APPENDIX 1.

ACID BASE ACCOUNTING

and

METALS LEACHING ANALYSES

including

TEST RESULTS

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Memo

To:	Mark Balog	**Date:**	January 26, 2006
cc:		**From:**	Kelly Sexsmith
Subject:	Tiriganiaq Geochemistry	**Project #:**	1CC024.00

1 Introduction

Comaplex Minerals is considering an underground exploration program in support of scoping studies for development of the Tiriganiaq gold deposit in Nunavut. The program would include excavation of an approximately 500 metre decline to gain access to the ore zones. The purpose of the program would be to confirm the continuity and grade of the ore lodes, and to obtain bulk sampling for metallurgical testing. Development of the underground decline will likely require a Class B water licence from the Nunavut Water Board. To support this application, Comaplex has asked SRK to provide an assessment of the potential for acid rock drainage and metal leaching from the waste rock, including recommendations for management of this material, and preliminary estimates of water quality.

Previous geochemical testing of the ore and waste rock was completed in conjunction with metallurgical testing programs completed in 1998 and 2001. The results indicated a mixed potential for acid rock drainage and metal leaching, with most of the hanging wall rock samples classified as non-acid generating, and most of the ore zone samples classified as having an uncertain potential for ARD. Further testing was recommended to improve the geological and spatial coverage of the sampling.

A supplemental testing program was initiated by SRK in November 2005. The first part of the program included acid base accounting to characterize the potential for ARD, and solids metal analyses to characterize the metal content of the samples. A limited number of these samples were selected for short-term leach extraction tests. This memo summarizes the results of the available testing data.

2 Geology and Mineralogy

A detailed description of the geological setting, the deposit geology and mineralogy is provided in a 2005 report by Strathcona Mineral Services Ltd. Features relevant to the geochemical assessment are summarized as follows.

The Tiriganiaq deposit is part of the Meliadine West property located approximately 25 km west northwest of Rankin Inlet. Rocks on the Meliadine West property are part of the Archean aged Rankin Inlet Greenstone belt. Gold mineralization at Tiriganiaq is principally hosted by a mesothermal quartz-vein dominated gold system occurring in a strongly sheared package of Archean turbiditic sediments and iron formations. The deposit is comprised of multiple loads of mineralization over a strike length of up to 1.5 km, sub-divided into the Tiriganiaq Main and West Zones. The mineralization is parallel to the dominant shear fabric that strikes east-west, and dips to the north at an average angle of 60°. All of the rocks in the deposit area have been subjected to low to mid-grade greenschist grade metamorphism.

A typical cross section of the deposit is shown in Figure 1. The stratigraphic sequence is as follows:

- The structural hanging wall is comprised of clastic turbidite sediments of variable grey coloured greywacke-siltstone-mudstone beds from the **Sam Formation**, ranging in thickness from centimetres to decimetres. This unit also contains minor amounts of argillite.

- The Sam Formation overlies a diverse package of iron-rich rocks with interbedded magnetite, chert, chloritic mudstone and greywacke from the **Upper Iron Formation**. The top of this unit is marked by a laterally continuous iron formation. This unit is often mineralized.

- The **Tiriganiaq Formation** is comprised of finely laminated siltstone. It is commonly altered to a yellowish grey colour by sericite alteration, particularly near the contact with the Lower Fault. Graphitic argillite occurs sporadically near the base of this sequence, and is often coincident with the Lower Fault zone, which demarks the contact with the underlying Wesmeg Formation.

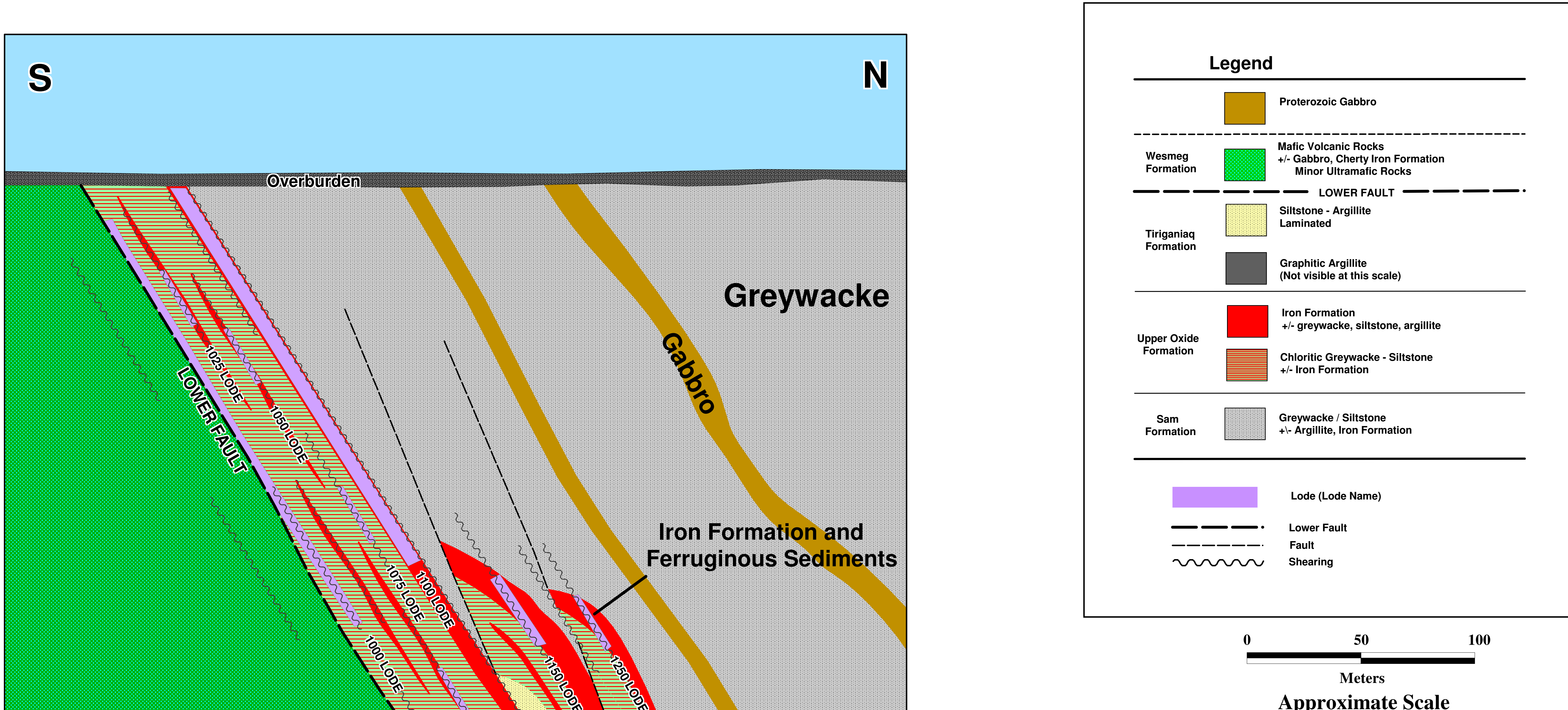
- The **Wesmeg Formation** is comprised mafic volcaniclastics, comprising the structural footwall of the deposit. These rocks are chlorite-rich near the Lower Fault, they can be highly schistose and sericite-carbonate altered.

Tiriganiaq is only one of several known gold occurrences on the property that occur near the faulted contact of sediments and mafic volcanic rocks. The Wolf North deposit located 3.5 km to the west is also associated with this contact, and is geologically analogous to this deposit. Other deposits on the property such as F, Pump, and Wolf Main differ in that they are hosted in lean, chert-rich, magnetite poor iron formations hosted in the Wesmeg Formation.

Gabbro dykes and sills of several ages as well as minor lamprophyre dykes are recognized on the Meliadine West property.

The proposed underground decline will be collared in the Sam Formation, and will ramp towards the ore zones. Therefore, most of the waste rock that will be produced will be from the Sam Formation. The relative proportions of each rock type will need to be defined for the water licence application.

Gold mineralization is directly associated with quart veins varying from thick laminated veins to wispy erratic stringers and stockwork. In general, quartz and quartz-ankerite veins tend to be mineralized, while quartz-calcite veins are commonly barren. Sulphide minerals occur in two main assemblages. The first, often associated with the iron formation and black argillite, includes wispy discontinuous laminations of pyrrhotite, pyrite, and chalcopyrite, typically parallel to the bedding. The second consists of coarse-grained clots of arsenopyrite and pyrrhotite associated with the quartz veining and gold mineralization. Both assemblages host minor local concentrations of galena and lesser amounts of sphalerite. Areas with strong gold mineralization are associated with hydrothermal sericite alteration. Coarse grained aggregates of carbonate often occur in conjunction with the quartz veins.



CLIENT	**COMAPLEX MINERALS CORP.**
PROJECT	**TIRIGANIAQ TECHNICAL REPORT**
TITLE	**Schematic Geological Cross Section Looking West**

APPROVAL	D.A.D.	DATE	March 2005	PROJECT No.	336-2

STRATHCONA MINERAL SERVICES LIMITED
TORONTO - CANADA

File: Comaplex Database Files

Figure 7

3 Review of Earlier Testing Data

Acid base accounting data is available for ore, waste rock and overburden samples from the Tiriganiaq deposit. The testing was completed by Lakefield Research in conjunction with the metallurgical testing programs. Information on the testing programs was presented in a 1998 submission by WMC International Ltd., and reports by Lakefield Research. The testing programs are summarized as follows:

- 3 samples representing quartz vein type ore (Melmet 2), iron formation type ore (Melmet 3), and a sample representing the complete ore profile (Melmet 1) were tested in April 1997.
- 2 samples representing iron formation ore (Comp 1-3) and quartz vein type ore (Comp 4-5) were tested in January 1998. Metallurgical testing was also completed on these samples, and duplicate samples of the process residues were also produced.
- 18 samples of waste rock were tested in May 1998. These included 3 greywacke, 4 argillite and 2 mixed greywacke and argillite samples from the hanging wall, 3 unmineralized iron formation samples from the ore zone, and 6 volcanic samples from the footwall.
- 7 samples of overburden were collected from surficial material in this area.

Two ore samples from the nearby Wolf North deposit were also characterized in a 2001 metallurgical testing program by Lakefield Research (April 2001), and are relevant due to the similarity between this deposit and Tiriganiaq.

The locations of the samples are provided in Figures 2 and 3.

