183364	0.00	0.30	0.30	Mi, Upper	Conglomerate	trace
168194	PD-17-11	Trench 1	Footwall	556402	5183364	6.80	7.15	0.35	Ar	Wacke	nil
168046	PD-17-59	HGZ	Ore	556164	5183335	10.30	10.85	0.55	Ore	Conglomerate	1%
168204	PD-17-58	HGZ	Hanging Wall	556174	5183346	9.45	9.75	0.30	Mi, Upper	Sandstone	trace
168207	PD-17-59	HGZ	Hanging Wall	556164	5183335	5.25	5.50	0.25	Mi, Upper	Sandstone	trace
168208	PD-17-60	HGZ	Hanging Wall	556148	5183346	6.65	6.85	0.20	Mi, Upper	Sandstone	trace
168203	PD-17-58	HGZ	Hanging Wall	556174	5183346	8.20	8.50	0.30	Mi, Upper	Conglomerate	trace
168206	PD-17-59	HGZ	Hanging Wall	556164	5183335	3.85	4.20	0.35	Mi, Upper	Conglomerate	trace
168209	PD-17-60	HGZ	Hanging Wall	556148	5183346	8.05	8.25	0.20	Mi, Upper	Conglomerate	trace
168202	PD-17-58	HGZ	Footwall	556174	5183346	15.25	15.50	0.25	Ar	Wacke	nil
168205	PD-17-59	HGZ	Footwall	556164	5183335	15.25	15.50	0.25	Ar	Wacke	nil
168196	PD-14-01	"007"	Ore	556182	5182970	0.00	1.03	1.03	Ore	Conglomerate	2%
168197	PD-14-04	"007"	Footwall	556184	5182956	3.32	3.90	0.58	Ar	Wacke	nil
168198	PD-14-03	"007"	Footwall	556166	5182977	3.07	3.67	0.60	Ar	Wacke	nil
168210	PD-14-09	Eastern Reef	Ore	556602	5183386	0.00	1.14	1.14	Ore	Conglomerate	1%
168211	PD-14-09	Eastern Reef	Footwall	556602	5183386	2.91	3.92	1.01	Mi, Lower	Conglomerate	trace
168212	PD-14-08	Eastern Reef	Footwall	556593	5183351	2.00	3.00	1.00	Mi, Lower	Conglomerate	trace
168213	PD-14-08	Eastern Reef	Footwall	556593	5183351	3.00	4.00	1.00	Mi, Lower	Conglomerate	trace
168214	PD-14-07	Eastern Reef	Footwall	556582	5183331	4.31	5.37	1.06	Mi, Lower	Conglomerate	trace
168215	PD-14-10	Eastern Reef	Footwall	556563	5183398	3.50	4.75	1.25	Mi, Lower	Conglomerate	trace

Notes:
1) Drill hole collar locations provided as UTM coordinates (NAD27 Zone 17 North).
2) All 'Ore' samples obtained from Missisagi boulder conglomerate.
4) "Ma" means Matineda conglomerate.
5) "Mi, Upper" means Upper Mississagi Conglomerate
5) "Mi, Lower" means Lower Mississagi Conglomerate
6) "Ar" means Archean wacke

Table B.2
Analytical Results
Acid-Base Accounting (ABA)

		Parameter	Fizz Rating	Paste pH	Total Carbon	Total Organic Carbon	Total Inorganic Carbon	$CaCO_3$ Equivalents (Carb NP)	Total Sulphur	Sulphate Sulfur	Sulphide sulphur	Maximum Potential Acidity (MPA)	Neutralization Potential (NP)	Net Neutralization Potential (NNP)	Neutralization Potential Ratio (NPR)	Carbonate Neutralization Potential Ratio (Carb NPR) [2]
		Units	-	pH units	wt %	wt %	wt %	kg $CaCO_3$/tonne	wt %	wt %	wt %	kg $CaCO_3$/tonne	kg $CaCO_3$/tonne	kg $CaCO_3$/tonne	-	-
		RDL [1]	-	0.1	0.01	0.01	0.02	0.8	0.005	0.01	0.02	0.2	-	-	-	-
Sample ID	**Rock Unit**	**Lithology**														
168138	Ma [3]	Conglomerate	Slight	8.6	0.035	0.035	<0.02	<0.8	1.56	0.02	1.54	48.1	6.6	-41.5	**0.1**	**0.02**
168146	Ma	Conglomerate	Slight	8.7	0.046	0.046	<0.02	<0.8	2.14	0.02	2.12	66.3	6.6	-59.7	**0.1**	**0.01**
168157	Ma	Conglomerate	Slight	9.0	0.046	<0.020	0.04	3.3	0.872	0.03	0.84	26.3	10.5	-15.8	**0.4**	**0.13**
168164	Ma	Conglomerate	Slight	8.8	0.06	0.040	0.02	1.7	1.47	0.03	1.44	45.0	10.5	-34.5	**0.2**	**0.04**
168173	Ma	Conglomerate	Slight	8.8	0.013	<0.020	<0.02	<0.8	2.11	0.02	2.09	65.3	7.3	-58.0	**0.1**	**0.01**
168193	Ore	Conglomerate	Slight	8.9	0.08	0.040	0.04	3.3	3.44	0.03	3.41	106.6	13.7	-92.9	**0.1**	**0.03**
168195	Mi, Upper [4]	Conglomerate	Slight	9.3	0.065	0.035	0.03	2.5	0.250	0.02	0.23	7.2	11.7	4.5	**1.6**	**0.35**
168199	Mi, Upper	Conglomerate	Slight	9.1	0.043	<0.020	0.03	2.5	0.398	0.01	0.39	12.1	13.2	1.1	**1.1**	**0.21**
168200	Mi, Upper	Conglomerate	Slight	9.2	0.032	0.032	<0.02	<0.8	0.238	0.02	0.22	6.8	12.7	5.9	**1.9**	**0.12**
168201	Mi, Upper	Conglomerate	Slight	9.0	0.024	0.024	<0.02	<0.8	0.232	0.01	0.22	6.9	13.0	6.1	**1.9**	**0.12**
168194	Ar [5]	Wacke	Slight	9.5	0.037	0.037	<0.02	<0.8	0.247	0.02	0.23	7.1	12.9	5.8	**1.8**	**0.11**
168046	Ore	Conglomerate	Slight	9.3	0.057	<0.020	0.04	3.3	0.477	0.02	0.46	14.3	15.9	1.6	**1.1**	**0.23**
168204	Mi, Upper	Sandstone	Slight	9.2	0.013	<0.020	<0.02	<0.8	0.160	0.01	0.15	4.7	6.8	2.1	**1.5**	**0.17**
168207	Mi, Upper	Sandstone	Slight	9.0	0.140	0.020	0.12	10.0	0.023	0.02	<0.02	<0.2	7.7	7.7	38.5 [7]	50.00
168208	Mi, Upper	Sandstone	Slight	9.2	0.09	0.060	0.03	2.5	0.149	0.02	0.13	4.0	9.6	5.6	2.4	**0.62**
168203	Mi, Upper	Conglomerate	Slight	9.4	0.023	0.023	<0.02	<0.8	0.158	0.01	0.15	4.6	12.7	8.1	2.7	**0.17**
168206	Mi, Upper	Conglomerate	Slight	9.2	0.028	0.028	<0.02	<0.8	0.266	0.02	0.25	7.7	8.7	1.0	**1.1**	**0.10**
168209	Mi, Upper	Conglomerate	Slight	9.2	0.019	<0.020	<0.02	<0.8	0.304	0.01	0.29	9.2	9.1	-0.1	**1.0**	**0.09**
168202	Ar	Wacke	Slight	9.5	0.021	0.021	<0.02	<0.8	0.224	0.02	0.20	6.4	13.0	6.6	2.0	**0.13**
168205	Ar	Wacke	Slight	9.6	0.023	0.023	<0.02	<0.8	0.255	0.02	0.24	7.3	8.9	1.6	**1.2**	**0.11**
168196	Ore	Conglomerate	Slight	8.6	0.024	0.024	<0.02	<0.8	0.892	0.03	0.86	26.9	12.3	-14.6	**0.5**	**0.03**
168197	Ar	Wacke	Slight	8.8	0.024	0.024	<0.02	<0.8	0.341	0.03	0.31	9.7	13.2	3.5	**1.4**	**0.08**
168198	Ar	Wacke	Slight	8.7	0.028	0.028	<0.02	<0.8	1.12	0.03	1.09	34.1	11.5	-22.6	**0.3**	**0.02**
168210	Ore	Conglomerate	Slight	8.8	0.056	0.026	0.03	2.5	0.741	0.02	0.72	22.5	11.5	-11.0	**0.5**	**0.11**
168211	Mi, Lower [6]	Conglomerate	Slight	9.0	0.09	0.040	0.05	4.2	0.221	0.02	0.20	6.3	12.0	5.7	**1.9**	**0.66**
168212	Mi, Lower	Conglomerate	Slight	8.7	0.11	0.040	0.07	5.8	0.106	<0.01	0.11	3.3	10.8	7.5	3.3	**1.76**
168213	Mi, Lower	Conglomerate	Slight	9.1	0.12	0.050	0.07	5.8	0.151	0.01	0.14	4.4	12.0	7.6	2.7	**1.32**
168214	Mi, Lower	Conglomerate	Slight	9.1	0.074	0.074	<0.02	<0.8	0.312	0.02	0.29	9.1	10.6	1.5	**1.2**	**0.09**
168215	Mi, Lower	Conglomerate	Slight	9.4	0.10	0.050	0.05	4.2	0.283	0.02	0.26	8.2	11.1	2.9	**1.4**	**0.51**

Notes:
- pH of de-ionized water used: 5.26
1) "RDL" means Reported Detection Limit.
2) Ratio of Carb NP and MPA calculated by DST. Where input values are less than the RDL, the RDL is used.
3) "Ma" means Matinenda Formation.
4) "Mi, Upper" means Upper Mississagi Formation.
5) "Ar" means Archean basement rock.
6) "Mi, Lower" means Lower Mississagi Formation.
7) For MPA, the input value is less than the RDL; the RDL is used in calculation.
8) Values of NPR and Carb NPR ≤1 are considered potentially acid generating (PAG) based on generic non-site specific criteria (Price, 2009) and are indicated by **red, underlined and bold typeface**.
9) Values of 1< NPR/Carb NPR <2 are considered possibly PAG based on generic non-site specific criteria (Price, 2009) and are indicated by **orange, underlined and bold typeface**.

