Geochemical Characterization of Quarry Materials, Doris North Project, Hope Bay, Nunavut, Canada (Revised March 2007)

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1 Introduction

Miramar Hope Bay Limited (MHBL) is proposing to mine and process gold ore at its wholly-owned Doris North Project near Doris Lake, NU. The design for the proposed infrastructure specifies substantial volumes of quarry rock for construction of roads, laydown pads, and foundations for structures.

This report presents the results of supplementary geochemical evaluation of rock from four proposed quarry locations that was carried out in 2006. The results of this evaluation supplement the findings of previous studies into the metal leaching and acid rock drainage (ML/ARD) characteristics of the proposed quarry rock.

In the Doris North Gold Mine Project Certificate issued on September 15, 2006, The Nunavut Impact Review Board included Condition number 18:

> *MHBL shall submit to the NWB, as part of the water license application, a program detailing the methodology for testing quarried rock for acid generation and metal leaching potential. The sampling, testing and analysis must be done by a professional geologist registered in Nunavut*

MHBL commissioned SRK Consulting (Canada) Inc. to complete this study and the resultant report in part to meet this condition and in part to provide the geochemical characterization required to proceed with detailed project engineering for this project.

2 Background

ML/ARD characteristics of rock at the proposed quarry locations were the focus of a series of investigations carried out by MHBL and AMEC Earth and Environmental during 2002 through 2005. The results of these investigations were summarized in a supporting document to MHBL's Final Environmental Impact Statement for the Doris North Project (AMEC 2005). The following briefly summarizes the findings of AMEC's work and provides the rationale and context for the recent 2006 investigations carried out by MHBL and SRK Consulting (Canada) Inc. (SRK). The reader is referred to AMEC (2005) for detailed description of methods, and for results and analysis.

Evaluation of static geochemical characteristics, consisting of metal analysis and determination of ABA parameters, was carried out on samples collected during two rounds of surface grab sampling in 2002 and 2003, as well as during a round of chip sampling in 2003. Results of these analyses showed that exposed bedrock at the proposed quarry locations had neutralization potential ratios (Sobek NP:AP and carbonate NP:AP) greater than 3:1. Rock with NP:AP>3 is generally considered to be unlikely to generate acid.

Trace element leaching was evaluated by subjecting surface chip sample composites to shake flask extraction tests. Leachates from samples from all three quarry locations were alkaline (pH 8.58 to 9.52). Metal concentrations in shake flask leachate indicated that aluminum and copper leached at concentrations exceeding CCME guidelines for protection of aquatic life in freshwater receiving environments. However, aluminum concentrations in leachate were likely elevated due to alkaline test conditions that resulted from exposure of fresh silicate mineral surfaces by crushing and grinding during sample preparation. Under site conditions, excess alkalinity in rock contact water would be consumed by reaction with carbon dioxide in the atmosphere, a process which is incomplete under test conditions. In addition, the particle size of the samples tested was small in comparison with quarry rock. Further, as CCME guidelines are receiving environment water quality objectives, concentrations exceeding CCME guidelines in shake flask leachate indicate only potential elements of concern, and can not be taken as indicative of metal concentrations in any receiving water as a result of seepage or runoff inputs from quarry rock.

Kinetic geochemical characteristics were evaluated with three humidity cell tests (HCTs) conducted on chip sample composites from each of the three proposed quarry locations. Kinetic test results showed that the three samples tested did not generate acidic conditions over the duration of testing, and that the rates of NP and AP depletion were consistent with generation of neutral to alkaline drainage in the long term.

A number of follow-up tests were carried out on HCT residues following the completion of kinetic testing to provide a better understanding of the mineralogical form of measured neutralization potential. These tests included determination of neutralization potential via a method designed to correct for NP generated by siderite (iron carbonate), determination of total inorganic carbon (TIC), and determination of mineralogy by quantitative x-ray diffraction (QXRD).

Results from the siderite-correction method of NP determination were inconclusive. Siderite was not identified in any of the HCT residues through QXRD, yet the siderite correction procedure indicated that siderite was present and represented up to a third of the measured Sobek NP. As a result, a need for further characterization of carbonate mineralogy was identified.

3 Methods

To improve the understanding of the ML/ARD characteristics of rock at the proposed quarry locations, supplementary laboratory and field investigations were conducted in 2006. These investigations consisted of additional analyses on the remaining residues from prior humidity cell tests, and of additional sampling of diamond drill core at each of the four proposed quarry locations. The methods used in these investigations are summarized in the following sections.

3.1 Supplementary Characterization of Previously-Tested Samples

Residues from humidity cell tests terminated in 2005 were retrieved from storage at Vizon Scitec and submitted for further laboratory evaluation by three separate procedures.

3.1.1 Determination of Total Inorganic Carbon

A sample from each of the three HCT residues was submitted for analysis of total inorganic carbon by Leco induction furnace at Vizon Scitec.

3.1.2 Petrographic Description

Polished thin sections were prepared from each of the three HCT residues. Petrographic descriptions of the samples were prepared by PetraScience following visual and manual evaluation of hand samples, as well as examination of thin sections by optical microscopy. A complete summary of the methods of visual, manual, and optical mineral identification can be found in Appendix A.

3.1.3 Carbonate Speciation by Electron Microprobe

Carbonate grains were identified in the polished thin sections of the three humidity cell residues during optical examination. These thin sections were then delivered to the Department of Earth and Ocean Sciences at the University of British Columbia for determination of major cation proportions in carbonate mineral grains by scanning electron microprobe. A complete summary of the microprobe evaluation can be found in Appendix B.