The results for these samples are provided in Appendix 1.

Ore samples had consistently alkaline paste pH's (8.2 to 8.8), moderately high carbonate concentrations (5.9% to 8.4%), and moderately high neutralization potentials (NP) (79 to 139 kg$CaCO_3$-eq/tonne). The NP and the carbonate content were strongly correlated, suggesting that the NP occurs primarily as carbonate minerals. This is consistent with the mineralogy of the deposit. Sulphur concentrations were also elevated (0.9% to 4.4%), with most of the sulphur occurring as sulphide, resulting in moderately elevated acid potentials (AP). The samples had consistently positive net neutralization potentials, and NP/AP ratios between 1.1 and 6.3, indicating that some samples had an uncertain potential for ARD, while others would likely be non-acid generating. In the absence of kinetic testing data, an NP/AP ratio of less than 3 is typically used as an indication that samples could have potential for acid generation, while samples with NP/AP ratios of less than 1 are considered likely to be acid generating. Three out of the five Tiriganiaq ore samples tested had NP/AP ratios between 1 and 3. The other two Tiriganiaq samples and both of the Wolf North samples had NP/AP ratios of greater than 3.

Waste rock samples also had consistently alkaline paste pH's and moderate to high neutralization potentials. In general, NP's were lower (45 to 118 kg $CaCO_3$ eq/tonne) in the hanging wall rocks than in the volcanic footwall rocks (219 to 296, with one outlier of 44 kg $CaCO_3$ eq/tonne). Sulphur concentrations ranged from 0.01% to 6.81%, with most samples having less than 0.5% sulphur. The sulphur occurred primarily as sulphide. Two of the hanging wall argillite samples had sulphide concentrations of 4.75 and 6.81% respectively and were noted to be from a fault zone and a zone of intense quartz/pyrrhotite veining respectively. These two samples had NP/AP ratios of less than 1, and NNP's of -35 and -95 kg $CaCO_3$ eq/tonne, and were classified as potentially acid generating. The other sixteen samples, including 7 hanging wall samples, 4 iron formation samples, and six volcanic samples had NP/AP ratios of greater than 3. The data indicate that the majority of the waste rock is likely to be non-acid generating. However isolated zones of acid generating rock are likely to be present. Further testing was recommended to improve the spatial coverage of the sampling.

Overburden samples had negligible sulphur concentrations (0.01 to 0.02%) and low NP's (5 to 11 kg$CaCO_3$ eq/tonne, resulting in NP/AP ratios consistently greater than 10. The results indicate they are likely non-acid generating, but that they have limited excess buffering capacity.

4 Supplemental Testing Program

4.1 Samples

Samples were selected for testing by Comaplex minerals to represent the stratigraphy that the underground decline is likely to cross. A total of 48 samples were selected from diamond drill core from 1998, 2000 and 2004 drilling programs. The sample intervals were typically 5 metres long. The locations of the samples are shown in Figures 2 and 3. The list of target samples was reviewed by SRK.

A continuous quarter split section of core representing the entire interval selected was provided to the testing laboratory. Samples were sent to Canadian Environmental and Metallurgical Inc. (CEMI) for testing. An SRK geochemist examined the samples on receipt at the lab. The samples were typically competent and hard, and even the oldest samples showed little signs of oxidation and weathering. A rock saw had been used to prepare the quarter splits.

Both carbonate and sulphide minerals were observed in most samples. Calcite was observed in association with quartz veins and was confirmed by vigorous reaction with a 10% solution of hydrochloric acid. Carbonate was also likely present in the fine grained matrix of many samples, also indicated by reaction with hydrochloric acid. Ankerite was observed throughout the matrix of some of the more weathered volcanic samples. Sulphide minerals were typically disseminated or in clots distributed throughout the rock mass. In some samples, there was concentration of the sulphide minerals in the quartz veins. The most abundant sulphide minerals were pyrrhotite, pyrite and arsenopyrite. Lesser amounts of chalcopyrite and galena were found in some samples.

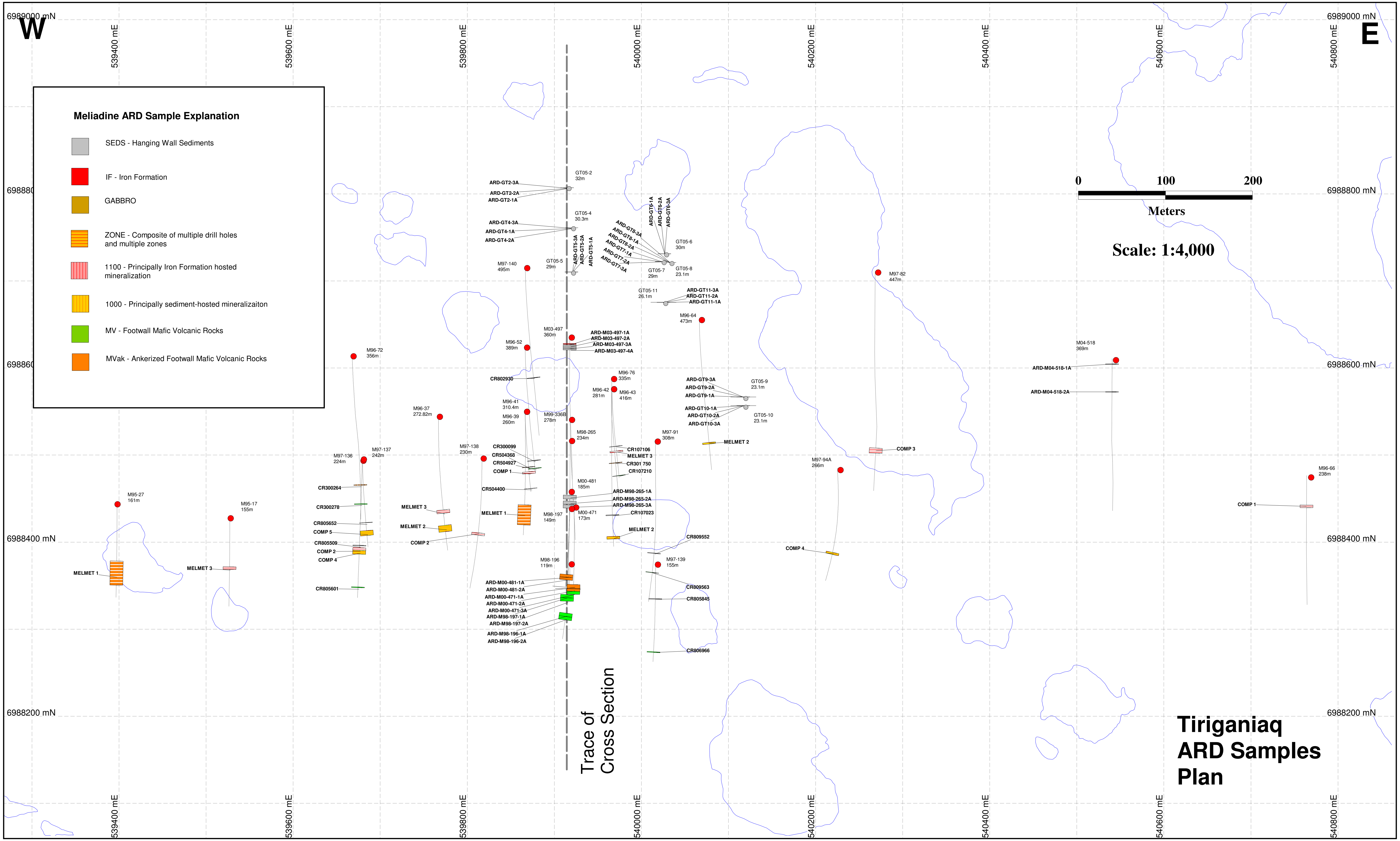
4.2 Testing Methods

4.2.1 Sample Preparation

Samples were jaw crushed to minus half inch. A representative portion of the samples was split from the jaw crushed material and pulverized for the assay tests. The remaining material was wetted by adding 50 mL of deionized water and the sample bags were loosely sealed to ensure some exchange of oxygen. The samples were stored for approximately 1 month at room temperature to condition them for extraction tests.

4.2.2 ABA and Elemental Analyses

All of the samples were submitted for acid base accounting and elemental analyses. The acid base accounting tests were completed using the Modified Sobek method, including analysis of paste pH, sulphur speciation, and inorganic carbon. The samples for elemental analyses were prepared using an aqua regia digestion, and were analyzed by ICP.