Table B.3
Analytical Results
Summation of Oxides

		Oxide Species	Aluminum (Al_2O_3)	Barium (BaO)	Calcium (CaO)	Chromium (Cr_2O_3)	Iron (Fe_2O_3)	Potassium (K_2O)	Magnesium (MgO)	Manganese (MnO)	Sodium (Na_2O)	Phosphorus (P_2O_5)	Silicon (SiO_2)	Titanium (TiO_2)	Strontium (SrO)	Vanadium (V_2O_5)	Loss on Ignition (LOI)	Total
		Unit	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Sample ID	**Rock Unit**	**Lithology**																
168138	Ma [(1)]	Conglomerate	11.1	0.05	0.48	0.03	8.74	2.31	4.32	0.07	0.01	0.06	67.1	0.80	<0.01	0.02	4.06	99.1
168146	Ma	Conglomerate	9.83	0.03	0.43	0.03	9.54	1.86	4.22	0.07	<0.01	0.04	66.9	0.80	<0.01	0.03	4.29	98.0
168157	Ma	Conglomerate	9.76	0.03	0.59	0.03	8.64	1.50	5.12	0.10	0.11	0.06	68.7	0.71	<0.01	0.03	3.79	99.1
168164	Ma	Conglomerate	9.46	0.02	0.44	0.03	9.48	1.46	4.92	0.09	0.03	0.04	68.5	0.68	<0.01	0.03	4.01	99.2
168173	Ma	Conglomerate	9.18	0.03	0.49	0.03	9.76	1.48	4.49	0.08	0.01	0.05	68.3	0.73	<0.01	0.02	4.26	98.9
168193	Ore	Conglomerate	10.9	0.03	0.80	0.02	12.9	1.72	5.04	0.09	0.69	0.10	60.7	0.53	<0.01	0.02	5.07	98.6
168195	Mi, Upper [(2)]	Conglomerate	11.8	0.06	0.58	0.02	6.84	2.85	3.63	0.07	0.14	0.12	68.1	0.63	<0.01	0.02	2.87	97.7
168199	Mi, Upper	Conglomerate	7.77	0.02	0.42	0.02	6.30	1.60	3.14	0.06	0.20	0.10	76.3	0.42	<0.01	0.01	2.36	98.7
168200	Mi, Upper	Conglomerate	11.8	0.05	0.62	0.02	6.42	2.70	3.23	0.06	0.69	0.12	69.9	0.62	<0.01	0.02	2.73	99.0
168201	Mi, Upper	Conglomerate	7.9	0.03	0.36	0.02	5.67	1.58	2.88	0.05	0.44	0.09	77.2	0.39	<0.01	0.02	2.13	98.7
168194	Ar [(3)]	Wacke	16.5	0.08	0.71	0.03	9.15	4.29	6.49	0.10	0.03	0.23	56.9	0.68	<0.01	0.03	4.20	99.4
168046	Ore	Conglomerate	11.3	0.04	0.69	0.03	8.59	2.18	5.00	0.10	0.69	0.10	66.6	0.65	<0.01	0.02	3.12	99.1
168204	Mi, Upper	Sandstone	4.16	0.02	0.10	<0.01	3.09	1.16	1.67	0.03	0.06	0.03	86.8	0.12	<0.01	<0.01	1.16	98.4
168207	Mi, Upper	Sandstone	6.28	0.04	0.66	<0.01	3.48	1.96	2.05	0.04	0.03	0.05	81.8	0.15	<0.01	<0.01	2.02	98.6
168208	Mi, Upper	Sandstone	5.56	0.04	0.54	0.01	3.28	1.91	1.79	0.04	0.10	0.07	82.1	0.24	<0.01	<0.01	1.42	97.1
168203	Mi, Upper	Conglomerate	9.42	0.05	0.25	0.05	5.28	2.84	3.15	0.05	0.06	0.10	74.5	0.46	<0.01	0.02	2.23	98.4
168206	Mi, Upper	Conglomerate	12.4	0.05	0.46	0.02	5.52	2.66	3.04	0.06	1.55	0.11	70.6	0.55	<0.01	0.02	3.11	100
168209	Mi, Upper	Conglomerate	15.2	0.12	0.49	0.03	4.40	4.90	2.57	0.04	0.64	0.17	66.2	0.73	<0.01	0.03	2.74	98.2
168202	Ar	Wacke	15.4	0.08	0.64	0.02	7.67	4.32	5.77	0.09	0.07	0.23	60.7	0.62	<0.01	0.02	3.74	99.4
168205	Ar	Wacke	15.5	0.11	0.44	0.02	6.31	4.75	4.42	0.07	0.03	0.16	63.6	0.56	<0.01	0.02	3.36	99.3
168196	Ore	Conglomerate	13.3	0.04	0.56	0.03	11.0	1.97	5.43	0.10	1.10	0.16	60.9	0.84	<0.01	0.02	3.99	99.4
168197	Ar	Wacke	16.5	0.05	1.93	0.06	14.7	2.90	8.20	0.16	0.04	1.07	47.5	1.12	<0.01	0.03	4.96	99.2
168198	Ar	Wacke	15.6	0.07	1.75	0.05	10.1	4.10	5.39	0.09	0.06	1.05	56.0	0.89	<0.01	0.03	4.51	99.7
168210	Ore	Conglomerate	13.8	0.05	0.66	0.02	9.14	2.87	4.61	0.09	0.85	0.16	62.7	0.72	<0.01	0.02	3.57	99.2
168211	Mi, Lower [(4)]	Conglomerate	12.9	0.05	0.76	0.02	7.92	2.62	4.29	0.08	0.79	0.13	65.9	0.58	<0.01	0.02	3.04	99.1
168212	Mi, Lower	Conglomerate	14.3	0.04	0.89	0.03	9.02	3.12	4.82	0.10	0.66	0.13	62.2	0.66	0.01	0.03	3.45	99.4
168213	Mi, Lower	Conglomerate	14.6	0.05	0.76	0.03	9.90	3.14	5.39	0.11	0.45	0.16	59.2	0.76	<0.01	0.03	3.73	98.3
168214	Mi, Lower	Conglomerate	12.8	0.02	0.95	0.08	11.8	2.26	6.39	0.12	0.69	0.19	59.6	0.73	<0.01	0.03	3.38	99.0
168215	Mi, Lower	Conglomerate	14.2	0.06	0.87	0.02	8.42	3.23	4.49	0.09	0.91	0.15	62.7	0.68	<0.01	0.02	3.13	99.0

Notes:
1) "Ma" means Matinenda Formation.
2) "Mi, Upper" means Upper Mississagi Formation.
3) "Ar" means Archean basement rock.
4) "Mi, Lower" means Lower Mississagi Formation.

Table B.4
Analytical Results
Metals by 4-Acid Digestion

		Analyte	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cu	Fe	Ga	In	K	La	Li	Mg	Mn
		Units	ppm [1]	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm
		RDL [2]	0.5	0.01	1	1	0.5	1	0.01	0.50	1	0.5	0.5	0.5	0.01	5	1	0.01	2	1	0.01	1
		Crustal Abundance [3]	0.11	8.8	2	1600	3	0.01	7.6	0.22	161	48	170	87	8.65	30	0.26	4.8	70	40	4.6	1500
Sample ID	**Rock Unit**	**Lithology**																				
168138	Ma [4]	Conglomerate	<0.5	5.78	6	442	1.1	*<1*	0.35	0.6	28	49.5	150	67.0	6.22	18	*<1*	1.92	12	42	2.52	491
168146	Ma	Conglomerate	<0.5	5.38	**9**	370	1.1	*<1*	0.32	**0.7**	22	56.2	158	104	6.89	19	*<1*	1.64	10	38	2.62	506
168157	Ma	Conglomerate	<0.5	5.29	<1	308	0.9	*<1*	0.42	**0.8**	12	36.0	132	45.2	6.16	17	*<1*	1.28	6	39	3.09	635
168164	Ma	Conglomerate	<0.5	5.07	4	290	0.9	*<1*	0.32	**0.9**	15	48.3	143	110	6.70	18	*<1*	1.23	7	38	2.96	616
168173	Ma	Conglomerate	<0.5	5.01	**9**	295	1.0	*<1*	0.37	**0.8**	21	57.4	161	110	7.06	17	*<1*	1.28	10	35	2.76	542
168193	Ore	Conglomerate	<0.5	5.94	7	287	1.0	3	0.60	**1.0**	21	61.5	108	118	9.18	19	*<1*	1.48	10	43	3.11	656
168195	Mi, Upper [5]	Conglomerate	<0.5	6.45	<1	561	1.4	*<1*	0.44	**0.7**	15	19.5	93.7	19.5	5.05	20	*<1*	2.54	6	49	2.26	464
168199	Mi, Upper	Conglomerate	<0.5	4.29	<1	278	0.8	*<1*	0.31	**0.7**	12	28.1	89.9	20.5	4.54	14	*<1*	1.38	5	33	1.97	424
168200	Mi, Upper	Conglomerate	<0.5	6.17	<1	502	1.3	*<1*	0.43	0.6	32	17.0	64.1	18.7	4.37	17	*<1*	2.25	15	42	1.91	402
168201	Mi, Upper	Conglomerate	<0.5	4.14	<1	279	0.7	*<1*	0.26	0.5	11	15.5	59.2	20.9	3.91	13	*<1*	1.32	5	29	1.72	359
168194	Ar [6]	Wacke	<0.5	9.25	<1	675	1.8	*<1*	0.54	**0.9**	74	23.0	127	55.5	6.62	32	*<1*	3.84	36	81	4.12	714
168046	Ore	Conglomerate	<0.5	5.83	<1	370	1.0	*<1*	0.49	**0.9**	15	29.4	103	31.3	5.89	19	*<1*	1.78	7	45	2.92	654
168204	Mi, Upper	Sandstone	<0.5	2.14	<1	264	<0.5	*<1*	0.07	<0.5	6	9.3	20.7	5.2	2.17	7	*<1*	0.95	3	19	0.99	224
168207	Mi, Upper	Sandstone	<0.5	3.48	<1	429	0.6	*<1*	0.50	<0.5	10	9.4	21.5	15.1	2.56	11	*<1*	1.68	5	31	1.29	305
168208	Mi, Upper	Sandstone	<0.5	3.22	<1	437	0.5	*<1*	0.41	<0.5	11	12.1	52.9	23.4	2.52	9	*<1*	1.69	5	28	1.17	265
168203	Mi, Upper	Conglomerate	<0.5	4.90	<1	504	0.8	*<1*	0.18	0.6	10	15.7	152	5.4	3.68	15	*<1*	2.29	4	42	1.86	372
168206	Mi, Upper	Conglomerate	<0.5	7.19	<1	497	1.2	*<1*	0.36	0.6	25	22.1	64.2	12.8	4.18	19	*<1*	2.43	11	45	2.01	419
168209	Mi, Upper	Conglomerate	<0.5	8.6	<1	979	1.5	*<1*	0.38	<0.5	54	17.0	96.2	16.7	3.33	24	*<1*	4.47	25	65	1.68	286
168202	Ar	Wacke	<0.5	8.03	<1	669	1.8	*<1*	0.45	**0.7**	34	18.0	102	15.5	5.17	25	*<1*	3.63	15	72	3.38	599
168205	Ar	Wacke	<0.5	7.52	<1	844	1.6	*<1*	0.30	0.6	52	17.6	94.1	29.6	4.01	22	*<1*	3.64	26	64	2.45	427
168196	Ore	Conglomerate	<0.5	7.63	<1	390	1.3	*<1*	0.42	**1.0**	46	35.6	158	27.6	8.10	22	*<1*	1.77	22	52	3.47	795
168197	Ar	Wacke	<0.5	9.23	<1	439	1.8	*<1*	1.47	**1.4**	59	37.0	326	58.2	10.6	31	*<1*	2.60	27	72	5.12	1150
168198	Ar	Wacke	<0.5	8.44	<1	707	1.8	*<1*	1.31	**1.0**	25	40.2	193	78.6	7.18	25	*<1*	3.54	12	70	3.27	647
168210	Ore	Conglomerate	<0.5	7.51	<1	464	1.4	*<1*	0.49	**1.0**	28	32.3	111	97.7	6.56	24	*<1*	2.48	13	53	2.84	618
168211	Mi, Lower [7]	Conglomerate	<0.5	7.18	<1	438	1.3	*<1*	0.58	**0.8**	26	21.2	82.3	46.2	5.76	21	*<1*	2.29	12	50	2.72	596
168212	Mi, Lower	Conglomerate	<0.5	7.73	<1	433	1.4	*<1*	0.66	**0.9**	25	23.8	132	16.8	6.43	21	*<1*	2.68	11	58	2.97	655
168213	Mi, Lower	Conglomerate	<0.5	8.26	<1	470	1.4	*<1*	0.59	**1.0**	18	24.6	147	35.8	7.16	22	*<1*	2.82	8	63	3.46	815
168214	Mi, Lower	Conglomerate	<0.5	7.17	<1	256	1.2	*<1*	0.72	**1.2**	20	32.1	373	47.4	8.51	20	*<1*	2.02	10	55	4.01	892
168215	Mi, Lower	Conglomerate	<0.5	7.85	<1	544	1.4	*<1*	0.66	**0.9**	38	25.9	86.7	34.4	6.12	21	*<1*	2.85	17	55	2.82	605