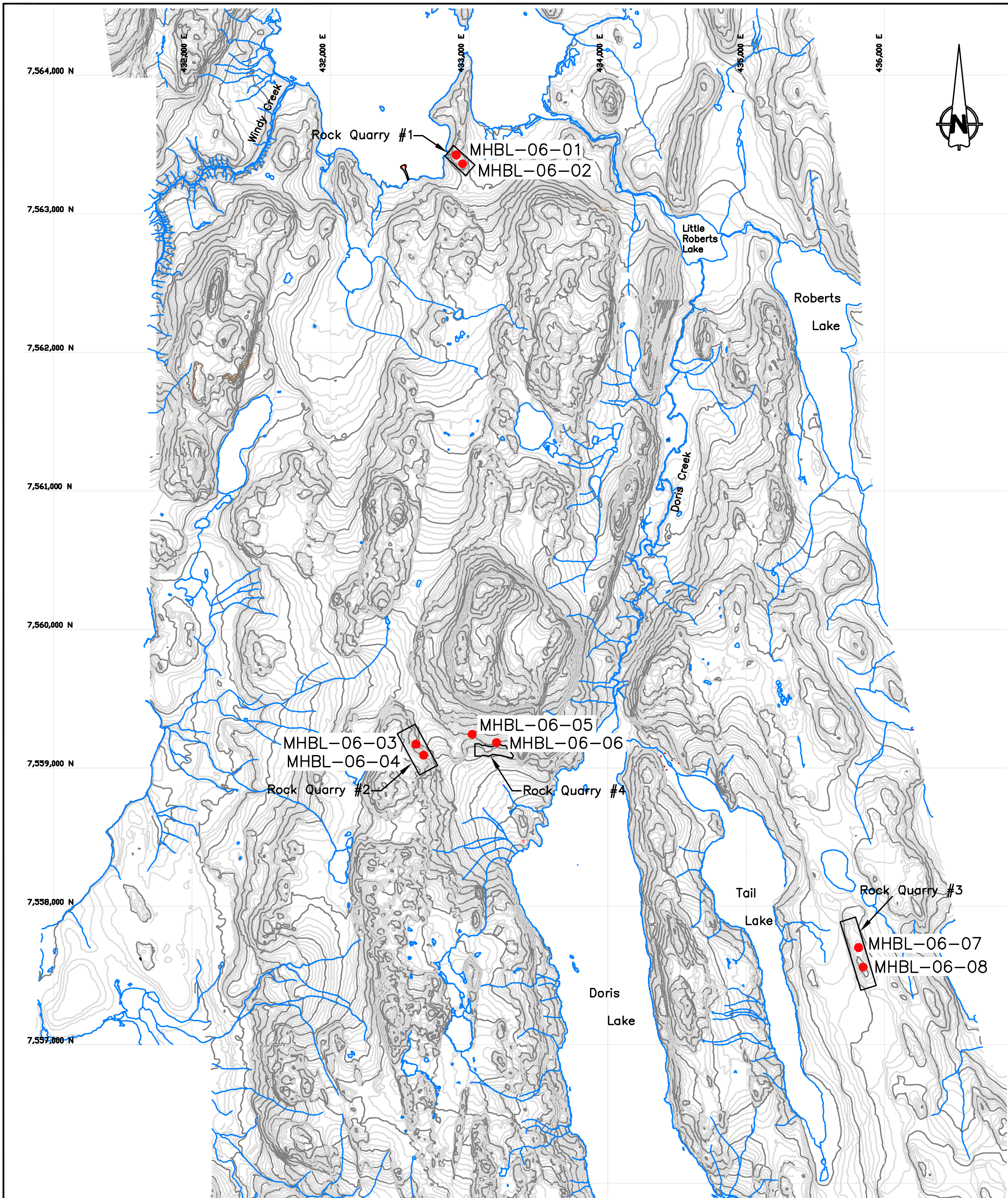
3.2 Collection and Evaluation of Additional Samples

Samples were collected from eight drillholes completed in June and July, 2006. Samples were retrieved by diamond drilling to depths of 11 m, with two drillholes located at each of the four proposed quarry locations (Figure 1).

Rock core was logged by Miramar geologists and sampled continuously over the entire length of each drillhole. Samples typically consisted of 1 m composites, with a small proportion of shorter and longer sample intervals.

Rock samples were shipped to Vizon Scitec for laboratory testing. All samples were subjected to ABA tests, including determination of paste pH, neutralization potential (NP) by the standard Sobek method, total sulphur and sulphate sulphur, and total inorganic carbon. In addition, metal analyses were carried out for all samples by aqua regia digestion with ICP-MS finish, and major elements were determined by whole rock analysis using XRF.

The uppermost sample from six of the eight drillholes was subjected to leach extraction testing to evaluate the potential for element loadings from soluble weathering products in the near-surface rock. The tests were conducted by contacting 250 g of sample with 750 mL of deionised water for 24 hours in a rotary extractor. Leachate was filtered and analyzed for leached elements by ICP-MS; mercury was analyzed by cold vapour atomic absorption (CVAA).



SRK Consulting
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Vancouver

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Geochemical Characterization of Quarry Materials

2006 Drillhole Plan

SRK JOB NO.: 1CM014.008.241

FILE NAME: DRILLHOLE PLAN_Thermistors and Geotech.dwg

Doris North Project

DATE:	APPROVED:	FIGURE:
March 2007	DBM	1

4 Results and Discussion

4.1 Supplementary Characterization of Previously-tested Samples

4.1.1 Determination of Total Inorganic Carbon

Total inorganic carbon (TIC) contents for the three humidity cell residues, as determined by Leco induction furnace, are shown in Table 1. Results are expressed in units as weight percent of evolved carbon dioxide.