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Meliadine ARD Sample Explanation
SEDS - Hanging Wall Sediments
IF - Iron Formation
GABBRO
ZONE - Composite of multiple drill holes and multiple zones
1100 - Principally Iron Formation hosted mineralization
1000 - Principally sediment-hosted mineralizaiton
MV - Footwall Mafic Volcanic Rocks
MVak - Ankerized Footwall Mafic Volcanic Rocks
0
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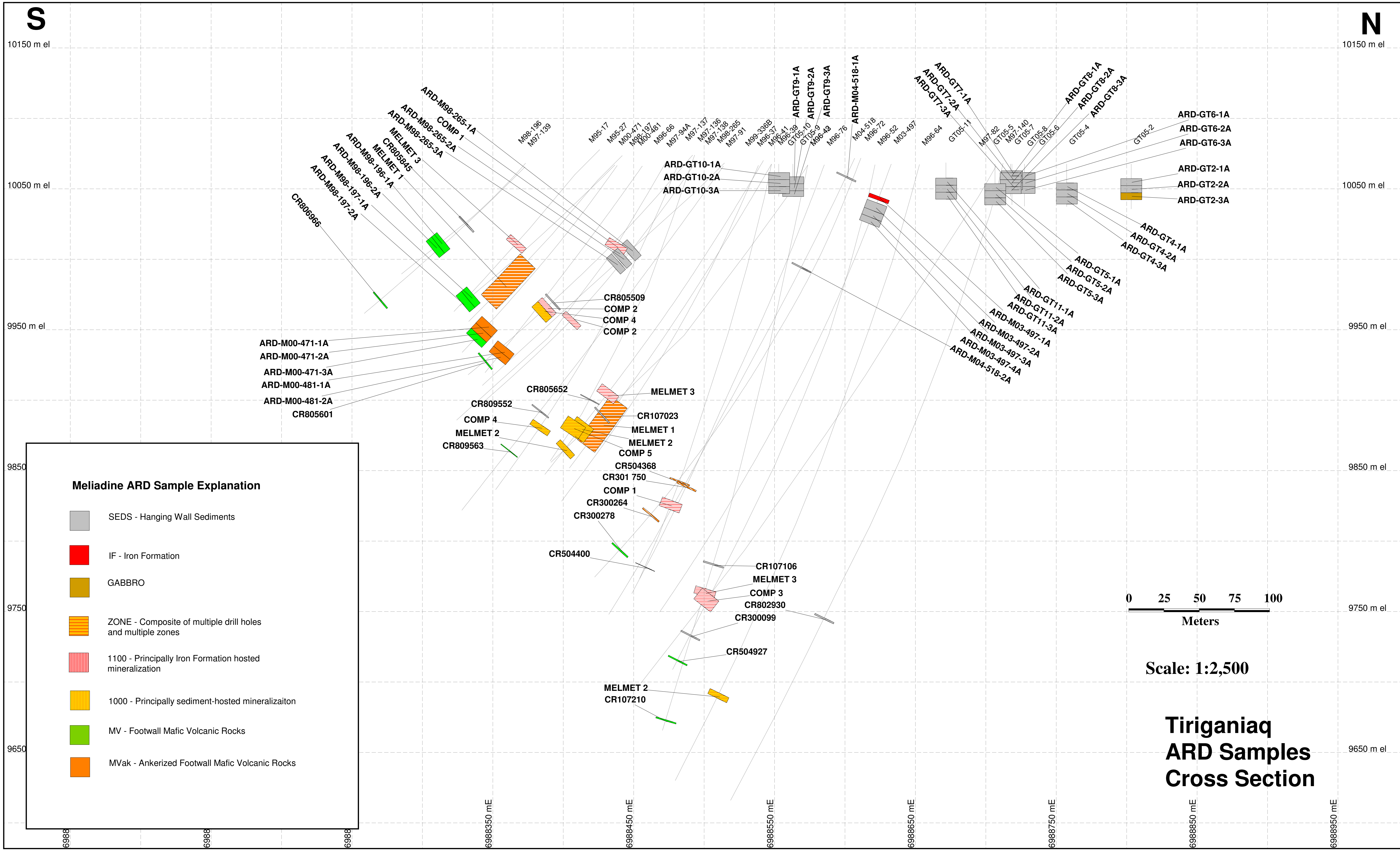
200
Meters
Scale: 1:4,000
Trace of Cross Section
MELMET 1
MELMET 2
MELMET 3
COMP 1
COMP 2
COMP 3
COMP 4
COMP 5
Tiriganiaq ARD Samples Plan



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ARD-M98-197-1A
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M98-196
M97-139
M95-17
M95-27
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M96-66
M97-94A
M97-137
M97-136
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M98-265
M97-91
M99-336B
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GT05-10
GT05-9
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M04-518
M96-72
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M03-497
M96-64
GT05-11
M97-82
GT05-5
M97-140
GT05-7
GT05-8
GT05-6
GT05-4
GT05-2
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ARD-GT9-3A
ARD-M04-518-1A
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COMP 4
COMP 2
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CR809552
CR107023
COMP 4
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MELMET 2
MELMET 2
CR809563
COMP 5
CR504368
CR301 750
COMP 1
CR300264
CR300278
CR504400
CR107106
MELMET 3
COMP 3
CR802930
CR300099
CR504927
MELMET 2
CR107210
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0 25 50 75 100
Meters
Scale: 1:2,500
Tiriganiaq
ARD Samples
Cross Section
6988350 mE
6988450 mE
6988550 mE
6988650 mE
6988750 mE
6988850 mE
6988950 mE

4.2.3 Leach Extraction Tests

At Comaplex's request, SRK selected three waste rock samples from the December 2005 static testing program for leach extraction testing. The samples included one greywacke sample from the hanging wall sediments, one iron formation sample, and one mafic volcanic sample.

Use of extraction tests on fresh competent drill core is not generally recommended due to the limited surface area available for oxidation prior to testing. However, the conditioning described previously should have allowed some oxidation to occur on the freshly exposed surfaces, thereby improving the validity of the results.

Tests were completed using the shake flask extraction method on the minus ¼ inch jaw crushed and conditioned material. In brief, 250 grams of sample was mixed with 750 mL of ultrapure deionized water and was allowed to equilibrate for 96 hours. The pH and conductivity of the leachate was measured and the leachate was filtered and submitted for alkalinity, sulphate, and a full suite metals by ICP-MS.

4.3 Results and Discussion

4.3.1 Acid Base Accounting

The acid base accounting results are provided in Appendix 2.

All of the samples tested had slightly alkaline paste pH's and moderate to high amounts of neutralization potential and carbonate. The mafic volcanic rocks tended to have somewhat higher neutralization potential (228 to 289 kg $CaCO_3$ eq/tonne) compared to the sedimentary rocks and gabbro dykes (20.1 to 102 kg $CaCO_3$ eq/tonne) (Figure 4). A single iron formation sample had an NP of 77 kg $CaCO_3$ eq/tonne. The NP was strongly correlated with carbonate content (Figure 5). Carbonate concentrations tended to be somewhat higher than the neutralization potential in the Iron formation and mafic volcanic samples. This is an indication that some of the carbonate was occurring as iron carbonate minerals. Ankerite was noted on the logs for several of these samples, and is the likely source of the iron carbonate. Carbonate minerals were noted in several of the hand samples, particularly in association with the quartz veining. These reacted strongly in 10% hydrochloric acid, indicating that the carbonate mineral was likely calcite.

Sulphur concentrations were typically less than 0.5% and therefore acid potentials were less than 15 kg $CaCO_3$ eq/tonne, although one of the sedimentary samples, two of the volcanic samples and the iron formation sample had higher values. As shown in Figure 4, the majority of the waste rock samples have NP:AP ratios of greater than 3, indicating they have a negligible potential for ARD. Three of the sedimentary samples and the iron formation sample had NP/AP ratios in the range of 1 to 3. In the absence of kinetic testing data, these are considered to be potentially acid generating. Overall, the relatively small proportion of samples with potential for acid generation and the high NP content of all of the samples indicate that seepage from the waste rock pile is likely to remain neutral.

4.3.2 Elemental Analyses

Results of the elemental analyses are provided in Appendix 3.

The elemental analyses indicate that arsenic and sulphur concentrations in the waste rock samples are enriched in comparison to typical concentrations in the earth's crust. This is consistent with the presence of arsenopyrite in several of the samples. Other trace elements were less than 2x higher than normal crustal values.