		Analyte	Mo	Na	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
		Units	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
		RDL [2]	0.5	0.01	0.5	10	1	10	0.01	1	1	10	5	1	10	10	5	0.01	5	5	0.5	1	1	0.5	5
		Crustal Abundance [3]	1.5	4.04	130	1100	19	170	0.03	0.2	30	0.05	3	465	4.2	NA	17	1.38	2.3	3	250	2.2	40	130	500
Sample ID	**Rock Unit**	**Lithology**																							
168138	Ma [4]	Conglomerate	<0.5	0.02	97.5	263	<1	88	**1.95**	*<1*	18	*<10*	**21**	14	<10	<10	<5	0.43	<5	**14**	142	<1	12	57.5	65
168146	Ma	Conglomerate	<0.5	0.02	119	178	<1	81	**2.25**	*<1*	18	*<10*	**19**	10	<10	<10	<5	0.45	<5	**12**	148	<1	11	59.7	56
168157	Ma	Conglomerate	<0.5	0.08	85.4	274	<1	61	**0.96**	*<1*	21	*<10*	**15**	15	<10	<10	<5	0.37	<5	**11**	153	<1	10	79.3	39
168164	Ma	Conglomerate	1.8	0.02	103	219	<1	60	**1.53**	*<1*	20	*<10*	**11**	7	<10	<10	<5	0.37	<5	**12**	149	<1	12	79.1	41
168173	Ma	Conglomerate	<0.5	0.02	110	222	<1	63	**2.18**	*<1*	19	*<10*	**17**	7	<10	<10	<5	0.42	<5	**13**	144	<1	12	69.8	49
168193	Ore	Conglomerate	<0.5	0.59	111	441	<1	91	**3.55**	*<1*	17	*<10*	**13**	67	<10	<10	<5	0.31	<5	**16**	127	<1	14	84.9	62
168195	Mi, Upper [5]	Conglomerate	<0.5	0.13	68.1	593	<1	147	**0.23**	*<1*	18	*<10*	**16**	19	<10	<10	<5	0.37	<5	**10**	128	<1	14	57.4	86
168199	Mi, Upper	Conglomerate	<0.5	0.15	57.9	436	<1	72	**0.38**	*<1*	11	*<10*	**11**	16	<10	<10	<5	0.26	<5	**14**	77.1	<1	9	53.9	58
168200	Mi, Upper	Conglomerate	<0.5	0.47	61.8	543	<1	125	**0.22**	*<1*	16	*<10*	**15**	59	<10	<10	<5	0.36	<5	<5	113	<1	13	46.4	83
168201	Mi, Upper	Conglomerate	<0.5	0.26	48.0	380	<1	63	**0.21**	*<1*	9	*<10*	9	29	<10	<10	<5	0.22	<5	7	66.3	<1	9	42.3	54
168194	Ar [6]	Wacke	<0.5	0.04	107	1070	<1	258	**0.29**	*<1*	20	*<10*	**19**	19	<10	<10	<5	0.42	<5	**17**	147	<1	17	84.1	136
168046	Ore	Conglomerate	<0.5	0.54	81.4	445	<1	108	**0.45**	*<1*	20	*<10*	**15**	42	<10	<10	<5	0.36	<5	**14**	135	<1	13	73.6	74
168204	Mi, Upper	Sandstone	<0.5	0.05	27.0	148	<1	33	**0.12**	*<1*	3	*<10*	<5	9	<10	<10	<5	0.07	<5	**12**	23.9	<1	5	27.7	22
168207	Mi, Upper	Sandstone	<0.5	0.03	42.4	242	<1	77	0.03	*<1*	5	*<10*	<5	6	<10	<10	<5	0.09	<5	<5	47.2	<1	15	36.0	32
168208	Mi, Upper	Sandstone	<0.5	0.08	35.0	307	<1	77	**0.17**	*<1*	6	*<10*	6	17	<10	<10	<5	0.15	<5	<5	45.6	<1	9	43.9	45
168203	Mi, Upper	Conglomerate	<0.5	0.06	62.1	414	<1	127	**0.15**	*<1*	12	*<10*	**11**	9	<10	<10	<5	0.26	<5	7	85.7	<1	6	37.3	64
168206	Mi, Upper	Conglomerate	<0.5	1.33	66.3	507	<1	149	**0.30**	*<1*	17	*<10*	**16**	95	<10	<10	<5	0.36	<5	**12**	110	<1	11	45.5	127
168209	Mi, Upper	Conglomerate	<0.5	0.54	48.2	772	<1	312	**0.34**	*<1*	22	*<10*	**20**	57	<10	<10	<5	0.46	<5	**12**	145	<1	14	30.4	112
168202	Ar	Wacke	<0.5	0.06	93.0	977	<1	263	**0.20**	*<1*	16	*<10*	**15**	15	<10	<10	<5	0.36	<5	**14**	120	<1	13	69.4	110
168205	Ar	Wacke	<0.5	0.04	67.3	651	<1	248	**0.23**	*<1*	14	*<10*	**13**	17	<10	<10	<5	0.30	<5	5	98.2	<1	13	54.1	96
168196	Ore	Conglomerate	<0.5	0.90	89.8	732	<1	99	**0.88**	*<1*	24	*<10*	**22**	58	<10	<10	<5	0.50	<5	**22**	152	<1	21	77.6	148
168197	Ar	Wacke	<0.5	0.03	184	4620	<1	183	**0.35**	*<1*	24	*<10*	**29**	39	<10	<10	<5	0.69	<5	**13**	182	<1	19	102	159
168198	Ar	Wacke	<0.5	0.05	121	4500	<1	240	**1.26**	*<1*	19	*<10*	**22**	51	<10	<10	<5	0.53	<5	8	142	<1	18	83.6	156
168210	Ore	Conglomerate	<0.5	0.55	85.9	748	<1	151	**0.68**	*<1*	19	*<10*	**18**	58	<10	<10	<5	0.43	<5	**11**	140	<1	18	59.9	105
168211	Mi, Lower [7]	Conglomerate	<0.5	0.66	72.9	613	<1	143	**0.21**	*<1*	17	*<10*	**15**	86	<10	<10	<5	0.36	<5	**15**	128	<1	14	58.9	96
168212	Mi, Lower	Conglomerate	<0.5	0.55	79.2	603	<1	194	**0.12**	*<1*	19	*<10*	**18**	78	<10	<10	<5	0.40	<5	**17**	139	<1	17	59.5	99
168213	Mi, Lower	Conglomerate	<0.5	0.40	88.9	688	<1	188	**0.14**	*<1*	22	*<10*	**19**	55	<10	<10	<5	0.45	<5	**19**	156	<1	13	66.9	87
168214	Mi, Lower	Conglomerate	<0.5	0.47	230	806	<1	153	**0.30**	*<1*	23	*<10*	**20**	62	<10	<10	<5	0.46	<5	**13**	149	<1	16	84.4	71
168215	Mi, Lower	Conglomerate	<0.5	0.72	82.0	641	<1	177	**0.32**	*<1*	19	*<10*	**17**	114	<10	<10	<5	0.39	<5	**14**	134	<1	17	69.3	87

Notes:
- As, Sb values may be low due to digestion losses.

1) "ppm" means parts per million
2) "RDL" means Reported Detection Limit
3) Average crustal abundance concentration (Turekian and Wedepohl, 1961) per Price (1997). Value indicates maximum concentration for basaltic and granitic rocks.
4) "Ma" means Matinenda Formation.
5) "Mi, Upper" means Upper Mississagi Formation.
6) "Ar" means Archean basement rock.
7) "Mi, Lower" means Lower Mississagi Formation.
8) Values that are greater than 3 times the average crustal abundance concentration are indicated by **red, bold and underlined typeface.**
9) Where the laboratory RDL is greater than 3 times the average crustal abundance concentration, it is indicated by *italic and underlined typeface.*

Appendix C

Laboratory Certificates of Analysis

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CERTIFICATE OF ANALYSIS ▪ COVER PAGE

Client:	DST CONSULTING ENGINEERS
Mailing Address:	885 REGENT STREET, UNIT 3-1B
	SUDBURY, ON P3E 5M4
Attention To:	Laura Ritchie
E-mail Address:	lritchie@dstgroup.com
Contact No:	(705) 523-6680 ext 220
Fax No:	

Client Project Name:	Pardo
Client Project Number:	TS-NO-030045

Results:	
Reported To: 1	lritchie@dstgroup.com
2	wes.whymark@gmail.com
3	
4	

Invoice:	
Submitted To:	wes.whymark@gmail.com

AGAT Work Order:	18V304113
Report Version:	1
Pages (Including Cover):	4

Analysis Reviewed By:	Andrew Garrard, B.Sc., General Manager
Report Certified By:	Andrew Garrard, B.Sc., General Manager
Signature:	

Should you require any further information regarding this analysis please contact your client services representative at (778) 452 4000

Notes:

Note: All samples are stored at no charge for 90 days. Please contact the lab if you require additional sample storage time.