Table 1: Total inorganic carbon content of humidity cell residues

Sample ID	Sample Location	CO_2 (Wt.%)
HC-2 Residue	Quarry 1	2.42
HC-3 Residue	Quarry 2	4.07
HC-4 Residue	Quarry 3	1.06
	Detection Limit	*0.01*

Total inorganic carbon (TIC) calculated from QXRD results was plotted against analytically-determined TIC to check the comparison of results. The two methods returned similar results for the two samples with lower TIC, as shown in Figure 2, while QXRD indicated a higher TIC content than analytical determination for the sample with the highest TIC. In general, the results indicated that QXRD results were consistent with the analytical TIC.

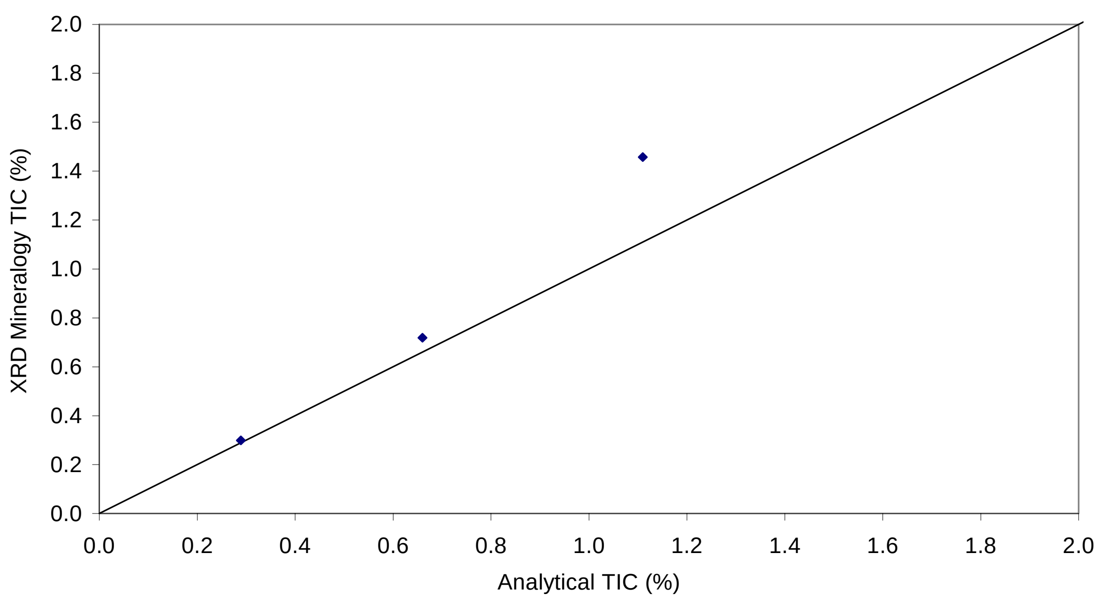

Figure 2: Comparison of analytical and mineralogical TIC
Diagonal line indicates equivalent values

4.1.2 Petrographic Description

Examination of humidity cell residues in hand sample and thin section showed that carbonate minerals were largely present as alteration products of plagioclase and potassium feldspars.

HC-2 residue (Quarry 1) contained minor fine to very fine sulphide mineral grains and masses consisting of pyrite, chalcopyrite, chalcocite, and bornite. HC-3 residue (Quarry 2) contained minor fine to very fine sulphide mineral grains consisting of pyrite and chalcopyrite. HC-4 residue (Quarry 3) contained trace fine to very fine sulphide mineral grains consisting of pyrite and chalcopyrite.

Carbonate grains for analysis by electron microprobe were identified in each thin section. Complete results of petrographic analysis are provided in Appendix A.

4.1.3 Carbonate Speciation by Electron Microprobe

Results of optical characterization of samples completed for this study (provided in Appendix A) and QXRD carried out in 2005 (AMEC 2005) indicate several types of minerals capable of neutralizing acid, including carbonates, potassium feldspar, biotite and sericite. The QXRD results indicated that the main carbonate minerals are calcite and ankerite/dolomite. Siderite was not identified by QXRD.

Microprobe analyses of 86 optically-selected carbonate mineral grains from the three proposed quarry locations showed that the main types of carbonate were calcite and dolomite, containing up to 0.22 mole fraction Fe+Mn (Figure 3). Table 2 provides a tally of the carbonate classification of each quarry. Complete results from electron microprobe analyses of carbonate grains are provided in Appendix B.

Table 2: Tally of carbonate mineral grain composition by quarry

Mineral	Quarry 1	Quarry 2	Quarry 3
Calcite	18	8	32
Dolomite	2	26	0
Total	20	34	32

As shown in Table 2, all grains analyzed were either calcite or dolomite. Calcite grains contained some iron (up to about 5%). Although QXRD identified ankerite/dolomite because it cannot distinguish between end member minerals, all binary carbonate grains were classified as dolomite rather than ankerite, because magnesium content exceeded iron. The molar cation composition of these binary carbonates varies continuously from 27% to 44% Mg (Figure 3). Based on the results obtained, average compositions for calcite and dolomite are shown in Table 3.