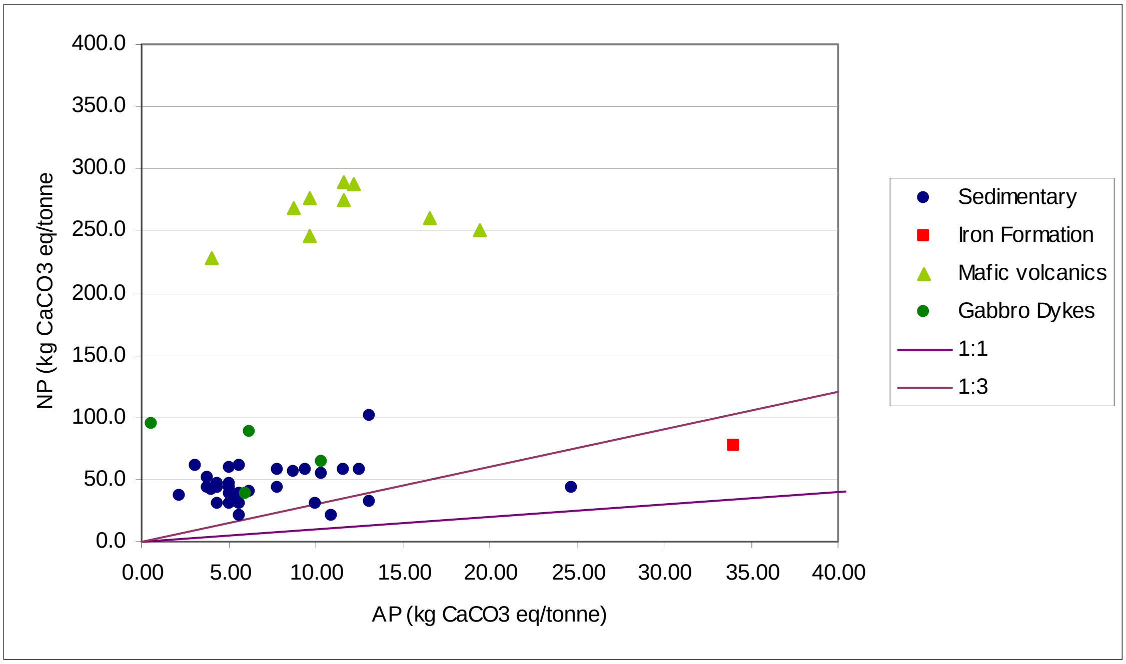

Figure 4: Acid Base Accounting Results - NP versus AP

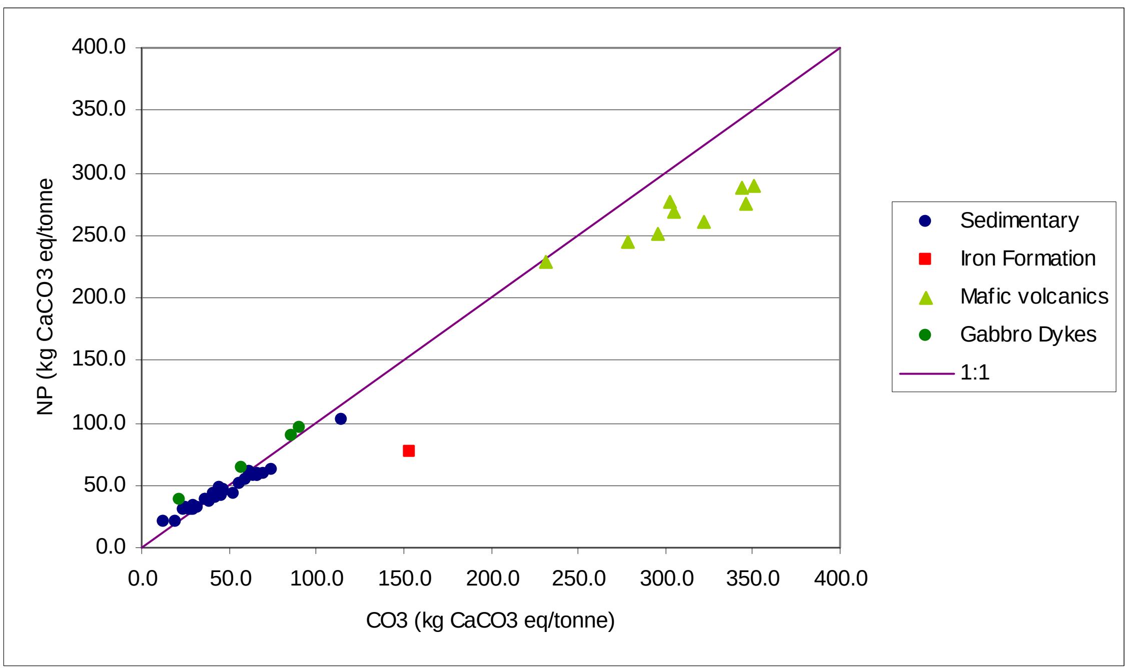

Figure 5: Carbonate versus Modified Sobek NP

The elemental analyses do not provide an indication of the solubility or rate of release of these elements from the waste rock. Arsenic and other trace elements such as copper, cobalt, nickel, and zinc may be mobilized as a result of sulphide oxidation. The rate of metal leaching will also be controlled by the rate of oxidation, the amount of waste rock, the grain size distribution of the rock, the iron content of the rock, and the local pH conditions. Because the pH conditions are expected to remain neutral, concentrations are not expected to be excessively high. However, it is possible that concentrations of some trace elements in seepage from the waste pile will exceed CCME guidelines for freshwater aquatic life. Further testing is therefore required to estimate the potential magnitude and rate of metal release from these materials.

4.3.3 Leach Extraction Test Results

The results are presented in Appendix 4. The results indicate the leachate had neutral pH's, moderate alkalinities, and relatively low sulphate concentrations (maximum of 21 mg/L was observed in the mafic volcanic sample). Trace element concentrations were generally low in comparison to typical mine waste samples. However, concentrations of aluminum, arsenic, copper and zinc were slightly elevated compared to CCME aquatic life guidelines in the mafic volcanic sample, and concentrations of aluminum and arsenic were slightly elevated compared to CCME aquatic life guidelines in the greywacke sample. Potential for release of trace concentrations of these elements is consistent with the mineralogy and elemental composition of the samples.

The number of samples is too few to determine the potential variability in concentrations within or between each of these rock types. However, once further information on the underground development plans is available, these data could be used in scoping level calculations to provide an initial indication of the potential magnitude of contaminant loading. If those calculations indicate potential for impacts, further testing may be warranted.

5 Conclusions and Recommendations

Test results indicate that the majority of the waste rock that would be produced from the proposed exploration decline would be non-acid generating. A few samples (<10%) from the hanging wall of the deposit were classified as acid generating or potentially acid generating. However, they contain significant amounts of neutralization potential. Provided that these isolated intervals of material are well distributed in the waste dump, ARD is unlikely to occur. Monitoring of the blasted rock during excavation of the decline may be required to ensure that any potentially acid generating rock is identified and managed appropriately.

Data from several of the Iron Formation samples had NP/AP ratios in the range of 1 to 3, indicating this material should be classified as potentially acid generating. This material contains sufficient NP that there is likely to be a significant lag time to acid generation. However, to ensure long-term stability of this material, consideration should be given to encapsulating it within the center of the waste rock pile where can be frozen, or to return it to the underground workings where it will eventually become flooded.

The iron formation rock contains iron oxide minerals which may become mobilized as a result of reductive dissolution. Evidence from the Ekati Diamond Mine™ indicates that reductive dissolution of iron can lead to the development of low pH conditions downstream of waste piles as the iron re-precipitates and releases hydrogen ions. Care should be taken to avoid placing this material or any rock that contains significant quantities of iron sulphides directly on organic soils or plant matter.

Elemental analyses indicate there is some potential for release of arsenic and other trace elements from the rock. Aluminum arsenic, copper and iron were slightly soluble in two of three leach extraction tests. The leach extraction results can be used in conjunction with information on the amount of waste rock, the hydrology, and the expected configuration of the dump to calculate the potential magnitude of contaminant loading from this material.

Depending on the timing of the permit application, it may be worth considering initiating a small number of kinetic tests. These would be useful for future environmental assessment work, and would provide the information needed to estimate water quality from the development waste rock dump. At this stage in the project, one sample from each of the main rock units should be considered.

If you have any questions, please contact the undersigned.

Yours truly,

Kelly Sexsmith, P.Geo
Senior Environmental Geochemist

Appendix 1: Acid Base Accounting Test Results – 1997, 1998 and 2001 Lakefield Testing Data

Appendix 1 - Acid Base Accounting Test Results - 1997, 1998 and 2001 Lakefield Testing Data

Ore and Tailings Samples

Sample Type	Sample #	Reference	Head/ Residue	Paste pH s.u.	NP *	CO3 %	CO3-NP *	S %	S(S2-) %	S(SO4) %	AP *	NNP *	NP/AP	Comments
Iron formation	Melmet 1	Lakefield, April 1997	Composite Ore	8.84	103	5.9	98	0.87	0.61	<0.13	19	84	5.4	
	Melmet 2	Lakefield, April 1997	Qtz Vein Ore	8.75	139	8.35	139	1.74	1.32	<0.13	41	97	3.4	
	Melmet 3	Lakefield, April 1997	Iron Fm Ore	8.19	120	5.85	98	4.38	3.34	<0.13	104	15	1.1	
	Comp 1-3	Lakefield, Jan 1998	Iron Fm Ore	8.24	79	6	100	1.96	1.95	<0.13	61	18	1.3	
	Comp 4-5	Lakefield, Jan 1998	Qtz Vein Ore	8.50	90	6.8	113	1.35	1.31	<0.13	41	49	2.2	
	Comp 1-3	Lakefield, Jan 1998	Tailings**	7.08	64	6.5	108	1.78	1.49	<0.13	47	17	1.4	
	Comp 1-3	Lakefield, Jan 1998	Tailings**	8.18	78	6.1	102	1.82	1.68	0.23	53	26	1.5	
	Comp 4-5	Lakefield, Jan 1998	Tailings**	8.53	92	6.9	115	1.42	1.32	<0.13	41	51	2.2	
	Comp 4-5	Lakefield, Jan 1998	Tailings**	8.67	90	6.7	112	1.48	1.17	0.20	37	53	2.5	
	Comp WN	Lakefield, April 2001	Ore	8.70	110	8.2	137	0.93	0.62	0.31	19	91	5.7	
	Comp WN	Lakefield, April 2001	Ore	8.49	111	8.35	139	0.9	0.56	0.34	18	94	6.3	

Waste Rock

Waste Rock	Sample #	Location		Paste pH	NP	CO3	CO3-NP	S	S(S2-)	S(SO4)	AP	NNP	NP/AP	Comments
		Hole #	From/To	s.u.	*	%	*	%	%	%	*	*		
HW-Greywacke	CR107106	Mel 96-43	1291.75 - 292.76	8.51	46.6	3.96	66	0.01	0.01	<0.13	0.31	46.3	150.0	Chlorite
	CR802930	Mel 97-140	348.71 - 349.74	8.98	46.1	3.71	62	0.15	0.07	<0.13	2.2	43.9	21.0	Sheared, chlorite, sericite
	CR805509	Mel 97-136	144.00 - 145.00	9.00	44.7	3.63	61	0.23	0.19	<0.13	5.9	38.8	7.6	Trace pyrrhotite
HW-Mixed	CR805652	Mel 97-137	189.46 - 190.00	8.93	57.2	4.10	68	0.10	0.08	<0.13	2.5	54.7	22.9	Chlorite
Greywacke/Argillite	CR805845	Mel 97-139	57.97 - 59.08	9.05	47.6	3.32	55	0.17	0.08	<0.13	2.5	45.1	19.0	Chlorite
HW-Argillite	CR107023	Mel 96-42	231.00 - 231.98	9.10	82.3	6.55	109	0.36	0.32	<0.13	10	72.3	8.2	Sericite, chlorite
	CR300099	Mel 96-52	361.00 - 362.00	9.04	47.7	4.34	72	0.15	0.12	<0.13	3.8	43.9	12.6	Sheared
	CR504400	Mel 96-41	300.95 - 301.20	8.09	108	7.41	124	4.75	4.57	<0.13	143	-35.0	0.8	Fault zone
	CR809552	Mel 97-91	217.43 - 218.18	7.83	118	6.41	107	6.81	6.81	<0.13	213	-95.0	0.6	20% quartz veins with po
Ore Zone - Iron	CR300264	Mel 96-72	295.78 - 296.91	8.64	39.4	3.83	64	0.31	0.24	<0.13	7.5	31.9	5.3	Magnetite, minor pyrite
Formation	CR301750	Mel 96-76	248.78 - 249.93	8.26	92.5	7.34	122	0.74	0.62	<0.13	19.4	73.1	4.8	Magnetite
	CR504368	Mel 96-41	235.00 - 236.00	7.82	149	13.3	222	1.36	1.21	<0.13	37.8	111.0	3.9	Magnetite, minor pyrrhotite
	CR504369-REP	Mel 96-42	235.00 - 236.01	7.76	149	13.5	225	1.41	1.32	<0.13	41.3	108.0	3.6	
FW-Volcanics	CR107210	Mel 96-43	407.88 - 408.79	8.89	263	18.5	308	0.56	0.38	<0.13	11.9	251.0	22.1	Sheared, quartz veins
	CR300278	Mel 96-72	329.17 - 330.26	8.78	43.9	3.36	56	0.30	0.22	<0.13	6.9	37.0	6.4	Quartz veins, 0.5% pyrite
	CR504927	Mel 96-52	381.00 - 382.00	8.43	219	12.8	213	0.14	0.09	<0.13	2.8	216.0	78.2	Epidote
	CR805601	Mel 97-136	208.00 - 209.00	8.83	275	17.9	298	0.40	0.38	<0.13	11.9	263.0	23.1	Trace po, py, aspy, 0.72 g/t Au
	CR806966	Mel 97-139	139.79 - 140.79	8.50	296	20	333	1.35	1.13	<0.13	35.3	261.0	8.4	Quartz veins, py & po
	CR809563	Mel 97-91	253.42 - 253.93	8.65	289	16.6	277	0.30	0.30	<0.13	9.4	280.0	30.7	Fucsite