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Results relate only to the items tested and all the items tested

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CERTIFICATE OF ANALYSIS ▪ SAMPLE DETAILS

AGAT WORK ORDER: 18V304113
REPORT VERSION: 1

CLIENT NAME: DST CONSULTING ENGINEERS
PROJECT NO: TS-NO-030045

S. No.	AGAT Sample ID	Client Sample ID	Sample Type	Condition	Received Sample Wt (kg)	Dry Sample Wt. (kg)
1	9021932	168138	Pulp			
2	9021933	168146	Pulp			
3	9021934	168157	Pulp			
4	9021935	168164	Pulp			
5	9021936	168173	Pulp			
6	9021937	168046	Pulp			
7	9021938	168193	Core			
8	9021939	168194	Core			
9	9021940	168195	Core			
10	9021941	168196	Core			
11	9021942	168197	Core			
12	9021943	168198	Core			
13	9021944	168199	Core			
14	9021945	168200	Core			
15	9021946	168201	Core			
16	9021947	168202	Core			
17	9021948	168203	Core			
18	9021949	168204	Core			
19	9038973	168205	Core			
20	9038974	168206	Core			
21	9038975	168207	Core			
22	9038976	168208	Core			
23	9038977	168209	Core			
24	9038978	168210	Core			
25	9038979	168211	Core			
26	9038980	168212	Core			
27	9038981	168213	Core			
28	9038982	168214	Core			
29	9038983	168215	Core			
				Total Sample Weight Received (kg):	**0**	

Sample Receipt Info:	
Date Samples Received:	30-Nov-17
No. of Samples Received:	29
Samples Received By:	R. Lawrence

Analytical Instructions:	
From:	L. Ritchie
Date:	30-Nov-17

Date of Analysis:	
Paste pH:	26-Jan-18
Fizz Rating:	26-Jan-18
Rinse pH:	NA
Carbonate Carbon (CO2):	NA
Total Carbon:	NA
Total Organic Carbon:	NA
Total Sulphur:	24-Jan-18
Sulphate Sulphur:	22-Jan-18
Neutralization Potential (NP):	26-Jan-18
Siderite NP:	NA

Results relate only to the items tested and all the items tested

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CERTIFICATE OF ANALYSIS▪ ABA RESULTS

AGAT WORK ORDER: 18V304113 | **CLIENT NAME:** DST CONSULTING ENGINEERS

REPORT VERSION: 1 | **PROJECT NO:** TS-NO-030045

S. No.	AGAT Sample ID	Client Sample ID	Paste pH	Fizz Rating	Total Sulphur	Sulphate Sulphur	Sulphide Sulphur	Maximum Potential Acidity (MPA)	Mod. ABA NP Neutralization Potential (NP)	Net Neutralization Potential (NNP)	Neutralization Potential Ratio (NPR)
Units:			pH Units		(wt %)	(wt %)	(wt %)	(kg CaCO3/tonne)	(kg CaCO3/tonne)	(kg CaCO3/tonne)	
Reported Detection Limit (RDL):			*0.1*		*0.005*	*0.01*	*0.02*	*0.2*			
1	9021932	168138	8.6	SLIGHT	1.56	0.02	1.54	48.1	6.6	-41.5	0.1
2	9021933	168146	8.7	SLIGHT	2.14	0.02	2.12	66.3	6.6	-59.7	0.1
3	9021934	168157	9.0	SLIGHT	0.872	0.03	0.84	26.3	10.5	-15.8	0.4
4	9021935	168164	8.8	SLIGHT	1.47	0.03	1.44	45.0	10.5	-34.5	0.2
5	9021936	168173	8.8	SLIGHT	2.11	0.02	2.09	65.3	7.3	-58.0	0.1
6	9021937	168046	9.3	SLIGHT	0.477	0.02	0.46	14.3	15.9	1.6	1.1
7	9021938	168193	8.9	SLIGHT	3.44	0.03	3.41	107	13.7	-92.9	0.1
8	9021939	168194	9.5	SLIGHT	0.247	0.02	0.23	7.1	12.9	5.8	1.8
9	9021940	168195	9.3	SLIGHT	0.250	0.02	0.23	7.2	11.7	4.5	1.6
10	9021941	168196	8.6	SLIGHT	0.892	0.03	0.86	26.9	12.3	-14.6	0.5
11	9021942	168197	8.8	SLIGHT	0.341	0.03	0.31	9.7	13.2	3.5	1.4
12	9021943	168198	8.7	SLIGHT	1.12	0.03	1.09	34.1	11.5	-22.6	0.3
13	9021944	168199	9.1	SLIGHT	0.398	0.01	0.39	12.1	13.2	1.1	1.1
14	9021945	168200	9.2	SLIGHT	0.238	0.02	0.22	6.8	12.7	5.9	1.9
15	9021946	168201	9.0	SLIGHT	0.232	0.01	0.22	6.9	13.0	6.1	1.9
16	9021947	168202	9.5	SLIGHT	0.224	0.02	0.20	6.4	13.0	6.6	2.0
17	9021948	168203	9.4	SLIGHT	0.158	0.01	0.15	4.6	12.7	8.1	2.7
18	9021949	168204	9.2	SLIGHT	0.160	0.01	0.15	4.7	6.8	2.1	1.5
19	9038973	168205	9.6	SLIGHT	0.255	0.02	0.24	7.3	8.9	1.6	1.2
20	9038974	168206	9.2	SLIGHT	0.266	0.02	0.25	7.7	8.7	1.0	1.1
21	9038975	168207	9.0	SLIGHT	0.023	0.02	<0.02	<0.2	7.7	7.7	NA
22	9038976	168208	9.2	SLIGHT	0.149	0.02	0.13	4.0	9.6	5.6	2.4
23	9038977	168209	9.2	SLIGHT	0.304	0.01	0.29	9.2	9.1	-0.1	1.0
24	9038978	168210	8.8	SLIGHT	0.741	0.02	0.72	22.5	11.5	-11.0	0.5
25	9038979	168211	9.0	SLIGHT	0.221	0.02	0.20	6.3	12.0	5.7	1.9
26	9038980	168212	8.7	SLIGHT	0.106	<0.01	0.11	3.3	10.8	7.5	3.3
27	9038981	168213	9.1	SLIGHT	0.151	0.01	0.14	4.4	12.0	7.6	2.7
28	9038982	168214	9.1	SLIGHT	0.312	0.02	0.29	9.1	10.6	1.5	1.2
29	9038983	168215	9.4	SLIGHT	0.283	0.02	0.26	8.2	11.1	2.9	1.4

QUALITY ASSURANCE

Replicate Analysis:											
10	**9021932**	**168138**	**8.6**	**SLIGHT**	**1.56**	**0.02**	**1.54**	**48.1**	**6.6**	**-41.5**	**0.1**
10 R	**9021932 R**	**168138 R**	**8.7**	**SLIGHT**	**1.62**	**0.02**	**1.60**	**50.0**	**7.1**	**-42.9**	**0.1**
20	**9038973**	**168205**	**9.6**	**SLIGHT**	**0.160**	**0.02**	**0.14**	**4.4**	**8.9**	**4.5**	**2.0**
20 R	**9038973 R**	**168205 R**	**9.6**	**SLIGHT**	**0.160**	**0.02**	**0.14**	**4.4**	**9.4**	**5.0**	**2.1**
Reference Material Analysis:											
Reference Material			IN-HOUSE REF 1		KZK-1	IN-HOUSE REF 1			KZK-1		
Ref. Material Certified/Informational Value			6.7		0.80	0.10			58.9		
Reference Material Results			6.7		0.81	0.11			55.4		
Method Blank Analysis:											
Method Blank Results						<0.01					
Method Blank Spike Recovery (%)						88					

Notes:

pH of DI water used: 5.26

EC of DI water used: <2

R = Replicate; D = Duplicate

NA = A result is not calculated when the MPA is <0.2

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CERTIFICATE OF ANALYSIS ▪ METHOD SUMMARY

AGAT WORK ORDER: 18V304113
REPORT VERSION: 1
CLIENT NAME: DST CONSULTING ENGINEERS
PROJECT NO: TS-NO-030045

Parameter	AGAT S.O.P	Literature Reference	Analytical Technique
Paste pH (Near Saturation)	ARD-181-18003	Sobek, A.A., Schuller, W.A., Freeman, J.R. and Smith, R.M.; EPA-600/2-78-054 (1978)	pH Meter
Fizz Rating	ARD-181-18000	Lawrence, R. W., Poling, G.P. and Marchant, P.B., MEND Project 1.16.1a (1989); MEND Acid Rock Drainage Prediction Manual, MEND Project 1.16.1b, Section 6.2.3 (March 1991)	Observation
Total Sulphur	INOR-181-6027	modified from ASTM E1915-11	Combustion TC
Sulphate Sulphur	ARD-181-18009;	modified from MEND Report 1.20.1, Version 0 (2009);	HCl Extraction
	INOR-181-6028	modified from SM 4500-SO_4^{2-} E	UV-Vis Spectrophotometer
Maximum Potential Acidity			Calculation
Neutralization Potential **(Modified ABA NP)**	ARD-181-18000	Lawrence, R. W., Poling, G.P. and Marchant, P.B., MEND Project 1.16.1a (1989); MEND Acid Rock Drainage Prediction Manual, MEND Project 1.16.1b, Section 6.2.3 (March 1991)	Titration
Net Neutralization Potential			Calculation
Neutralization Potential Ratio			Calculation

CALCULATIONS:

Sulphide Sulphur: difference between total sulphur and sulphate sulphur

Maximum Potential Acidity (MPA): is based on sulphide sulphur

Net Neutralization Potential (NNP): difference between NP and MPA

Neutralization Potential Ratio (NPR): NP/MPA

METHOD DESCRIPTIONS:

Sample Preparation

ABA: Air-dried or oven dried at 55 ± 5 °C (if samples arrive wet), crushed (if necessary), split by riffling, and pulverized to 85% passing 200 mesh (75 µm).

Analytical

Paste pH: DDI water is added to the prepared sample to form a paste at near saturation. The volume of water added varies depending on the sample's tendency to absorb water. A pH probe is placed in the paste slurry and the pH is read directly from the meter.

Fizz Rating: One to two drops of 25% HCl is added to a sample aliquot and the degree of reaction observed and rated. The presence of $CaCO_3$ is indicated by a bubbling or audible "fizz" sound.

Sulphate Sulphur: Pulp samples are treated with dilute HCl and boiled for 30 minutes at ~80 °C. The digested sample is then re-constituted with DI water and filtered. Filtered extracts are then analyzed by the turbidimetric method using a UV-Vis spectrophotometer. The analytical results are back-calculated to the initial pulp sample weight and expressed in weight % Sulphate Sulphur.

Modified ABA NP: A pulp sample is digested with a known excess of standardized HCl at room temperature for a period of 24 hours in order to determine the amount of neutralizing bases present in the sample. The residual acid solution is titrated to pH 8.3 with standardized NaOH in order to determine the amount of acid consumed by the original sample.