Table 3: Average compositions of carbonate minerals

Mineral	Average Formula	Formula Weight (g/mole)
Calcite	$Ca_{0.98}Mg_{0.01}Fe_{0.01}CO_3$	100.2
Dolomite	$Ca_{1.02}Mg_{0.66}Fe_{0.30}Mn_{0.02}(CO_3)_2$	195.0

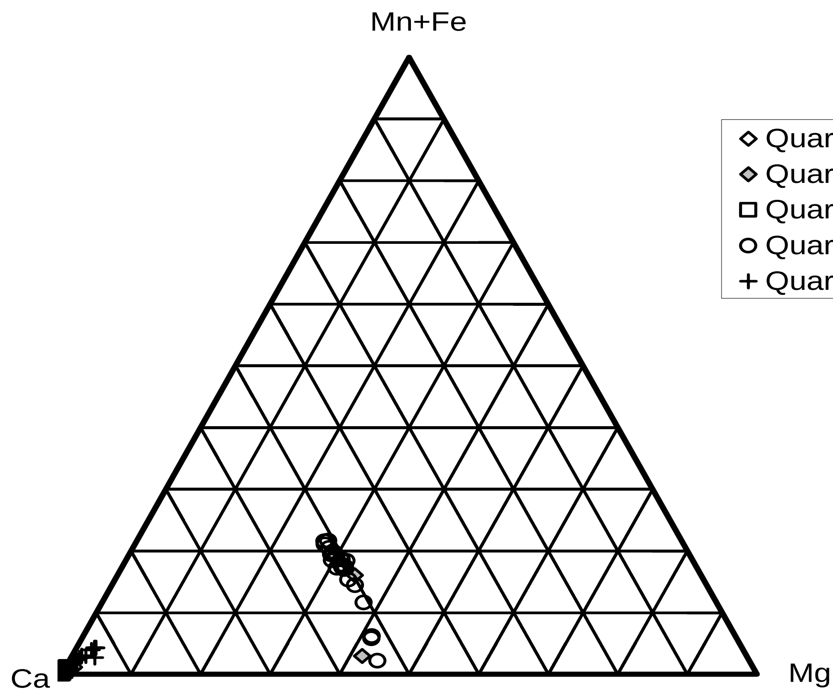

Figure 3: Ternary diagram showing molar proportions of Ca, Mg and Mn+Fe in carbonate grains determined by microprobe

4.1.4 Adjustment of Neutralization Potential

Neutralization potential calculated from TIC (NP_{IC}) can overestimate actual NP if iron and manganese carbonates are present. The microprobe results discussed above showed that 99% of the analytically-determined TIC was in the form of calcium and magnesium carbonate for both Quarry 1 and Quarry 3 HCT residues, with only traces of iron and manganese carbonate in these samples.

Quarry 2 HCT residue carbonate grains were found to contain iron and manganese. For this sample, microprobe results indicated that 91% of analytically determined TIC was in the form of calcium and magnesium carbonates, with 9% of TIC in the form of iron and manganese carbonates.

Based on the above findings, a correction can be applied to TIC results to produce a conservative estimate of NP derived from only calcium and magnesium carbonates ($NP_{Ca,Mg}$) for the Quarry 2 HCT residue. This correction reduces NP_{IC} by a factor corresponding to the amount of carbonate associated with iron and manganese. This correction can be expressed as

$$NP_{Ca,Mg} = 0.91 \times NP_{IC}.$$

As the Quarry 1 and Quarry 3 HCT residues had very little iron and magnesium carbonate, the Quarry 2 correction can be conservatively adopted for these materials to allow a uniform correction factor to be applied to all samples.

4.2 Collection and Evaluation of Additional Samples

4.2.1 Visual Observations of Drill Core

Logging of core from eight drillholes at proposed quarry locations demonstrated little variation in rock type, with all core consisting of basalt and gabbro of varying textures. None of the drillholes cut more than one rock type. Veins were noted to comprise 0.5 to 4% of the core, and vein minerals were visually identified as quartz, calcite, dolomite, and epidote. Traces of pyrite, chalcopyrite, and hematite were noted. Complete core logs are provided in Appendix C.

4.2.2 Static Test Results

At total of 90 samples were analyzed for ABA parameters, trace elements, and major elements; complete results are provided in Appendix D.

Static test results confirmed the previous finding that the proposed quarry rock is expected to be not potentially acid generating (not-PAG) on the basis of conventional neutralization potential to acid potential (NP/AP) ratios. Figure 4 shows a plot of NP and AP results from analysis of core samples collected in 2006 that shows NP:AP ratios were between 8 and 826.