Overburden

Overburden	Sample #	Location		Paste pH	NP	CO3	CO3-NP	S	S(S2-)	S(SO4)	AP	NNP	NP/AP	Comments
		Northing UTM83	Easting UTM83	s.u.	*	%	*	%	%	%	*	*		
Mud-Boil	CS500156	6987097	542435	8.52	7.8	3.14	52	0.02	0.02	<0.13	0.63	7.2	12.4	Abundant Marine Shells
Mud-Boil	CS500184	6989009	540024	8.61	10.8	0.65	11	0.01	0.01	<0.13	0.31	10.5	34.8	
Mud-Boil	CS500187	6988742	539467	7.46	6.1	0.48	8	0.01	-0.01	<0.13	0.31	6.1	19.7	
Mud-Boil	CS500188	6988470	539487	8.55	8.6	0.49	8	0.01	0.01	<0.13	0.31	8.3	27.7	
Mud-Boil	CS500189	6988190	539524	8.17	5.2	0.40	7	0.01	-0.01	<0.13	0.31	5.2	16.8	
Mud-Boil	CS500190	6988264	539991	8.23	6.1	0.22	4	0.01	-0.01	<0.13	0.31	6.1	19.7	
Mud-Boil	CS500191	6987923	539969	7.92	6.0	0.61	10	0.01	-0.01	<0.13	0.31	6.0	19.4	
Mud-Boil	CS500191-REP	6987923	539969	8.08	6.0	0.54	9	-0.01	-0.01	<0.13	0.31	6.0	19.4	

Notes:
Sulphide Sulphur method not specified.
AP is calculated from the sulphide sulphur
NP was completed using the Standard Sobek method
* NP, CO3-NP, AP, and NNP are presented in units of kg CaCO3 eq/tonne
** It is noted that tailings will not be produced during development of the exploration decline.

Appendix 2: Acid Base Accounting Results

Appendix 2 - 2005 Acid Base Accounting Test Results

Sample ID		Hole #	DH DEPTH		WIDTH	LITHO		Paste	NP	CO2	CaCO3	S(T)	S(SO4)	S(S-2)	AP	Net	NP/AP	Fizz Test
	Tag #		From	To		Rock Code	Zone	pH		%	NP	%	%	%		NP		
ARD-GT2-1A	415091	GT05-2	10.40	15.40	5	Kwa-s	SEDS	9.5	43.3	1.86	42.3	0.14	<0.01	0.14	4.38	38.9	9.9	moderate
ARD-GT2-2A	415097	GT05-2	15.40	20.40	5	Kwa-s	SEDS	9.4	30.5	1.19	27.0	0.32	<0.01	0.32	10.00	20.5	3.1	moderate
ARD-GT4-1A	415401	GT05-4	13.45	18.45	5	Kwa'ser	SEDS	9.0	40.7	1.85	42.0	0.2	<0.01	0.20	6.25	34.5	6.5	slight
ARD-GT4-2A	415407	GT05-4	18.45	23.45	5	Kwa'ser	SEDS	9.1	44.1	2.06	46.8	0.16	<0.01	0.16	5.00	39.1	8.8	slight
ARD-GT4-3A	415413	GT05-4	23.45	28.45	5	Ks	SEDS	9.1	38.8	1.63	37.0	0.16	<0.01	0.16	5.00	33.8	7.8	slight
ARD-GT5-1A	415419	GT05-5	14.00	19.00	5	Kwa-s	SEDS	9.2	59.8	2.94	66.8	0.16	<0.01	0.16	5.00	54.8	12.0	slight
ARD-GT5-2A	415425	GT05-5	19.00	24.00	5	Kwa-s	SEDS	9.1	51.4	2.47	56.1	0.12	<0.01	0.12	3.75	47.7	13.7	slight
ARD-GT5-3A	415431	GT05-5	24.00	29.00	5	Kwa'ser	SEDS	9.3	61.8	3.27	74.3	0.18	<0.01	0.18	5.63	56.2	11.0	slight
ARD-GT6-1A	415437	GT05-6	6.00	11.00	5	Kwa	SEDS	9.2	43.0	1.93	43.9	0.16	<0.01	0.16	5.00	38.0	8.6	slight
ARD-GT6-2A	415443	GT05-6	11.00	16.00	5	Kwa	SEDS	9.2	57.8	2.74	62.3	0.37	<0.01	0.37	11.56	46.2	5.0	slight
ARD-GT6-3A	415449	GT05-6	16.00	21.00	5	Kwa'ser	SEDS	9.2	57.5	2.84	64.5	0.3	<0.01	0.30	9.38	48.1	6.1	slight
ARD-GT7-1A	415455	GT05-7	4.80	8.10	3.3	Ks-wa	SEDS	8.4	37.3	1.73	39.3	0.1	0.03	0.07	2.19	35.1	17.1	slight
ARD-GT7-2A	415459	GT05-7	8.65	13.35	4.7	Ks-wa	SEDS	9.5	41.3	2	45.5	0.13	<0.01	0.13	4.06	37.2	10.2	slight
ARD-GT7-3A	415464	GT05-7	13.35	18.35	5	Kwa'ser	SEDS	9.4	58.5	3.07	69.8	0.25	<0.01	0.25	7.81	50.7	7.5	slight
ARD-GT8-1A	415470	GT05-8	6.10	11.10	5	Ks	SEDS	9.1	43.7	1.97	44.8	0.15	0.01	0.14	4.38	39.3	10.0	slight
ARD-GT8-2A	415476	GT05-8	11.10	16.10	5	Kwa	SEDS	9.3	47.3	1.96	44.5	0.14	<0.01	0.14	4.38	42.9	10.8	slight
ARD-GT8-3A	415482	GT05-8	16.10	21.10	5	Kwa	SEDS	9.6	56.9	2.93	66.6	0.28	<0.01	0.28	8.75	48.2	6.5	slight
ARD-GT9-2A	415494	GT05-9	13.97	18.97	5	Kwa-qv	SEDS	9.5	30.9	1.06	24.1	0.18	<0.01	0.18	5.63	25.3	5.5	slight
ARD-GT9-3A	415500	GT05-9	18.97	23.10	4.13	Kwa-s	SEDS	9.2	31.0	1.31	29.8	0.16	<0.01	0.16	5.00	26.0	6.2	moderate
ARD-GT10-1A	415055	GT05-10	6.00	11.00	5	Kwa-s	SEDS	9.5	34.4	1.29	29.3	0.17	<0.01	0.17	5.31	29.1	6.5	moderate
ARD-GT10-2A	415061	GT05-10	11.00	16.00	5	Ks-wa	SEDS	9.2	31.0	1.27	28.9	0.14	<0.01	0.14	4.38	26.6	7.1	moderate
ARD-GT10-3A	415067	GT05-10	16.00	21.00	5	Kwa	SEDS	9.7	38.8	1.62	36.8	0.18	<0.01	0.18	5.63	33.2	6.9	moderate
ARD-GT11-1A	415073	GT05-11	11.00	16.00	5	Kwa	SEDS	9.3	43.5	1.97	44.8	0.14	0.02	0.12	3.75	39.8	11.6	strong
ARD-GT11-2A	415079	GT05-11	16.00	21.00	5	Kwa-qv	SEDS	9.7	60.8	2.72	61.8	0.1	<0.01	0.10	3.13	57.7	19.5	strong
ARD-GT11-3A	415085	GT05-11	21.00	26.00	5	Kwa-s	SEDS	9.3	46.3	2.08	47.3	0.16	<0.01	0.16	5.00	41.3	9.3	moderate
ARD-M03-497-2A	451379	M03-497	29.35	35.55	6.2	Ks	SEDS	9.3	43.5	2.32	52.7	0.79	<0.01	0.79	24.69	18.8	1.8	slight
ARD-M03-497-3A	451380	M03-497	35.55	40.55	5	Kwa	SEDS	9.7	102.0	5.06	115.0	0.42	<0.01	0.42	13.13	88.9	7.8	slight
ARD-M03-497-4A	451381	M03-497	40.55	45.10	4.55	Kwa-qv	SEDS	9.6	58.4	2.9	65.9	0.4	<0.01	0.40	12.50	45.9	4.7	slight
ARD-M04-518-1A	339260	M04-518	14.00	15.00	1	Kwa-s	SEDS	9.5	20.8	0.55	12.5	0.18	<0.01	0.18	5.63	15.2	3.7	slight
ARD-M04-518-2A	339264	M04-518	86.00	87.00	1	Kwa	SEDS		20.1	0.85	19.3	0.35	<0.01	0.35	10.94	9.2	1.8	slight
ARD-M98-265-1A	451400	M98-265	88.00	94.00	6	Kwa	SEDS	9.2	54.3	2.64	60.0	0.33	<0.01	0.33	10.31	44.0	5.3	moderate
ARD-M98-265-2A	415456	M98-265	97.00	102.00	5	Kwa	SEDS	9.6	43.0	1.81	41.1	0.25	<0.01	0.25	7.81	35.2	5.5	moderate
ARD-M98-265-3A	415462	M98-265	103.00	108.00	5	Kwa	SEDS	9.5	32.8	1.42	32.3	0.18	0.01	0.17	5.31	27.5	6.2	slight
ARD-M99-336B-1A	451382	M99-366B	46.32	51.32	5	Kwa	SEDS	9.6	32.0	1.09	24.8	0.43	0.01	0.42	13.13	18.9	2.4	slight
ARD-M03-497-1A	451378	M03-497	24.60	27.24	2.64	Nimj	IF	8.7	76.5	6.76	153.6	1.09	<0.01	1.09	34.06	42.4	2.2	moderate
ARD-M00-471-1A	451365	M00-471	144.55	151.00	6.45	Mv'ser'ak	MVak	9.5	287.5	15.14	344.1	0.39	<0.01	0.39	12.19	275.3	23.6	strong
ARD-M00-471-2A	451366	M00-471	151.00	156.00	5	Mv'ser'ak	MVak	9.2	245.2	12.24	278.2	0.31	<0.01	0.31	9.69	235.5	25.3	strong
ARD-M00-481-1A	451363	M00-481	161.52	166.52	5	Mv'ser'ak	MVak	9.4	274.7	15.23	346.1	0.37	<0.01	0.37	11.56	263.1	23.8	strong
ARD-M00-481-2A	451364	M00-481	166.52	171.52	5	Mv'ser'ak	MVak	9.5	289.4	15.43	350.7	0.37	<0.01	0.37	11.56	277.8	25.0	strong
ARD-M00-471-3A	451372	M00-471	156.00	161.00	5	Mv'ca'c	MV	9.0	228.2	10.18	231.4	0.13	<0.01	0.13	4.06	224.1	56.2	strong
ARD-M98-196-1A	451359	M98-196	80.70	85.70	5	Mv	MV	9.3	251.3	13.03	296.1	0.62	<0.01	0.62	19.38	231.9	13.0	strong
ARD-M98-196-2A	451360	M98-196	85.70	90.70	5	Mv	MV	9.0	268.5	13.39	304.3	0.28	<0.01	0.28	8.75	259.8	30.7	strong
ARD-M98-197-1A	451361	M98-197	136.80	141.80	5	Mv	MV	9.1	260.3	14.19	322.5	0.53	<0.01	0.53	16.56	243.7	15.7	strong
ARD-M98-197-2A	451362	M98-197	141.80	146.80	5	Mv	MV	9.4	276.3	13.32	302.7	0.31	<0.01	0.31	9.69	266.6	28.5	strong
ARD-GT9-1A	415488	GT05-9	8.97	13.97	5	Mg	GAB	9.1	95.3	3.96	90.0	0.02	<0.01	0.02	0.63	94.7	152.5	moderate
ARD-GT2-3A	451353	GT05-2	20.40	25.40	5	Mg	GAB	9.4	38.5	0.94	21.4	0.19	<0.01	0.19	5.94	32.6	6.5	strong
ARD-M99-336B-2A	451388	M99-366B	51.32	56.32	5	Mg'bt	GAB	9.5	89.0	3.79	86.1	0.2	<0.01	0.20	6.25	82.8	14.2	moderate
ARD-M99-336B-3A	451394	M99-366B	56.32	61.32	5	Mg'ep	GAB	9.5	63.8	2.52	57.3	0.33	<0.01	0.33	10.31	53.5	6.2	moderate