Results relate only to the items tested and all the items tested

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CLIENT NAME:	DST CONSULTING ENGINEERS 885 REGENT SREET, UNIT 3-1B SUDBURY, ON P3E5M4 (705) 523-6680
ATTENTION TO:	Laura Ritchie, Wesley Whymark
PROJECT:	TS-NO-030045
AGAT WORK ORDER:	17T292937
SOLID ANALYSIS REVIEWED BY:	Sherin Moussa, Senior Technician
DATE REPORTED:	Feb 09, 2018
PAGES (INCLUDING COVER):	18

Should you require any information regarding this analysis please contact your client services representative at (905) 501-9998

*NOTES

All samples are stored at no charge for 90 days. Please contact the lab if you require additional sample storage time.

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Certificate of Analysis

AGAT WORK ORDER: 17T292937
PROJECT: TS-NO-030045

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Laura Ritchie, Wesley Whymark

(200-) Sample Login Weight

DATE SAMPLED: Dec 07, 2017 | DATE RECEIVED: Dec 08, 2017 | DATE REPORTED: Feb 09, 2018 | SAMPLE TYPE: Other

Analyte:	Sample Login Weight
Unit:	kg
Sample ID (AGAT ID) RDL:	0.01
168138 (8962559)	4.617
168146 (8962560)	6.866
168157 (8962561)	6.231
168164 (8962562)	4.845
168173 (8962563)	7.238
168046 (8962564)	4.505
168193 (8962565)	2.772
168194 (8962566)	3.800
168195 (8962567)	3.518
168196 (8962568)	1.512
168197 (8962569)	2.165
168198 (8962570)	2.190
168199 (8962571)	3.300
168200 (8962572)	4.390
168201 (8962573)	3.695
168202 (8962574)	2.500
168203 (8962575)	2.794
168204 (8962576)	3.048
168205 (8962577)	2.981
168206 (8962578)	3.698
168207 (8962579)	2.303
168208 (8962580)	2.082
168209 (8962581)	2.108
168210 (8962582)	1.692
168211 (8962583)	1.620
168212 (8962584)	1.465
168213 (8962585)	1.620
168214 (8962586)	1.853
168215 (8962587)	2.215

Comments: RDL - Reported Detection Limit

Certified By: Sherin Moussa

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Certificate of Analysis

AGAT WORK ORDER: 17T292937
PROJECT: TS-NO-030045

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Laura Ritchie, Wesley Whymark

(201-037) Total Inorganic Carbon by Eltra

DATE SAMPLED: Dec 07, 2017 | DATE RECEIVED: Dec 08, 2017 | DATE REPORTED: Feb 09, 2018 | SAMPLE TYPE: Other

	Analyte:	Total Inorganic C
	Unit:	%
Sample ID (AGAT ID)	RDL:	0.02
168138 (8962559)		<0.02
168146 (8962560)		<0.02
168157 (8962561)		0.04
168164 (8962562)		0.02
168173 (8962563)		<0.02
168046 (8962564)		0.04
168193 (8962565)		0.04
168194 (8962566)		<0.02
168195 (8962567)		0.03
168196 (8962568)		<0.02
168197 (8962569)		<0.02
168198 (8962570)		<0.02
168199 (8962571)		0.03
168200 (8962572)		<0.02
168201 (8962573)		<0.02
168202 (8962574)		<0.02
168203 (8962575)		<0.02
168204 (8962576)		<0.02
168205 (8962577)		<0.02
168206 (8962578)		<0.02
168207 (8962579)		0.12
168208 (8962580)		0.03
168209 (8962581)		<0.02
168210 (8962582)		0.03
168211 (8962583)		0.05
168212 (8962584)		0.07
168213 (8962585)		0.07
168214 (8962586)		<0.02
168215 (8962587)		0.05

Comments: RDL - Reported Detection Limit

Certified By: Sherin Houssa

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Certificate of Analysis

AGAT WORK ORDER: 17T292937
PROJECT: TS-NO-030045

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Laura Ritchie, Wesley Whymark

(201-038) LECO (Combustion IR) - Total C

DATE SAMPLED: Dec 07, 2017 | DATE RECEIVED: Dec 08, 2017 | DATE REPORTED: Feb 09, 2018 | SAMPLE TYPE: Other

Sample ID (AGAT ID)	Analyte: / Unit: / RDL:	C (%) 0.01
168138 (8962559)		0.035
168146 (8962560)		0.046
168157 (8962561)		0.046
168164 (8962562)		0.06
168173 (8962563)		0.013
168046 (8962564)		0.057
168193 (8962565)		0.08
168194 (8962566)		0.037
168195 (8962567)		0.065
168196 (8962568)		0.024
168197 (8962569)		0.024
168198 (8962570)		0.028
168199 (8962571)		0.043
168200 (8962572)		0.032
168201 (8962573)		0.024
168202 (8962574)		0.021
168203 (8962575)		0.023
168204 (8962576)		0.013
168205 (8962577)		0.023
168206 (8962578)		0.028
168207 (8962579)		0.14
168208 (8962580)		0.09
168209 (8962581)		0.019
168210 (8962582)		0.056
168211 (8962583)		0.09
168212 (8962584)		0.11
168213 (8962585)		0.12
168214 (8962586)		0.074
168215 (8962587)		0.10

Comments: RDL - Reported Detection Limit

Certified By: Sherin Moussa

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CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Laura Ritchie, Wesley Whymark

(201-070) 4 Acid Digest - Metals Package, ICP-OES finish

DATE SAMPLED: Dec 07, 2017 | DATE RECEIVED: Dec 08, 2017 | DATE REPORTED: Feb 09, 2018 | SAMPLE TYPE: Other

Analyte:	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cu	Fe	Ga
Unit:	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm
Sample ID (AGAT ID) RDL:	0.5	0.01	1	1	0.5	1	0.01	0.5	1	0.5	0.5	0.5	0.01	5
168138 (8962559)	<0.5	5.78	6	442	1.1	<1	0.35	0.6	28	49.5	150	67.0	6.22	18
168146 (8962560)	<0.5	5.38	9	370	1.1	<1	0.32	0.7	22	56.2	158	104	6.89	19
168157 (8962561)	<0.5	5.29	<1	308	0.9	<1	0.42	0.8	12	36.0	132	45.2	6.16	17
168164 (8962562)	<0.5	5.07	4	290	0.9	<1	0.32	0.9	15	48.3	143	110	6.70	18
168173 (8962563)	<0.5	5.01	9	295	1.0	<1	0.37	0.8	21	57.4	161	110	7.06	17
168046 (8962564)	<0.5	5.83	<1	370	1.0	<1	0.49	0.9	15	29.4	103	31.3	5.89	19
168193 (8962565)	<0.5	5.94	7	287	1.0	3	0.60	1.0	21	61.5	108	118	9.18	19
168194 (8962566)	<0.5	9.25	<1	675	1.8	<1	0.54	0.9	74	23.0	127	55.5	6.62	32
168195 (8962567)	<0.5	6.45	<1	561	1.4	<1	0.44	0.7	15	19.5	93.7	19.5	5.05	20
168196 (8962568)	<0.5	7.63	<1	390	1.3	<1	0.42	1.0	46	35.6	158	27.6	8.10	22
168197 (8962569)	<0.5	9.23	<1	439	1.8	<1	1.47	1.4	59	37.0	326	58.2	10.6	31
168198 (8962570)	<0.5	8.44	<1	707	1.8	<1	1.31	1.0	25	40.2	193	78.6	7.18	25
168199 (8962571)	<0.5	4.29	<1	278	0.8	<1	0.31	0.7	12	28.1	89.9	20.5	4.54	14
168200 (8962572)	<0.5	6.17	<1	502	1.3	<1	0.43	0.6	32	17.0	64.1	18.7	4.37	17
168201 (8962573)	<0.5	4.14	<1	279	0.7	<1	0.26	0.5	11	15.5	59.2	20.9	3.91	13
168202 (8962574)	<0.5	8.03	<1	669	1.8	<1	0.45	0.7	34	18.0	102	15.5	5.17	25
168203 (8962575)	<0.5	4.90	<1	504	0.8	<1	0.18	0.6	10	15.7	152	5.4	3.68	15
168204 (8962576)	<0.5	2.14	<1	264	<0.5	<1	0.07	<0.5	6	9.3	20.7	5.2	2.17	7
168205 (8962577)	<0.5	7.52	<1	844	1.6	<1	0.30	0.6	52	17.6	94.1	29.6	4.01	22
168206 (8962578)	<0.5	7.19	<1	497	1.2	<1	0.36	0.6	25	22.1	64.2	12.8	4.18	19
168207 (8962579)	<0.5	3.48	<1	429	0.6	<1	0.50	<0.5	10	9.4	21.5	15.1	2.56	11
168208 (8962580)	<0.5	3.22	<1	437	0.5	<1	0.41	<0.5	11	12.1	52.9	23.4	2.52	9
168209 (8962581)	<0.5	8.60	<1	979	1.5	<1	0.38	<0.5	54	17.0	96.2	16.7	3.33	24
168210 (8962582)	<0.5	7.51	<1	464	1.4	<1	0.49	1.0	28	32.3	111	97.7	6.56	24
168211 (8962583)	<0.5	7.18	<1	438	1.3	<1	0.58	0.8	26	21.2	82.3	46.2	5.76	21
168212 (8962584)	<0.5	7.73	<1	433	1.4	<1	0.66	0.9	25	23.8	132	16.8	6.43	21
168213 (8962585)	<0.5	8.26	<1	470	1.4	<1	0.59	1.0	18	24.6	147	35.8	7.16	22
168214 (8962586)	<0.5	7.17	<1	256	1.2	<1	0.72	1.2	20	32.1	373	47.4	8.51	20
168215 (8962587)	<0.5	7.85	<1	544	1.4	<1	0.66	0.9	38	25.9	86.7	34.4	6.12	21

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Certificate of Analysis

AGAT WORK ORDER: 17T292937
PROJECT: TS-NO-030045

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Laura Ritchie, Wesley Whymark