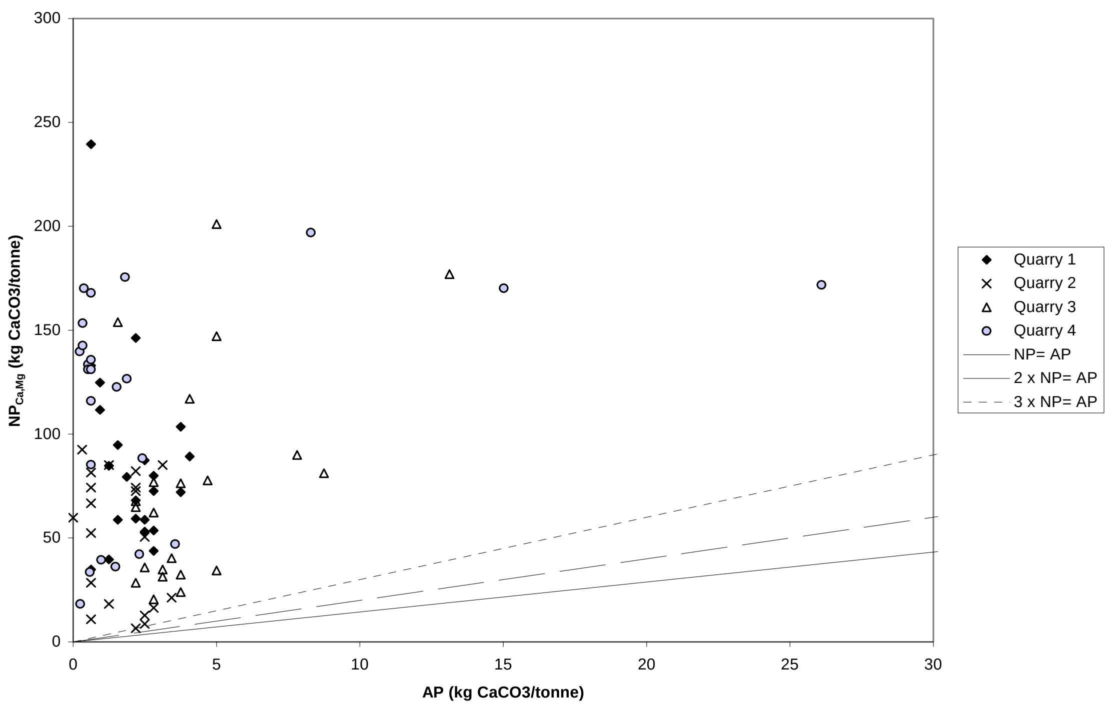

Figure 4: NP vs. AP for proposed quarry rock samples collected in 2006

Total and sulphide-sulphur contents were generally low, with median and maximum sulphide-sulphur concentrations of 0.07% and 0.84%, respectively. Paste pH was alkaline for all samples.

A comparison of Sobek NP (designated by NP) and NP calculated from total inorganic carbon analysis (designated by NP-TIC) is displayed in Figure 5. As noted in previous investigations, there is a component of NP that is derived from non-carbonate minerals, and Figure 5 shows that NP-TIC is uniformly lower than NP. However, a comparison of $NP_{Ca,Mg}$ (as defined in Section 4.1.4) and AP from 2006 core analysis shows that all samples produced $NP_{Ca,Mg}$:AP ratios of 3 or greater (Figure 6). This supports the conclusion, based on previous static and humidity cell test evidence (AMEC, 2005), that the proposed quarry rocks have very low potential to generate acid.

Metal analyses indicate that copper concentrations are greater than the crustal average for basaltic rocks of 87 ppm (Table 4, after Price, 1997) throughout the samples analysed, which confirms the findings of previous investigations (AMEC, 2005). However, as maximum (226 ppm), 95th percentile (166 ppm), and average copper concentrations were only 2.6 times, 1.9 times, and 1.4 times the crustal average copper concentration for basaltic rocks, respectively, the risk of copper leaching and subsequent degradation of the receiving environment is considered low.

One sample returned high lead and antimony values (approximately two orders of magnitude higher than typical concentrations measured in other samples, and than crustal average concentrations) and it is likely that this sample contained a small amount of a lead-antimony mineral that was not identified during logging and sampling. The analytical results were confirmed by re-analysis.

Other heavy elements had average concentrations equal to or less than crustal average concentrations, and 95th percentile concentrations less than 1.9 times crustal averages for basaltic rocks (Price, 1997).