Notes: AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Carbonate NP is calculated from CO2 originating from carbonates and is expressed in kg CaCO3/tonne.

Appendix 3: Results for Elemental Analyses

Appendix 3
2005 Elemental Analyses

Sample ID	LITHO		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Se
	Rock Code	Zone	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm
ARD-GT2-1A	Kwa-s	SEDS	2	53.2	7.6	78	<0.1	67.6	21.7	385	3.7	**46**	0.7	3.8	4.4	70	0.1	0.1	0.2	26	1.3	0.05	25	100.6	1.41	40	0.013	<1	2.07	0.018	0.14	0.1	<0.01	**2.2**	<0.1	0.14	6	<0.5
ARD-GT2-2A	Kwa-s	SEDS	1.8	48.5	4	58	<0.1	63.9	21.7	276	2.99	7.2	1	9.3	4.9	45	0.1	0.2	0.1	48	0.95	0.054	26	153.9	1.33	81	0.06	1	1.64	0.04	0.24	0.2	<0.01	**4.1**	0.1	0.3	8	<0.5
ARD-GT4-1A	Kwa'ser	SEDS	2.4	55	6.1	94	<0.1	85.1	26.6	395	4.64	**274.2**	0.9	1.5	5.5	45	0.1	0.1	0.2	34	0.96	0.061	28	103.7	1.79	48	0.012	1	2.53	0.024	0.16	<0.1	<0.01	**3.2**	<0.1	0.2	7	<0.5
ARD-GT4-2A	Kwa'ser	SEDS	1.8	47.2	6.8	78	<0.1	80.6	24.7	438	4.16	**214.8**	0.8	2.3	5	47	0.1	0.1	0.2	31	1.03	0.058	25	90.5	1.64	41	0.01	1	2.29	0.024	0.17	0.1	<0.01	**2.8**	<0.1	0.15	7	<0.5
ARD-GT4-3A	Ks	SEDS	1.9	61.5	38.5	87	0.2	89.3	26.2	417	4.33	**194.4**	0.9	2	5.5	43	0.2	0.1	0.5	34	0.9	0.057	27	101	1.72	43	0.007	1	2.48	0.023	0.17	<0.1	<0.01	**3.4**	<0.1	0.17	7	<0.5
ARD-GT5-1A	Kwa-s	SEDS	1.8	44.8	8.2	63	<0.1	55.1	19.1	367	2.86	**43.8**	0.7	2.1	4.3	87	0.1	0.1	0.2	16	1.42	0.042	23	94.9	1.06	44	0.007	1	1.3	0.029	0.15	0.1	<0.01	**1.9**	<0.1	0.17	4	<0.5
ARD-GT5-2A	Kwa-s	SEDS	1.9	41.6	13.5	80	<0.1	61.9	20.5	365	3.4	**197.6**	0.6	19.2	4.5	75	0.1	0.1	0.2	23	1.17	0.046	24	97.2	1.34	52	0.003	<1	1.76	0.027	0.16	<0.1	<0.01	**2.4**	<0.1	0.12	6	<0.5
ARD-GT5-3A	Kwa'ser	SEDS	2	44.5	11.8	57	<0.1	47.1	15.9	358	2.54	**54.3**	0.7	2.4	4.1	95	0.1	0.1	0.1	13	1.53	0.039	22	104	0.96	47	0.006	<1	1.05	0.03	0.14	0.1	<0.01	**1.7**	<0.1	0.21	4	<0.5
ARD-GT6-1A	Kwa	SEDS	3	54.3	5.7	100	<0.1	86.3	23.7	366	4.14	**64.4**	0.8	23.2	4.9	63	0.1	0.1	0.2	34	0.96	0.052	24	109	1.72	53	0.003	1	2.35	0.029	0.17	<0.1	<0.01	**3.2**	<0.1	0.15	8	<0.5
ARD-GT6-2A	Kwa	SEDS	2.5	46.7	15.8	77	<0.1	54.7	20.7	311	2.79	**72.4**	1	1.9	5.4	86	0.2	0.1	0.2	17	1.29	0.047	22	122.3	1.07	48	0.003	1	1.26	0.032	0.14	<0.1	<0.01	**1.9**	<0.1	0.39	4	<0.5
ARD-GT6-3A	Kwa'ser	SEDS	2.1	48.7	13	68	<0.1	51.1	18.7	333	2.89	**44.6**	1.1	2.4	5.4	94	0.1	0.1	0.2	16	1.35	0.044	21	122	1.12	59	0.003	1	1.28	0.031	0.15	<0.1	<0.01	**1.9**	<0.1	0.31	4	<0.5
ARD-GT7-1A	Ks-wa	SEDS	2.1	38.9	6.3	81	<0.1	69.6	22.1	361	3.67	**54.4**	0.7	1.8	4.9	57	0.1	0.1	0.1	23	0.87	0.051	24	104.7	1.46	44	0.003	1	2.05	0.025	0.14	<0.1	0.01	**2.3**	<0.1	0.08	6	<0.5
ARD-GT7-2A	Ks-wa	SEDS	1.8	39.8	5.8	95	<0.1	72.6	22.8	335	3.74	**100.7**	0.8	33.8	5.6	71	0.1	0.1	0.1	27	0.98	0.051	25	104.4	1.48	47	0.005	<1	2.07	0.026	0.15	<0.1	<0.01	**2.6**	<0.1	0.13	6	<0.5
ARD-GT7-3A	Kwa'ser	SEDS	1.8	44.3	7.5	68	<0.1	50.5	17.1	359	2.63	**92.1**	0.8	2.5	5.1	94	0.1	0.1	0.2	14	1.43	0.042	23	100.8	0.97	51	0.009	<1	1.08	0.032	0.14	0.1	<0.01	**1.6**	<0.1	0.26	4	<0.5
ARD-GT8-1A	Ks	SEDS	1.9	50.6	6.4	100	<0.1	80.8	25.5	409	4.2	**51.8**	0.8	2.3	5.3	66	0.1	0.1	0.2	32	1	0.056	27	110	1.67	44	0.005	<1	2.36	0.026	0.16	0.1	<0.01	**3.1**	<0.1	0.15	7	<0.5
ARD-GT8-2A	Kwa	SEDS	2.1	52.6	9.2	54	<0.1	53.5	18.2	319	2.73	**35.6**	0.7	3	4.7	62	0.1	0.1	0.2	18	1	0.041	23	120.1	1.03	48	0.005	<1	1.4	0.03	0.18	0.1	<0.01	**1.9**	<0.1	0.18	4	<0.5
ARD-GT8-3A	Kwa	SEDS	2.4	51.3	12	66	<0.1	53.9	19.7	384	2.74	**65.2**	0.8	9.7	4.9	77	0.1	0.1	0.9	17	1.44	0.043	24	127	1	40	0.007	1	1.17	0.032	0.15	<0.1	<0.01	**1.8**	<0.1	0.31	4	<0.5
ARD-GT9-2A	Kwa-qv	SEDS	2.2	62	4.7	82	<0.1	72.9	29	395	4.4	**49.3**	0.7	2.3	4.1	33	0.1	0.1	0.1	79	0.91	0.056	23	127.8	1.76	51	0.028	1	2.55	0.022	0.15	0.1	<0.01	**7.1**	<0.1	0.18	9	<0.5
ARD-GT9-3A	Kwa-s	SEDS	2	51.7	5	85	<0.1	82.3	24.2	377	3.77	**68.8**	0.7	2.6	4.4	51	0.1	0.1	0.2	29	1.16	0.052	22	110	1.55	37	0.011	1	2.36	0.021	0.16	0.1	<0.01	**2.4**	<0.1	0.15	7	<0.5
ARD-GT10-1A	Kwa-s	SEDS	2.2	59.7	12.3	90	<0.1	83.6	25.4	364	3.54	**46.6**	0.8	1.2	4.4	54	0.1	0.1	0.4	31	1.09	0.053	21	123.6	1.45	41	0.012	<1	2.21	0.025	0.17	<0.1	<0.01	**2.6**	<0.1	0.16	7	<0.5
ARD-GT10-2A	Ks-wa	SEDS	2.1	43.7	6.8	84	<0.1	82.5	25.6	381	3.91	**122.7**	0.7	2	4.6	52	**<0.1**	0.1	0.2	32	1.05	0.052	24	119.5	1.61	41	0.004	<1	2.42	0.021	0.16	0.1	<0.01	**2.6**	<0.1	0.12	7	<0.5
ARD-GT10-3A	Kwa	SEDS	2.1	47.5	5.2	85	<0.1	74.5	22.4	396	3.54	**29.5**	0.7	5.5	4.8	64	0.1	0.1	0.1	27	1.28	0.05	22	114.8	1.44	51	0.004	<1	2.15	0.022	0.16	<0.1	<0.01	**2.3**	<0.1	0.13	6	<0.5
ARD-GT11-1A	Kwa	SEDS	1.7	39.3	7.2	70	<0.1	54.5	17.9	330	2.78	**34.1**	0.5	0.9	3.6	82	0.1	0.1	0.2	21	1.4	0.046	23	109	1.1	44	0.003	<1	1.63	0.028	0.13	0.1	<0.01	**1.9**	<0.1	0.12	6	<0.5
ARD-GT11-2A	Kwa-qv	SEDS	1.8	40.6	5.4	62	<0.1	55.1	16.9	428	2.95	**59.6**	0.4	1.5	3.3	90	0.2	0.1	0.1	23	1.64	0.044	20	113.4	1.26	44	0.003	1	1.7	0.025	0.14	0.1	<0.01	**2.3**	<0.1	0.1	6	<0.5
ARD-GT11-3A	Kwa-s	SEDS	1.7	47.6	5.7	75	<0.1	66.2	21.7	410	3.32	**71.9**	0.6	3	4.4	70	0.1	0.1	0.2	27	1.3	0.051	25	105.7	1.35	47	0.003	<1	1.86	0.023	0.13	0.1	<0.01	**2.4**	<0.1	0.14	6	<0.5