(201-070) 4 Acid Digest - Metals Package, ICP-OES finish

DATE SAMPLED: Dec 07, 2017 | DATE RECEIVED: Dec 08, 2017 | DATE REPORTED: Feb 09, 2018 | SAMPLE TYPE: Other

Analyte:	In	K	La	Li	Mg	Mn	Mo	Na	Ni	P	Pb	Rb	S	Sb
Unit:	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm
Sample ID (AGAT ID) RDL:	1	0.01	2	1	0.01	1	0.5	0.01	0.5	10	1	10	0.01	1
168138 (8962559)	<1	1.92	12	42	2.52	491	<0.5	0.02	97.5	263	<1	88	1.95	<1
168146 (8962560)	<1	1.64	10	38	2.62	506	<0.5	0.02	119	178	<1	81	2.25	<1
168157 (8962561)	<1	1.28	6	39	3.09	635	<0.5	0.08	85.4	274	<1	61	0.96	<1
168164 (8962562)	<1	1.23	7	38	2.96	616	1.8	0.02	103	219	<1	60	1.53	<1
168173 (8962563)	<1	1.28	10	35	2.76	542	<0.5	0.02	110	222	<1	63	2.18	<1
168046 (8962564)	<1	1.78	7	45	2.92	654	<0.5	0.54	81.4	445	<1	108	0.45	<1
168193 (8962565)	<1	1.48	10	43	3.11	656	<0.5	0.59	111	441	<1	91	3.55	<1
168194 (8962566)	<1	3.84	36	81	4.12	714	<0.5	0.04	107	1070	<1	258	0.29	<1
168195 (8962567)	<1	2.54	6	49	2.26	464	<0.5	0.13	68.1	593	<1	147	0.23	<1
168196 (8962568)	<1	1.77	22	52	3.47	795	<0.5	0.90	89.8	732	<1	99	0.88	<1
168197 (8962569)	<1	2.60	27	72	5.12	1150	<0.5	0.03	184	4620	<1	183	0.35	<1
168198 (8962570)	<1	3.54	12	70	3.27	647	<0.5	0.05	121	4500	<1	240	1.26	<1
168199 (8962571)	<1	1.38	5	33	1.97	424	<0.5	0.15	57.9	436	<1	72	0.38	<1
168200 (8962572)	<1	2.25	15	42	1.91	402	<0.5	0.47	61.8	543	<1	125	0.22	<1
168201 (8962573)	<1	1.32	5	29	1.72	359	<0.5	0.26	48.0	380	<1	63	0.21	<1
168202 (8962574)	<1	3.63	15	72	3.38	599	<0.5	0.06	93.0	977	<1	263	0.20	<1
168203 (8962575)	<1	2.29	4	42	1.86	372	<0.5	0.06	62.1	414	<1	127	0.15	<1
168204 (8962576)	<1	0.95	3	19	0.99	224	<0.5	0.05	27.0	148	<1	33	0.12	<1
168205 (8962577)	<1	3.64	26	64	2.45	427	<0.5	0.04	67.3	651	<1	248	0.23	<1
168206 (8962578)	<1	2.43	11	45	2.01	419	<0.5	1.33	66.3	507	<1	149	0.30	<1
168207 (8962579)	<1	1.68	5	31	1.29	305	<0.5	0.03	42.4	242	<1	77	0.03	<1
168208 (8962580)	<1	1.69	5	28	1.17	265	<0.5	0.08	35.0	307	<1	77	0.17	<1
168209 (8962581)	<1	4.47	25	65	1.68	286	<0.5	0.54	48.2	772	<1	312	0.34	<1
168210 (8962582)	<1	2.48	13	53	2.84	618	<0.5	0.55	85.9	748	<1	151	0.68	<1
168211 (8962583)	<1	2.29	12	50	2.72	596	<0.5	0.66	72.9	613	<1	143	0.21	<1
168212 (8962584)	<1	2.68	11	58	2.97	655	<0.5	0.55	79.2	603	<1	194	0.12	<1
168213 (8962585)	<1	2.82	8	63	3.46	815	<0.5	0.40	88.9	688	<1	188	0.14	<1
168214 (8962586)	<1	2.02	10	55	4.01	892	<0.5	0.47	230	806	<1	153	0.30	<1
168215 (8962587)	<1	2.85	17	55	2.82	605	<0.5	0.72	82.0	641	<1	177	0.32	<1

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AGAT WORK ORDER: 17T292937
PROJECT: TS-NO-030045

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Laura Ritchie, Wesley Whymark

(201-070) 4 Acid Digest - Metals Package, ICP-OES finish

DATE SAMPLED: Dec 07, 2017 | DATE RECEIVED: Dec 08, 2017 | DATE REPORTED: Feb 09, 2018 | SAMPLE TYPE: Other

	Analyte:	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn
	Unit:	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm
Sample ID (AGAT ID)	RDL:	1	10	5	1	10	10	5	0.01	5	5	0.5	1	1	0.5
168138 (8962559)		18	<10	21	14	<10	<10	<5	0.43	<5	14	142	<1	12	57.5
168146 (8962560)		18	<10	19	10	<10	<10	<5	0.45	<5	12	148	<1	11	59.7
168157 (8962561)		21	<10	15	15	<10	<10	<5	0.37	<5	11	153	<1	10	79.3
168164 (8962562)		20	<10	11	7	<10	<10	<5	0.37	<5	12	149	<1	12	79.1
168173 (8962563)		19	<10	17	7	<10	<10	<5	0.42	<5	13	144	<1	12	69.8
168046 (8962564)		20	<10	15	42	<10	<10	<5	0.36	<5	14	135	<1	13	73.6
168193 (8962565)		17	<10	13	67	<10	<10	<5	0.31	<5	16	127	<1	14	84.9
168194 (8962566)		20	<10	19	19	<10	<10	<5	0.42	<5	17	147	<1	17	84.1
168195 (8962567)		18	<10	16	19	<10	<10	<5	0.37	<5	10	128	<1	14	57.4
168196 (8962568)		24	<10	22	58	<10	<10	<5	0.50	<5	22	152	<1	21	77.6
168197 (8962569)		24	<10	29	39	<10	<10	<5	0.69	<5	13	182	<1	19	102
168198 (8962570)		19	<10	22	51	<10	<10	<5	0.53	<5	8	142	<1	18	83.6
168199 (8962571)		11	<10	11	16	<10	<10	<5	0.26	<5	14	77.1	<1	9	53.9
168200 (8962572)		16	<10	15	59	<10	<10	<5	0.36	<5	<5	113	<1	13	46.4
168201 (8962573)		9	<10	9	29	<10	<10	<5	0.22	<5	7	66.3	<1	9	42.3
168202 (8962574)		16	<10	15	15	<10	<10	<5	0.36	<5	14	120	<1	13	69.4
168203 (8962575)		12	<10	11	9	<10	<10	<5	0.26	<5	7	85.7	<1	6	37.3
168204 (8962576)		3	<10	<5	9	<10	<10	<5	0.07	<5	12	23.9	<1	5	27.7
168205 (8962577)		14	<10	13	17	<10	<10	<5	0.30	<5	5	98.2	<1	13	54.1
168206 (8962578)		17	<10	16	95	<10	<10	<5	0.36	<5	12	110	<1	11	45.5
168207 (8962579)		5	<10	<5	6	<10	<10	<5	0.09	<5	<5	47.2	<1	15	36.0
168208 (8962580)		6	<10	6	17	<10	<10	<5	0.15	<5	<5	45.6	<1	9	43.9
168209 (8962581)		22	<10	20	57	<10	<10	<5	0.46	<5	12	145	<1	14	30.4
168210 (8962582)		19	<10	18	58	<10	<10	<5	0.43	<5	11	140	<1	18	59.9
168211 (8962583)		17	<10	15	86	<10	<10	<5	0.36	<5	15	128	<1	14	58.9
168212 (8962584)		19	<10	18	78	<10	<10	<5	0.40	<5	17	139	<1	17	59.5
168213 (8962585)		22	<10	19	55	<10	<10	<5	0.45	<5	19	156	<1	13	66.9
168214 (8962586)		23	<10	20	62	<10	<10	<5	0.46	<5	13	149	<1	16	84.4
168215 (8962587)		19	<10	17	114	<10	<10	<5	0.39	<5	14	134	<1	17	69.3

Certified By: Sherin Moussa

Certificate of Analysis

AGAT Laboratories

AGAT WORK ORDER: 17T292937

PROJECT: TS-NO-030045

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CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Laura Ritchie, Wesley Whymark

(201-070) 4 Acid Digest - Metals Package, ICP-OES finish

DATE SAMPLED: Dec 07, 2017 | DATE RECEIVED: Dec 08, 2017 | DATE REPORTED: Feb 09, 2018 | SAMPLE TYPE: Other

	Analyte:	Zr
	Unit:	ppm
Sample ID (AGAT ID)	RDL:	5
168138 (8962559)		65
168146 (8962560)		56
168157 (8962561)		39
168164 (8962562)		41
168173 (8962563)		49
168046 (8962564)		74
168193 (8962565)		62
168194 (8962566)		136
168195 (8962567)		86
168196 (8962568)		148
168197 (8962569)		159
168198 (8962570)		156
168199 (8962571)		58
168200 (8962572)		83
168201 (8962573)		54
168202 (8962574)		110
168203 (8962575)		64
168204 (8962576)		22
168205 (8962577)		96
168206 (8962578)		127
168207 (8962579)		32
168208 (8962580)		45
168209 (8962581)		112
168210 (8962582)		105
168211 (8962583)		96
168212 (8962584)		99
168213 (8962585)		87
168214 (8962586)		71
168215 (8962587)		87

Comments: RDL - Reported Detection Limit

8962559-8962587 As, Sb values may be low due to digestion losses.

Certified By:

Certificate of Analysis

AGAT WORK ORDER: 17T292937

PROJECT: TS-NO-030045

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CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Laura Ritchie, Wesley Whymark