Table 4 Crustal average concentrations of selected elements in basaltic rocks

Copper	**Zinc**	**Lead**
(mg/kg)	(mg/kg)	(mg/kg)
87	105	6

*Data from Price, 1997

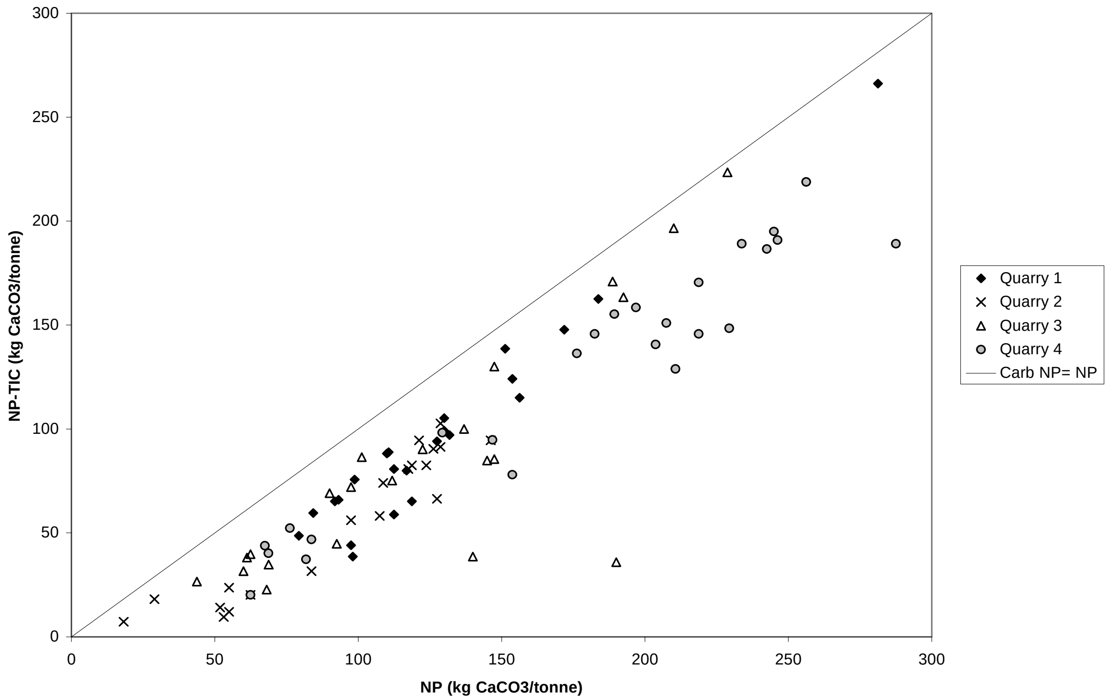

Figure 5: NP-TIC vs. NP for proposed quarry rock samples collected in 2006

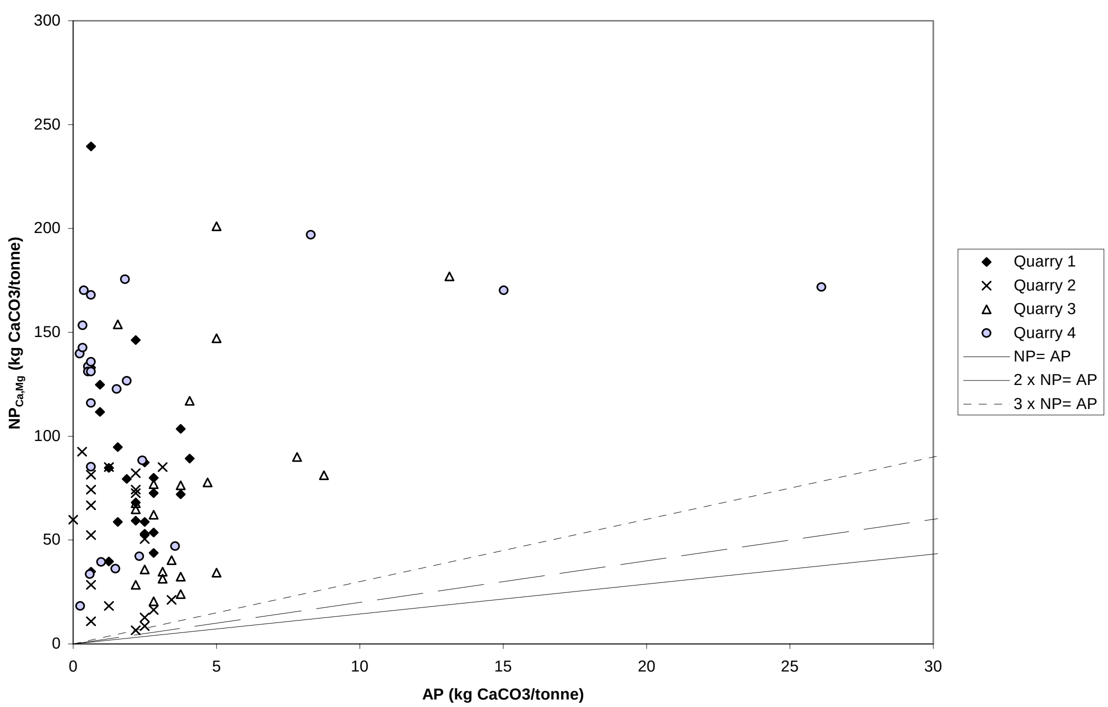

Figure 6: $NP_{Ca,Mg}$ vs. AP for proposed quarry rock samples collected in 2006

4.2.3 Shake Flask Extraction Results

Shake flask extractions provide a measure of the soluble components of a solid material. For material such as quarry rock, these soluble components form as a result of mineral weathering, and are likely to be present in the greatest concentrations at or near the exposed bedrock surface. For this reason, the uppermost samples from six drillholes were submitted for extraction by 24 hour distilled water leach.

Leachate pH for all size samples was high, with values ranging from pH 9.6 to 9.9. Aluminum concentrations were elevated, with concentrations ranging from 0.47 to 0.67 mg/L. Similar pH conditions and aluminum concentrations were noted in previous leach extraction testing on surface samples (AMEC, 2005); the high pH is thought to increase dissolution of aluminum. The elevated pH is thought to be an artefact of the test procedure, where the small particle size combined with agitation over a 24 hour period led to rapid production of alkalinity and dissolution of aluminum from freshly-broken silicate mineral surfaces that are produced during preparation of the sample for testing. These conditions will not be present under rock fill placement scenarios where pH is buffered at lower levels by interaction with atmospheric CO_2, and where average particle size is much larger. Significant leaching of aluminum is not expected to occur from placed quarry rock, particularly in light of low site temperatures, which will result in inhibition of chemical reactions.

All other trace elements analyzed were present at concentrations near or below the respective detection limits. Notably, cadmium concentrations in leachate were below the cadmium detection limit of 0.0002 mg/L, and leachate copper concentrations were at or below the copper detection limit of 0.001 mg/L; this is in contrast with previous results (AMEC, 2005) that showed detectable copper concentrations in shake flask leachates up to 0.074 mg/L. However, of 25 samples tested previously, 16 leachates had copper concentrations of 0.005 mg/L or less; in this context, the 2006 results appear to be generally consistent with previous testing, and the new data support the conclusion that copper leaching from quarry rock will be minimal. Antimony was reported as detectable (0.001 mg/L or higher) in all sample leachates, with a maximum concentration of 0.011 mg/L. Zinc was detected in two sample leachates, with concentrations of 0.009 and 0.031 mg/L. As zinc solubility is low at the leachate pHs observed, it is possible that neutral pH conditions could result in higher zinc concentrations in porewater under placement conditions.