ARD-M03-497-2A	Ks	SEDS	1.3	68.5	10.7	86	<0.1	73.1	23.5	467	6.82	**32.9**	0.6	1.8	5.9	98	0.1	0.1	0.2	45	1.42	0.079	26	103.2	1.9	50	0.016	<1	2.97	0.012	0.08	0.1	<0.01	**4.5**	<0.1	**0.66**	9	<0.5
ARD-M03-497-3A	Kwa	SEDS	1.6	43.5	9.8	67	<0.1	46.7	18.9	488	2.86	5.7	0.8	5.7	8.1	240	0.1	0.1	0.2	17	2.51	0.11	37	90.6	1.41	323	0.015	<1	1.04	0.025	0.14	0.1	<0.01	**2.4**	<0.1	0.44	3	<0.5
ARD-M03-497-4A	Kwa-qv	SEDS	2.5	61.6	8.3	87	<0.1	68.1	23.4	337	3.04	9.7	0.9	5.8	6.4	121	0.1	0.1	0.2	19	1.49	0.054	27	127.6	1.27	132	0.007	<1	1.54	0.024	0.14	0.1	<0.01	**2.2**	<0.1	0.34	4	<0.5
ARD-M04-518-1A	Kwa-s	SEDS	1.9	63.8	7.2	91	<0.1	91	27.2	332	3.75	25.3	1.2	0.8	7	26	**<0.1**	0.2	0.2	30	0.6	0.06	32	85.6	1.61	45	0.017	<1	2.41	0.022	0.17	0.1	0.01	**2.8**	<0.1	0.15	7	<0.5
ARD-M04-518-2A	Kwa	SEDS	2	54.2	3.5	61	<0.1	64.6	18.4	222	2.76	8.5	0.8	3.4	5.5	30	0.1	0.1	0.2	33	0.56	0.047	26	135.3	1.16	58	0.028	<1	1.49	0.041	0.12	0.2	0.01	**2.9**	<0.1	0.23	6	<0.5
ARD-M98-265-1A	Kwa	SEDS	1.9	**91.1**	14.5	77	0.2	68.5	25.3	417	3.39	**260.4**	0.8	2.3	5.1	72	0.1	0.1	0.5	24	1.47	0.046	21	98.8	1.31	57	0.004	<1	1.76	0.023	0.15	0.1	<0.01	**2.6**	<0.1	0.3	5	<0.5
ARD-M98-265-2A	Kwa	SEDS	2.1	54.6	8.4	88	<0.1	73.3	21.1	403	3.35	**103.9**	0.8	24.3	5.2	60	0.1	0.1	0.2	28	1.21	0.046	20	99.2	1.3	39	0.005	<1	1.85	0.021	0.13	<0.1	<0.01	**2.6**	<0.1	0.18	6	<0.5
ARD-M98-265-3A	Kwa	SEDS	1.6	52.9	6.4	83	<0.1	80.9	23.8	397	3.85	**39.3**	0.6	1	4.7	47	0.1	0.1	0.2	33	1.03	0.048	19	97.8	1.49	40	0.005	1	2.33	0.021	0.14	<0.1	<0.01	**3.1**	<0.1	0.15	6	<0.5
ARD-M99-336B-1A	Kwa	SEDS	2.2	48.6	7.4	60	<0.1	60.9	21.1	254	2.62	**42**	1	4.6	5.7	57	0.1	0.2	0.2	33	1.04	0.046	25	133.3	1.07	84	0.035	<1	1.41	0.033	0.15	0.1	0.01	**3.1**	<0.1	0.36	6	<0.5
ARD-M03-497-1A	Nimj	IF	1.7	82.7	3.8	51	<0.1	23.9	8.3	591	14.78	7.1	0.3	17.8	2.1	119	0.1	0.1	0.2	32	2.88	0.066	11	73.6	0.95	8	0.014	<1	2.68	0.004	0.02	0.1	<0.01	3.6	<0.1	0.95	7	<0.5
ARD-M00-471-1A	Mv'ser'ak	MVak	0.6	129.3	5.1	120	<0.1	102.7	43.9	2281	5.64	**313.1**	**<0.1**	**778.6**	0.3	58	0.3	0.1	**<0.1**	45	7.71	0.029	1	81.7	2.15	17	0.003	<1	1.29	0.042	0.1	0.1	0.01	**8.3**	<0.1	**0.41**	3	<0.5
ARD-M00-471-2A	Mv'ser'ak	MVak	0.7	94	3.1	104	<0.1	95.7	42.6	1931	6.64	**69.6**	0.1	**8.9**	0.8	45	0.1	0.1	**0.1**	132	7.94	0.026	2	124.7	2.15	6	0.01	<1	2.79	0.029	0.05	0.1	<0.01	**15.2**	<0.1	**0.31**	8	<0.5
ARD-M00-481-1A	Mv'ser'ak	MVak	0.7	84.9	7.1	125	<0.1	105.3	45.3	2106	6.03	**540**	0.1	**40.3**	0.5	67	0.2	0.2	**0.1**	57	7.56	0.028	1	91.4	2.29	16	0.006	2	1.46	0.036	0.12	0.1	<0.01	**9.1**	0.1	**0.41**	4	<0.5
ARD-M00-481-2A	Mv'ser'ak	MVak	1.2	85.2	3.5	77	<0.1	103.4	45.7	1944	6.05	**180.8**	0.1	**64.1**	0.7	54	0.2	0.1	**0.1**	57	8.11	0.026	1	109.4	2.01	11	0.004	1	1.52	0.046	0.1	0.1	<0.01	**9.2**	<0.1	**0.37**	4	<0.5
ARD-M00-471-3A	Mv'ca'c	MV	0.4	100	1.6	90	<0.1	100.2	46.2	1623	6.74	**12.2**	**<0.1**	**13.6**	0.2	47	0.2	0.1	**<0.1**	185	8.02	0.025	1	153.5	2.5	6	0.03	<1	3.81	0.009	0.02	0.1	<0.01	**17.7**	<0.1	**0.11**	11	<0.5
ARD-M98-196-1A	Mv	MV	1.1	123	8.2	106	0.2	103.2	52.3	1981	6.1	**474.2**	0.1	**2367.1**	0.5	66	0.1	0.1	**0.1**	82	7.49	0.027	1	123.3	2.32	18	0.004	<1	1.95	0.03	0.12	0.4	<0.01	**9.4**	0.1	**0.64**	5	0.5
ARD-M98-196-2A	Mv	MV	0.9	100.3	4.4	123	0.1	99.6	44.1	2044	5.97	**707.8**	0.1	**68.8**	0.5	51	0.4	0.1	**<0.1**	102	8.84	0.027	2	138.1	2.13	11	0.006	<1	2.11	0.024	0.06	0.3	0.01	**10.7**	<0.1	**0.32**	6	<0.5
ARD-M98-197-1A	Mv	MV	1	119.5	**12.1**	127	<0.1	96.9	43	2140	5.82	**2373.9**	0.1	**72.6**	0.5	62	0.3	0.1	**0.1**	50	7.95	0.029	1	89	2.14	18	0.002	1	1.49	0.034	0.15	0.2	<0.01	**7.3**	0.1	**0.54**	4	0.6
ARD-M98-197-2A	Mv	MV	0.5	102.5	4.2	82	<0.1	91.4	48.3	2164	6.04	**97.6**	**<0.1**	**69.2**	0.4	57	0.2	0.1	**<0.1**	102	8.87	0.026	1	107	1.79	18	0.003	1	2.1	0.024	0.08	<0.1	<0.01	**11.2**	<0.1	**0.37**	7	<0.5
ARD-GT9-1A	Mg	GAB	0.9	104.2	10.2	92	<0.1	35.4	45.6	1159	6.61	**18.7**	0.1	**1.7**	0.7	108	0.2	0.3	**0.1**	201	3.77	0.058	7	53.1	2.03	26	0.144	<1	3.07	0.038	0.1	0.2	<0.01	**15.6**	0.1	**0.12**	11	<0.5
ARD-GT2-3A	Mg	GAB	1	138.6	1.9	65	<0.1	46.4	46.2	769	5.32	**7.9**	0.1	**35.3**	0.7	43	**<0.1**	0.3	**<0.1**	135	1.49	0.041	3	100.6	1.91	143	0.257	1	2.43	0.029	0.56	0.2	<0.01	**6.1**	0.2	**0.2**	6	<0.5
ARD-M99-336B-2A	Mg'bt	GAB	0.8	80.1	4.3	87	<0.1	56	41.9	1184	6.83	**20.7**	0.2	**21.5**	1.6	72	0.1	0.3	**0.1**	203	3.32	0.045	6	74.9	2.63	291	0.264	<1	3.3	0.018	0.84	0.4	<0.01	**10.9**	0.4	**0.16**	11	<0.5
ARD-M99-336B-3A	Mg'ep	GAB	0.7	97.5	2.9	65	<0.1	46.8	43.7	844	4.83	**16.9**	**<0.1**	**4**	0.6	44	0.1	0.3	**<0.1**	115	2.67	0.039	3	82	1.81	56	0.183	<1	2.29	0.023	0.16	0.3	<0.01	**5.1**	0.1	**0.33**	7	<0.5
Typical Concentrations		Basalt	1.5	87	6	105	0.11	130	48	1500	8.65	2	1	0.004	4	465	0.22	0.2	0.007	250	7.6	1100	15	170	4.6	330	13800	5	7.8	1.8	0.83	0.7	0.09	0.05	0.21	0.03	17	0.05
in the Earth's Crust		Shales	2.6	45	20	95	0.07	68	19	850	4.72	13	3.7	0.00X	12	300	0.3	1.5	ND	130	2.21	700	92	90	1.5	580	4600	100	8	0.96	2.66	1.8	0.4	0.6	1.4	0.24	19	0.6
(from Wedpohl)		Sandstones	0.2	X	7	16	0.0X	2	0.3	X0	0.98	1	0.45	0.00X	1.7	20	0.0X	0.0X	ND	20	3.91	170	30	35	0.7	X0	1500	35	2.5	0.33	1.07	1.6	0.03	0.05	0.82	0.024	12	0.05