(201-676) Lithium Borate Fusion - Summation of Oxides, XRF finish

DATE SAMPLED: Dec 07, 2017 | DATE RECEIVED: Dec 08, 2017 | DATE REPORTED: Feb 09, 2018 | SAMPLE TYPE: Other

Analyte:	Al2O3	BaO	CaO	Cr2O3	Fe2O3	K2O	MgO	MnO	Na2O	P2O5	SiO2	TiO2	SrO	V2O5
Unit:	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Sample ID (AGAT ID) RDL:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
168138 (8962559)	11.1	0.05	0.48	0.03	8.74	2.31	4.32	0.07	0.01	0.06	67.1	0.80	<0.01	0.02
168146 (8962560)	9.83	0.03	0.43	0.03	9.54	1.86	4.22	0.07	<0.01	0.04	66.9	0.80	<0.01	0.03
168157 (8962561)	9.76	0.03	0.59	0.03	8.64	1.50	5.12	0.10	0.11	0.06	68.7	0.71	<0.01	0.03
168164 (8962562)	9.46	0.02	0.44	0.03	9.48	1.46	4.92	0.09	0.03	0.04	68.5	0.68	<0.01	0.03
168173 (8962563)	9.18	0.03	0.49	0.03	9.76	1.48	4.49	0.08	0.01	0.05	68.3	0.73	<0.01	0.02
168046 (8962564)	11.3	0.04	0.69	0.03	8.59	2.18	5.00	0.10	0.69	0.10	66.6	0.65	<0.01	0.02
168193 (8962565)	10.9	0.03	0.80	0.02	12.9	1.72	5.04	0.09	0.69	0.10	60.7	0.53	<0.01	0.02
168194 (8962566)	16.5	0.08	0.71	0.03	9.15	4.29	6.49	0.10	0.03	0.23	56.9	0.68	<0.01	0.03
168195 (8962567)	11.8	0.06	0.58	0.02	6.84	2.85	3.63	0.07	0.14	0.12	68.1	0.63	<0.01	0.02
168196 (8962568)	13.3	0.04	0.56	0.03	11.0	1.97	5.43	0.10	1.10	0.16	60.9	0.84	<0.01	0.02
168197 (8962569)	16.5	0.05	1.93	0.06	14.7	2.90	8.20	0.16	0.04	1.07	47.5	1.12	<0.01	0.03
168198 (8962570)	15.6	0.07	1.75	0.05	10.1	4.10	5.39	0.09	0.06	1.05	56.0	0.89	<0.01	0.03
168199 (8962571)	7.77	0.02	0.42	0.02	6.30	1.60	3.14	0.06	0.20	0.10	76.3	0.42	<0.01	0.01
168200 (8962572)	11.8	0.05	0.62	0.02	6.42	2.70	3.23	0.06	0.69	0.12	69.9	0.62	<0.01	0.02
168201 (8962573)	7.90	0.03	0.36	0.02	5.67	1.58	2.88	0.05	0.44	0.09	77.2	0.39	<0.01	0.02
168202 (8962574)	15.4	0.08	0.64	0.02	7.67	4.32	5.77	0.09	0.07	0.23	60.7	0.62	<0.01	0.02
168203 (8962575)	9.42	0.05	0.25	0.05	5.28	2.84	3.15	0.05	0.06	0.10	74.5	0.46	<0.01	0.02
168204 (8962576)	4.16	0.02	0.10	<0.01	3.09	1.16	1.67	0.03	0.06	0.03	86.8	0.12	<0.01	<0.01
168205 (8962577)	15.5	0.11	0.44	0.02	6.31	4.75	4.42	0.07	0.03	0.16	63.6	0.56	<0.01	0.02
168206 (8962578)	12.4	0.05	0.46	0.02	5.52	2.66	3.04	0.06	1.55	0.11	70.6	0.55	<0.01	0.02
168207 (8962579)	6.28	0.04	0.66	<0.01	3.48	1.96	2.05	0.04	0.03	0.05	81.8	0.15	<0.01	<0.01
168208 (8962580)	5.56	0.04	0.54	0.01	3.28	1.91	1.79	0.04	0.10	0.07	82.1	0.24	<0.01	<0.01
168209 (8962581)	15.2	0.12	0.49	0.03	4.40	4.90	2.57	0.04	0.64	0.17	66.2	0.73	<0.01	0.03
168210 (8962582)	13.8	0.05	0.66	0.02	9.14	2.87	4.61	0.09	0.85	0.16	62.7	0.72	<0.01	0.02
168211 (8962583)	12.9	0.05	0.76	0.02	7.92	2.62	4.29	0.08	0.79	0.13	65.9	0.58	<0.01	0.02
168212 (8962584)	14.3	0.04	0.89	0.03	9.02	3.12	4.82	0.10	0.66	0.13	62.2	0.66	0.01	0.03
168213 (8962585)	14.6	0.05	0.76	0.03	9.90	3.14	5.39	0.11	0.45	0.16	59.2	0.76	<0.01	0.03
168214 (8962586)	12.8	0.02	0.95	0.08	11.8	2.26	6.39	0.12	0.69	0.19	59.6	0.73	<0.01	0.03
168215 (8962587)	14.2	0.06	0.87	0.02	8.42	3.23	4.49	0.09	0.91	0.15	62.7	0.68	<0.01	0.02

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Certificate of Analysis

AGAT WORK ORDER: 17T292937
PROJECT: TS-NO-030045

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Laura Ritchie, Wesley Whymark

(201-676) Lithium Borate Fusion - Summation of Oxides, XRF finish

DATE SAMPLED: Dec 07, 2017 | DATE RECEIVED: Dec 08, 2017 | DATE REPORTED: Feb 09, 2018 | SAMPLE TYPE: Other

	Analyte:	LOI	Total
	Unit:	%	%
Sample ID (AGAT ID)	RDL:	0.01	0.01
168138 (8962559)		4.06	99.1
168146 (8962560)		4.29	98.0
168157 (8962561)		3.79	99.1
168164 (8962562)		4.01	99.2
168173 (8962563)		4.26	98.9
168046 (8962564)		3.12	99.1
168193 (8962565)		5.07	98.6
168194 (8962566)		4.20	99.4
168195 (8962567)		2.87	97.7
168196 (8962568)		3.99	99.4
168197 (8962569)		4.96	99.2
168198 (8962570)		4.51	99.7
168199 (8962571)		2.36	98.7
168200 (8962572)		2.73	99.0
168201 (8962573)		2.13	98.7
168202 (8962574)		3.74	99.4
168203 (8962575)		2.23	98.4
168204 (8962576)		1.16	98.4
168205 (8962577)		3.36	99.3
168206 (8962578)		3.11	100
168207 (8962579)		2.02	98.6
168208 (8962580)		1.42	97.1
168209 (8962581)		2.74	98.2
168210 (8962582)		3.57	99.2
168211 (8962583)		3.04	99.1
168212 (8962584)		3.45	99.4
168213 (8962585)		3.73	98.3
168214 (8962586)		3.38	99.0
168215 (8962587)		3.13	99.0

Comments: RDL - Reported Detection Limit

Certified By: Sherin Moussa

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Certificate of Analysis

AGAT WORK ORDER: 17T292937
PROJECT: TS-NO-030045

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Laura Ritchie, Wesley Whymark

(201-999) Total Organic Carbon

DATE SAMPLED: Dec 07, 2017 | DATE RECEIVED: Dec 08, 2017 | DATE REPORTED: Feb 09, 2018 | SAMPLE TYPE: Other

	Analyte:	Total Organic C
	Unit:	%
Sample ID (AGAT ID)	RDL:	0.02
168138 (8962559)		0.035
168146 (8962560)		0.046
168157 (8962561)		<0.02
168164 (8962562)		0.04
168173 (8962563)		<0.02
168046 (8962564)		<0.02
168193 (8962565)		0.04
168194 (8962566)		0.037
168195 (8962567)		0.035
168196 (8962568)		0.024
168197 (8962569)		0.024
168198 (8962570)		0.028
168199 (8962571)		<0.02
168200 (8962572)		0.032
168201 (8962573)		0.024
168202 (8962574)		0.021
168203 (8962575)		0.023
168204 (8962576)		<0.02
168205 (8962577)		0.023
168206 (8962578)		0.028
168207 (8962579)		0.02
168208 (8962580)		0.06
168209 (8962581)		<0.02
168210 (8962582)		0.026
168211 (8962583)		0.04
168212 (8962584)		0.04
168213 (8962585)		0.05
168214 (8962586)		0.074
168215 (8962587)		0.05

Comments: RDL - Reported Detection Limit

Certified By: Sherin Moussa

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CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Laura Ritchie, Wesley Whymark

(201-037) Total Inorganic Carbon by Eltra

	REPLICATE #1				REPLICATE #2											
Parameter	Sample ID	Original	Replicate	RPD	Sample ID	Original	Replicate	RPD								
Total Inorganic C	8962559	< 0.02	<0.02	0.0%	8962580	0.03	0.048	46.2%								

(201-038) LECO (Combustion IR) - Total C

	REPLICATE #1				REPLICATE #2				REPLICATE #3				REPLICATE #4			
Parameter	Sample ID	Original	Replicate	RPD	Sample ID	Original	Replicate	RPD	Sample ID	Original	Replicate	RPD	Sample ID	Original	Replicate	RPD
C	8962559	0.035	0.028	22.2%	8962569	0.024	0.026	8.0%	8962579	0.14	0.14	0.0%	8962587	0.10	0.098	2.0%

(201-039) LECO (Combustion IR) - Total S

	REPLICATE #1				REPLICATE #2				REPLICATE #3				REPLICATE #4			
Parameter	Sample ID	Original	Replicate	RPD	Sample ID	Original	Replicate	RPD	Sample ID	Original	Replicate	RPD	Sample ID	Original	Replicate	RPD
S	8962559	1.56	1.62	3.8%	8962569	0.341	0.365	6.8%	8962579	0.023	0.0198	15.0%	8962587	0.283	0.316	11.0%

(201-070) 4 Acid Digest - Metals Package, ICP-OES finish

	REPLICATE #1				REPLICATE #2											
Parameter	Sample ID	Original	Replicate	RPD	Sample ID	Original	Replicate	RPD								
Ag	8962559	< 0.5	< 0.5	0.0%	8962577	< 0.5	< 0.5	0.0%								
Al	8962559	5.78	6.27	8.1%	8962577	7.52	8.13	7.8%								
As	8962559	7	8	13.3%	8962577	< 1	< 1	0.0%								
Ba	8962559	442	472	6.6%	8962577	844	908	7.3%								
Be	8962559	1.1	1.2	8.7%	8962577	1.56	1.55	0.6%								
Bi	8962559	< 1	< 1	0.0%	8962577	< 1	< 1	0.0%								
Ca	8962559	0.354	0.369	4.1%	8962577	0.30	0.32	6.5%								
Cd	8962559	0.61	0.71	15.2%	8962577	0.63	0.69	9.1%								
Ce	8962559	28	28	0.0%	8962577	52	54	3.8%								
Co	8962559	49.5	44.3	11.1%	8962577	17.6	19.0	7.7%								
Cr	8962559	150	159	5.8%	8962577	94.1	98.2	4.3%								
Cu	8962559	67.0	72.4	7.7%	8962577	29.6	33.1	11.2%								
Fe	8962559	6.22	6.51	4.6%	8962577	4.01	4.34	7.9%								
Ga	8962559	18	21	15.4%	8962577	22	24	8.7%								
In	8962559	< 1	< 1	0.0%	8962577	< 1	< 1	0.0%								
K	8962559	1.92	2.08	8.0%	8962577	3.64	3.94	7.9%								
La	8962559	12	13	8.0%	8962577	26	26	0.0%								
Li	8962559	42	45	6.9%	8962577	64	69	7.5%								

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Mg	8962559	2.52	2.77	9.5%	8962577	2.45	2.65	7.8%								
Mn	8962559	491	537	8.9%	8962577	427	460	7.4%								
Mo	8962559	< 0.5	< 0.5	0.0%	8962577	< 0.5	< 0.5	0.0%								
Na	8962559	0.02	0.03	40.0%	8962577	0.04	0.05	22.2%								
Ni	8962559	97.5	103	5.5%	8962577	67.3	71.4	5.9%								
P	8962559	263	265	0.8%	8962577	651	681	4.5%								
Pb	8962559	< 1	< 1	0.0%	8962577	< 1	< 1	0.0%								
Rb	8962559	88	99	11.8%	8962577	248	268	7.8%								
S	8962559	1.95	1.69	14.3%	8962577	0.231	0.249	7.5%								
Sb	8962559	< 1	< 1	0.0%	8962577	< 1	< 1	0.0%								
Sc	8962559	18	19	5.4%	8962577	14	14	0.0%								
Se	8962559	< 10	< 10	0.0%	8962577	< 10	< 10	0.0%								
Sn	8962559	21	21	0.0%	8962577	13	14	7.4%								
Sr	8962559	14	11	24.0%	8962577	17	21	21.1%								
Ta	8962559	< 10	< 10	0.0%	8962577	< 10	< 10	0.0%								
Te	8962559	< 10	< 10	0.0%	8962577	< 10	< 10	0.0%								
Th	8962559	< 5	< 5	0.0%	8962577	< 5	< 5	0.0%								
Ti	8962559	0.43	0.45	4.5%	8962577	0.301	0.326	8.0%								
Tl	8962559	< 5	< 5	0.0%	8962577	< 5	< 5	0.0%								
U	8962559	7	8	13.3%	8962577	5	6	18.2%								
V	8962559	142	154	8.1%	8962577	98.2	104	5.7%								
W	8962559	< 1	< 1	0.0%	8962577	< 1	< 1	0.0%								
Y	8962559	12	13	8.0%	8962577	13	13	0.0%								
Zn	8962559	57.5	61.5	6.7%	8962577	54.1	58.2	7.3%								
Zr	8962559	65	70	7.4%	8962577	96	99	3.1%								