4.3 Monitoring Plans

Monitoring of quarry rock during placement will verify the ML/ARD characteristics determined during 2006 and previous testing. The quarry rock monitoring program is described in Section 7.8 of the Revised Water License Application, and is defined in detail in Section 7.1 of Supporting Document S10m - Monitoring and Follow-Up Plan.

In summary, the monitoring plan will consist of visual monitoring of quarry rock by field geologists to confirm that the expected rock types are being exposed, along with sampling of placed quarry rock to verify that placed material has the expected ML/ARD characteristics. Approximately 100 ABA samples will be collected from the approximately one million tonnes of quarried rock; any rock that is found to be potentially acid generating will be removed and either stockpiled for underground disposal, or returned to the source quarry. This type of management was successfully implemented in B.C. at Kemess South, in controlling ML/ARD characteristics of rock used for dam construction.

Monitoring of seepage and runoff will be undertaken to confirm that environmentally-significant levels of metal leaching are not occurring; the quarry rock seepage and runoff monitoring program is described in Section 7.8 of the Water License Application, and is defined in detail in Section 7.1 of Supporting Document S10m - Monitoring and Follow-Up Plan. In summary, monitoring stations will be established during post-construction seepage and runoff surveys. In the event that seepage or runoff water with unacceptable water quality is identified, such water will be intercepted and transferred to the tailings containment area. A site-specific remediation plan will be developed to address the source of poor quality water, with available adaptive measures ranging from construction and operation of collection sumps to source identification and removal followed by replacement of rockfill.

5 Summary and Conclusions

The following points summarize the current conclusions regarding the geochemical characteristics at the four proposed quarry locations for the Doris North Project.

- Quarry rock is not potentially acid generating, based on static and kinetic test results from analysis over the period from 2002 through 2006. Diamond drilling in 2006 expanded the lateral sample coverage, and tested the vertical dimension with two drillholes at each of the proposed quarry locations. Uniform geology was intersected at each location, and geochemical parameters showed no obvious vertical patterns.
- Most of the neutralization potential measured in standard acid-base account testing is in the form of calcite and dolomite (calcium and magnesium carbonates). Quantitative x-ray diffraction analysis did not identify any siderite (iron carbonate) in the three humidity cell residues tested.
- Electron microprobe analysis of carbonate grains supported the findings that calcite and dolomite were the host minerals for all inorganic carbon in the samples tested. Calcite was found to contain trace to no iron, manganese or magnesium. Dolomite was found to contain up to 0.22 mole fraction iron and manganese, with calcium and magnesium making up the balance.
- The mineralogy and carbonate speciation data show that most analytically-determined NP is hosted by calcium and magnesium carbonates. These minerals are sufficiently abundant and reactive to neutralize any acid that forms during the weathering of sulphide minerals from the proposed quarry rock fill.
- Shake flask extractions, major and trace element determinations, and previous static and kinetic testwork have demonstrated that the risk of metal leaching from quarry rock and subsequent impacts on receiving waters is very low.

This report "**1CM014.008.0241 Geochemical Characterization of Quarry Materials, Doris North Project, Hope Bay, Nunavut, Canada (Revised March 2007)**", has been prepared by SRK Consulting (Canada) Inc.

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6 References

AMEC Earth and Environmental, 2005. Supporting Document B2: ARD and Metal Leaching Characterization Studies in 2003-2005, Doris North Project, Nunavut, Canada. *In* Supporting Documents A3- B3 Supplemental to Final Environmental Impact Statement: Doris North Project, Nunavut, Canada. Prepared for Miramar Hope Bay Ltd., October 2005.

Price, W.A., 1997. DRAFT Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia. BC Ministry of Employment and Investment, Energy and Minerals Division. 159 pp.

Appendix A
Petrographic Description of Humidity Cell Samples

CHARACTERIZATION OF 3 HUMIDITY CELL SAMPLES

PETROGRAPHY AND MICROPROBE DETERMINATION OF CARBONATE COMPOSITION

AMEC - DORIS NORTH PROJECT

(SRK PROJECT 1CM014.008)

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Background

3 samples from the Doris North greenstone-hosted gold Project are characterized in this report. The samples were received August 16, 2006 from Stephen Day of SRK Consulting Inc..
The purpose of the study was to characterize the mineralogy with particular emphasis on the carbonates and sulfur-bearing minerals present and on the determination of carbonate composition.

Characterization consists of descriptions based on optical microscopy. Alexandra Mauler and Anne Thompson analyzed the sections and defined approx. 20 target carbonate grains (where available) for microprobe analyses using an optical microscope in the PetraScience office, Vancouver.

Electron Microprobe analysis was carried out by Mati Raudsepp, University of British Columbia, on a fully-automated Cameca SX-50 Scanning Electron Microprobe with 4 vertical wavelength-dispersion X-ray spectrometers and a fully-integrated SAMx energy-dispersion X-ray spectrometer. One of the spectrometers has two layered dispersion elements (W/Si, Ni/C), which allow the quantitative analysis of the light elements (F, O, N, C, B).

Sample descriptions with representative photomicrographs follow this summary. All percentages in the descriptions are approximate. Results of carbonate composition are provided in the attached **EPMA Carbonates 726 Sept 15 2006.xls** spreadsheet.