Notes: yellow highlight indicates the values are >2x the average concentrations given for sandstone
bold indicates ths concentrations are >2x the average concentraitons given for shale or basalt

Appendix 3
2005 Elemental Analyses - Comparison of Duplicate Analyses

Sample ID	LITHO Rock Code	Zone	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppb	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Hg ppm	Sc ppm	Tl ppm	S %	Ga ppm	Se ppm
ARD-GT10-2A	Ks-wa		2.1	43.7	6.8	84	<0.1	82.5	25.6	381	3.91	122.7	0.7	2	4.6	52	<0.1	0.1	0.2	32	1.05	0.052	24	119.5	1.61	41	0.004	<1	2.42	0.021	0.16	0.1	<0.01	2.6	<0.1	0.12	7	<0.5
ARD-GT10-2A	Ks-wa		1.8	44.9	5.7	83	<0.1	78.8	24	368	3.81	105.9	0.6	1.5	4.3	47	0.1	0.1	0.2	30	1.01	0.05	22	114.4	1.53	40	0.004	1	2.32	0.02	0.15	<0.1	<0.01	2.5	<0.1	0.12	7	<0.5
ARD-GT4-1A	Kwa'ser																																					
ARD-GT4-1A	Kwa'ser																																					
ARD-GT7-1A	Ks-wa		2.1	38.9	6.3	81	<0.1	69.6	22.1	361	3.67	54.4	0.7	1.8	4.9	57	0.1	0.1	0.1	23	0.87	0.051	24	104.7	1.46	44	0.003	1	2.05	0.025	0.14	<0.1	0.01	2.3	<0.1	0.08	6	<0.5
ARD-GT7-1A	Ks-wa		2.1	40.5	6.4	86	<0.1	69.5	22	365	3.71	58.1	0.7	2	5.1	61	0.1	0.1	0.2	25	0.89	0.053	25	106.2	1.49	46	0.003	1	2.07	0.025	0.15	0.1	<0.01	2.4	<0.1	0.07	6	<0.5
ARD-GT9-3A	Kwa-s																																					
ARD-GT9-3A	Kwa-s																																					
ARD-M03-497-4A	Kwa-qv		2.5	61.6	8.3	87	<0.1	68.1	23.4	337	3.04	9.7	0.9	5.8	6.4	121	0.1	0.1	0.2	19	1.49	0.054	27	127.6	1.27	132	0.007	<1	1.54	0.024	0.14	0.1	<0.01	2.2	<0.1	0.34	4	<0.5
ARD-M03-497-4A	Kwa-qv		2.2	62.3	8.3	88	<0.1	70.6	23.1	340	3.07	9.8	0.9	8.4	6.3	126	0.1	0.1	0.2	19	1.58	0.059	29	126	1.3	139	0.007	<1	1.55	0.023	0.15	0.1	<0.01	2.4	<0.1	0.36	5	<0.5
ARD-M04-518-2A	Kwa		2	54.2	3.5	61	<0.1	64.6	18.4	222	2.76	8.5	0.8	3.4	5.5	30	0.1	0.1	0.2	33	0.56	0.047	26	135.3	1.16	58	0.028	<1	1.49	0.041	0.12	0.2	0.01	2.9	<0.1	0.23	6	<0.5
ARD-M04-518-2A	Kwa		2.1	51.8	3.5	59	<0.1	62.6	18.5	221	2.69	9.5	0.8	0.7	5	31	0.1	0.1	0.1	32	0.55	0.043	25	131.5	1.13	54	0.027	<1	1.44	0.043	0.11	0.2	<0.01	2.6	<0.1	0.23	6	<0.5
ARD-M98-196-1A	Mv																																					
ARD-M98-196-1A	Mv																																					
ARD-M98-197-1A	Mv		1	119.5	12.1	127	<0.1	96.9	43	2140	5.82	2374	0.1	72.6	0.5	62	0.3	0.1	0.1	50	7.95	0.029	1	89	2.14	18	0.002	1	1.49	0.034	0.15	0.2	<0.01	7.3	0.1	0.54	4	0.6
ARD-M98-197-1A	Mv		0.8	120.2	12.2	126	0.1	97.4	42.9	2128	5.87	2400	0.1	184.4	0.5	63	0.3	0.2	0.1	48	8.07	0.03	1	85.3	2.17	19	0.002	3	1.5	0.032	0.15	0.2	<0.01	7.1	0.1	0.55	4	<0.5
ARD-M99-336B-1A	Kwa																																					
ARD-M99-336B-1A	Kwa																																					

Appendix 4: Shake Flask Extraction Test Results

Appendix 4: Shake Flask Extraction Test Results

Sample Name: Group			ARD-M03-497-1A IF	ARD-M98-196-1A MV	ARD-M98-265-1A SEDS
Parameter	**Method**	**Units**			
nanopure water volume		mL	750	750	750
Sample Weight		g	250	250	250
pH	meter		7.80	7.91	7.83
Conductivity	meter	uS/cm	211	247	170
Acidity (to pH 4.5)	titration	mg CaCO3/L	#N/A	#N/A	#N/A
Total Acidity (to pH 8.3)	titration	mg CaCO3/L	5	3.5	3.5
Alkalinity	titration	mg CaCO3/L	90	100	82
Sulphate	Turbidity	mg/L	8	21	4
Ion Balance					
Major Anions	#N/A	#N/A	1.97	2.44	1.72
Major Cations	#N/A	#N/A	2.16	2.60	1.77
Diff. (%)	#N/A	#N/A	4.7%	3.2%	1.4%
Dissolved Metals					
Hardness CaCO3		mg/L	101	116	72.6
Aluminum Al	ICP-MS	mg/L	0.037	0.36	0.11
Antimony Sb	ICP-MS	mg/L	0.001	0.0024	0.0022
Arsenic As	ICP-MS	mg/L	0.0002	0.038	0.015
Barium Ba	ICP-MS	mg/L	0.0037	0.005	0.003
Beryllium Be	ICP-MS	mg/L	< 0.0002	< 0.0002	< 0.0002
Bismuth Bi	ICP-MS	mg/L	< 0.0002	< 0.0002	< 0.0002
Boron B	ICP-MS	mg/L	0.01	0.05	0.01
Cadmium Cd	ICP-MS	mg/L	< 0.00004	< 0.00004	< 0.00004
Calcium Ca	ICP-MS	mg/L	36	33.5	22.8
Chromium Cr	ICP-MS	mg/L	< 0.0002	0.0002	< 0.0002
Cobalt Co	ICP-MS	mg/L	< 0.0002	0.0005	< 0.0002
Copper Cu	ICP-MS	mg/L	0.0005	0.075	0.0022
Iron Fe	ICP-MS	mg/L	< 0.01	< 0.01	< 0.01
Lead Pb	ICP-MS	mg/L	< 0.0002	0.0089	0.0002
Lithium Li	ICP-MS	mg/L	0.0008	0.0027	0.0017
Magnesium Mg	ICP-MS	mg/L	2.71	7.78	3.78
Manganese Mn	ICP-MS	mg/L	0.017	0.044	0.033
Mercury Hg	CVAA	ug/L	< 0.02	< 0.02	< 0.02
Molybdenum Mo	ICP-MS	mg/L	0.0005	< 0.0001	0.0006
Nickel Ni	ICP-MS	mg/L	0.0004	0.0053	0.0016
Phosphorus PO4	ICP-MS	mg/L	< 0.03	< 0.03	< 0.03
Potassium K	ICP-MS	mg/L	1.12	4.9	6.65
Selenium Se	ICP-MS	mg/L	< 0.0002	< 0.0002	< 0.0002
Silicon SiO2	ICP-MS	mg/L	0.67	1.1	1.32
Silver Ag	ICP-MS	mg/L	< 0.00005	< 0.00005	< 0.00005
Sodium Na	ICP-MS	mg/L	2.6	3.66	3.52
Strontium Sr	ICP-MS	mg/L	0.181	0.064	0.091
Tellurium Te	ICP-MS	mg/L	< 0.0002	< 0.0002	< 0.0002
Thallium Tl	ICP-MS	mg/L	< 0.00002	< 0.00002	< 0.00002
Thorium Th	ICP-MS	mg/L	< 0.0001	< 0.0001	< 0.0001
Tin Sn	ICP-MS	mg/L	< 0.0002	< 0.0002	< 0.0002
Titanium Ti	ICP-MS	mg/L	< 0.0002	0.0006	< 0.0002
Uranium U	ICP-MS	mg/L	0.0001	< 0.0001	< 0.0001
Vanadium V	ICP-MS	mg/L	< 0.0002	0.0003	0.0003
Zinc Zn	ICP-MS	mg/L	< 0.001	0.19	0.003
Zirconium Zr	ICP-MS	mg/L	< 0.002	< 0.002	< 0.002