(201-676) Lithium Borate Fusion - Summation of Oxides, XRF finish

	REPLICATE #1				REPLICATE #2											
Parameter	Sample ID	Original	Replicate	RPD	Sample ID	Original	Replicate	RPD								
Al2O3	8962559	11.1	9.58	14.9%	8962577	15.5	15.5	0.1%								
BaO	8962559	0.05	0.03	43.9%	8962577	0.11	0.10	11.4%								
CaO	8962559	0.48	0.42	12.9%	8962577	0.44	0.45	1.6%								
Cr2O3	8962559	0.03	0.03	6.1%	8962577	0.02	0.02	0%								
Fe2O3	8962559	8.74	8.35	4.6%	8962577	6.31	6.31	0.1%								
K2O	8962559	2.31	2.02	13.4%	8962577	4.75	4.76	0.3%								

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MgO	8962559	4.32	3.67	16.4%	8962577	4.42	4.42	0.2%								
MnO	8962559	0.07	0.06	13.9%	8962577	0.07	0.07	8%								
Na2O	8962559	0.01	0.02	66.7%	8962577	0.13	0.14	6.5%								
P2O5	8962559	0.06	0.05	17.2%	8962577	0.16	0.16	1.9%								
SiO2	8962559	67.1	69.5	3.5%	8962577	63.6	63.6	0.1%								
TiO2	8962559	0.80	0.74	7.3%	8962577	0.56	0.55	1.3%								
SrO	8962559	<0.01	<0.01	0.0%	8962577	<0.01	<0.01	0%								
V2O5	8962559	0.02	0.02	0.0%	8962577	0.02	0.02	19%								
LOI	8962559	4.06	4.02	1.0%					8962577	3.34	3.3	1.2%				
(201-999) Total Organic Carbon																
	REPLICATE #1				REPLICATE #2											
Parameter	Sample ID	Original	Replicate	RPD	Sample ID	Original	Replicate	RPD								
Total Organic C	8962559	0.035	0.028		8962580	0.06	0.048	22.2%								

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CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Laura Ritchie, Wesley Whymark

(201-037) Total Inorganic Carbon by Eltra

	CRM #1				CRM #2				CRM #3 (SY-4)				CRM #4			
Parameter	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits
Total Inorganic C	12.0	11.87	98%	90% - 110%	12.0	12.01	100%	90% - 110%								

(201-038) LECO (Combustion IR) - Total C

	CRM #1				CRM #2				CRM #3				CRM #4			
Parameter	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits
C	0.94	0.95	101%	90% - 110%	0.95	0.96	101%	90% - 110%	0.95	0.94	98%	90% - 110%	0.95	0.96	101%	90% - 110%

(201-039) LECO (Combustion IR) - Total S

	CRM #1				CRM #2				CRM #3				CRM #4			
Parameter	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits
S	1.44	1.3	90%	90% - 110%	0.8	0.805	100%	90% - 110%	0.8	0.805	100%	90% - 110%	0.8	0.805	100%	90% - 110%

(201-070) 4 Acid Digest - Metals Package, ICP-OES finish

	CRM #1 (ref.SY-4)				CRM #2 (ref.Till-2)				CRM #3 (SY-4)				CRM #4			
Parameter	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits
Al	10.95	11.11	101%	90% - 110%	8.17	7.71	94%	90% - 110%								
Ba	340	347	102%	90% - 110%	540	491	91%	90% - 110%								
Be	2.6	2.7	105%	90% - 110%	4.0	3.1	78%	90% - 110%								
Ca	5.72	5.82	102%	90% - 110%	0.907	0.849	94%	90% - 110%								
Ce	122	110	90%	90% - 110%	98	86	88%	90% - 110%								
Co	2.8	3.2	114%	90% - 110%												
Cr					60.3	46	76%	90% - 110%								
Cu	7	6	85%	90% - 110%	150	132	88%	90% - 110%								
Fe	4.34	4.22	97%	90% - 110%	3.77	3.51	93%	90% - 110%								
Ga	35	37	106%	90% - 110%												
K	1.37	1.43	104%	90% - 110%												
La	58	53	92%	90% - 110%	44	39	89%	90% - 110%								
Li	37	40	109%	90% - 110%	47	44	94%	90% - 110%								
Mg	0.325	0.316	97%	90% - 110%	1.10	1.03	94%	90% - 110%								
Mn					780	685	88%	90% - 110%								
Na	5.267	5.709	108%	90% - 110%	1.624	1.6	99%	90% - 110%								
Ni	9	8	85%	90% - 110%	32	29	90%	90% - 110%								
P					572	652	114%	90% - 110%								

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Rb	55	67	122%	90% - 110%	143	148	103%	90% - 110%								
Sc					12	11	91%	90% - 110%								
Sr	1191	1198	101%	90% - 110%	144	134	93%	90% - 110%								
Ti	0.172	0.167	97%	90% - 110%	0.53	0.42	80%	90% - 110%								
U					5.7	7.3	128%	90% - 110%								
V	8	7	92%	90% - 110%	77	73	95%	90% - 110%								
Y	119	115	97%	90% - 110%												
Zn	93	95	102%	90% - 110%	130	115	88%	90% - 110%								

(201-676) Lithium Borate Fusion - Summation of Oxides, XRF finish

	CRM #1 (SY-4)				CRM #2				CRM #3 (SY-4)				CRM #4			
Parameter	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits	Expect	Actual	Recovery	Limits
Al2O3	20.69	20.5	99%	90% - 110%					20.69	20.7	100%	90% - 110%				
BaO	0.04	0.045	112%	90% - 110%					0.04	0.042	105%	90% - 110%				
CaO	8.05	7.83	97%	90% - 110%					8.05	7.94	99%	90% - 110%				
Fe2O3	6.21	6.11	98%	90% - 110%					6.21	6.19	100%	90% - 110%				
K2O	1.66	1.62	98%	90% - 110%					1.66	1.64	99%	90% - 110%				
MgO	0.54	0.530	98%	90% - 110%					0.54	0.520	96%	90% - 110%				
MnO	0.108	0.117	109%	90% - 110%					0.108	0.111	102%	90% - 110%				
Na2O	7.1	7.09	99%	90% - 110%					7.1	7.23	102%	90% - 110%				
P2O5	0.131	0.117	89%	90% - 110%					0.131	0.122	93%	90% - 110%				
SiO2	49.9	49.2	99%	90% - 110%					49.9	49.6	99%	90% - 110%				
TiO2	0.287	0.287	100%	90% - 110%					0.287	0.293	102%	90% - 110%				
SrO	0.1408	0.131	93%	90% - 110%					0.1408	0.139	99%	90% - 110%				
LOI					4.56	4.27	93%	90% - 110%					4.56	4.29	94%	90% - 110%

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Method Summary

CLIENT NAME: DST CONSULTING ENGINEERS
PROJECT: TS-NO-030045
SAMPLING SITE:

AGAT WORK ORDER: 17T292937
ATTENTION TO: Laura Ritchie, Wesley Whymark
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Solid Analysis			
Sample Login Weight	MIN-12009		BALANCE
Total Inorganic C	MIN-200-12036		FURNACE IR
C	MIN-200-12000	ASTM E1915-07a	LECO
S	MIN-200-12000	ASTM E1915-07a	LECO
Ag	MIN-200-12002/12020		ICP/OES
Al	MIN-200-12002/12020		ICP/OES
As	MIN-200-12002/12020		ICP/OES
Ba	MIN-200-12002/12020		ICP/OES
Be	MIN-200-12002/12020		ICP/OES
Bi	MIN-200-12002/12020		ICP/OES
Ca	MIN-200-12002/12020		ICP/OES
Cd	MIN-200-12002/12020		ICP/OES
Ce	MIN-200-12002/12020		ICP/OES
Co	MIN-200-12002/12020		ICP/OES
Cr	MIN-200-12002/12020		ICP/OES
Cu	MIN-200-12002/12020		ICP/OES
Fe	MIN-200-12002/12020		ICP/OES
Ga	MIN-200-12002/12020		ICP/OES
In	MIN-200-12002/12020		ICP/OES
K	MIN-200-12002/12020		ICP/OES
La	MIN-200-12002/12020		ICP/OES
Li	MIN-200-12002/12020		ICP/OES
Mg	MIN-200-12002/12020		ICP/OES
Mn	MIN-200-12002/12020		ICP/OES
Mo	MIN-200-12002/12020		ICP/OES
Na	MIN-200-12002/12020		ICP/OES
Ni	MIN-200-12002/12020		ICP/OES
P	MIN-200-12002/12020		ICP/OES
Pb	MIN-200-12002/12020		ICP/OES
Rb	MIN-200-12002/12020		ICP/OES
S	MIN-200-12002/12020		ICP/OES
Sb	MIN-200-12002/12020		ICP/OES
Sc	MIN-200-12002/12020		ICP/OES
Se	MIN-200-12002/12020		ICP/OES
Sn	MIN-200-12002/12020		ICP/OES
Sr	MIN-200-12002/12020		ICP/OES
Ta	MIN-200-12002/12020		ICP/OES
Te	MIN-200-12002/12020		ICP/OES
Th	MIN-200-12002/12020		ICP/OES
Ti	MIN-200-12002/12020		ICP/OES
Tl	MIN-200-12002/12020		ICP/OES
U	MIN-200-12002/12020		ICP/OES
V	MIN-200-12002/12020		ICP/OES
W	MIN-200-12002/12020		ICP/OES
Y	MIN-200-12002/12020		ICP/OES
Zn	MIN-200-12002/12020		ICP/OES
Zr	MIN-200-12002/12020		ICP/OES
Al2O3	MIN-200-12027		XRF
BaO	MIN-200-12027		XRF

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Method Summary

CLIENT NAME: DST CONSULTING ENGINEERS

AGAT WORK ORDER: 17T292937

PROJECT: TS-NO-030045

ATTENTION TO: Laura Ritchie, Wesley Whymark

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
CaO	MIN-200-12027		XRF
Cr2O3	MIN-200-12027		XRF
Fe2O3	MIN-200-12027		XRF
K2O	MIN-200-12027		XRF
MgO	MIN-200-12027		XRF
MnO	MIN-200-12027		XRF
Na2O	MIN-200-12027		XRF
P2O5	MIN-200-12027		XRF
SiO2	MIN-200-12027		XRF
TiO2	MIN-200-12027		XRF
SrO	MIN-200-12027		XRF
V2O5	MIN-200-12027		XRF
LOI	MIN-200-12021		GRAVIMETRIC
Total	MIN-200-12027		CALCULATION
Total Organic C	MIN-200-12036		FURNACE IR