Sample Characterization

Gangue minerals

Sample HC-2 and HC-3 are similar consisting of altered fragments of intermediate rock, composed of various amounts of feldspars, (plagioclase and potassic), actinolite, chlorite, epidote-clinozoite, quartz, rutile and carbonate. Trace muscovite-sericite was observed in HC-3.
Carbonate occurs within the lithic clasts, where it is typically fine-grained and likely occurs as alteration of plagioclase. It also occurs as grains, monomineralic or associated with quartz, fine- to medium-grained.
Sample HC-4 is dominated by intermixed quartz and green amphibole that is variously altered to chlorite ± quartz ± carbonate ± rutile. Plagioclase and K-feldspar occur locally, as do masses of titanite.

Sulfides/Oxides

Sulfides only occur in trace amounts consisting mostly of fine to very fine-grained pyrite and chalcopyrite. Bornite and chalcocite additionally occur in sample HC-2.
Hematite / goethite also occur in the samples, typically as very thin rims around sulfides.
Ilmenite and goethite also occur.

Sample: HC2 **1**

Hand Sample Description:
Powder of bimodal grain size, made of 1) gravel-size, grey fragments of fine-grained intermediate rocks and translucent quartz or carbonate grains, and of 2) cream, sand- to mud-sized particles, commonly coating the coarser fragments.
Felsic minerals commonly stained yellow with sodium cobaltinitrite indicating K-feldspar is present. Not magnetic, moderate fizz with dilute HCl in carbonate grains and in fragments of intermediate rocks.

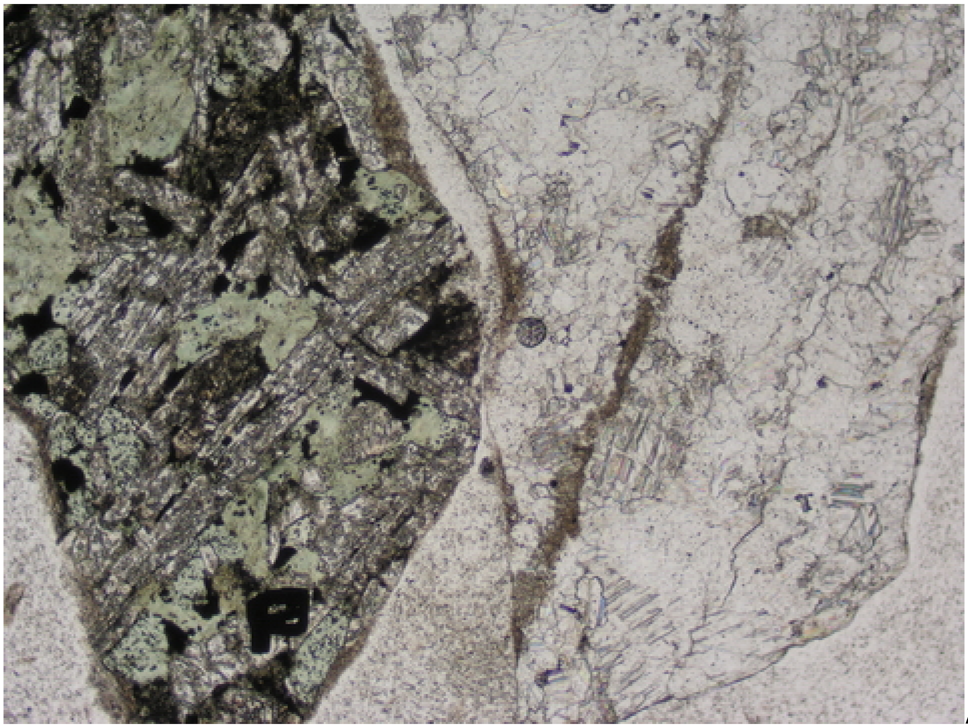
Thin Section Description:
The sample dominantly consists of fragments of plagioclase and K-feldspar, altered to carbonate and associated with various amounts of chlorite ± rutile ± actinolite ± epidote-clinozoisite ± pyrite.
Possible volcanic fragments are characterized by plagioclase laths variously replaced by K-feldspar and / or carbonate in a groundmass of chlorite.
Grains of quartz associated with chlorite and / or carbonate as well as individual grains of carbonate also occur.
Very fine pyrite and chalcopyrite are disseminated, locally associated with bornite and chalcocite.
Extremely finefragments, likely made of the above-cited minerals, are disseminated between the coarser fragments.

MAJOR MINERALS

Mineral	Distribution & Characteristics	Optical
Actinolite	Fine fibrous to prismatic grains, occurring in fragments with chlorite ± rutile ± carbonate ± epidote-clinozoisite	*Green , very weak pleo*
Carbonate	1) Fine to very fine-grained in fragments with chlorite ± rutile ± epidote-clinozoisite 2) Fine to medium-grained grains 3) Fine anhedral grains occurring in fragments with quartz	
Quartz	Fine to medium-sized subangular grains, commonly associated with carbonate or chlorite.	
Plagioclase	Fine tabular, twinned grains occurring with interstitial chlorite and variously altered to K-feldspar	
Epidote-clinozoisite	Fine to very fine, granular to foliated. Occurs in clots intermixed with rutile	*Yellow in PPL Weak pleo*
Chlorite	Fine to very fine sheaves and grains, occurring 1) with rutile as groundmass of ?volcanic fragments, 2) in fragments with chlorite ± rutile ± carbonate ± epidote-clinozoisite	*Weak pleo. Abnormal δ colors*
Rutile	Extremely fine- grained granular clusters intermixed with epidote	
K-feldspar (stain)	Cloudy, fine anhedral grains, at least partly the result of alteration of plagioclase	

MINOR MINERALS

Mineral	Distribution & Characteristics	Optical
Hematite	Local rim around fragments. Very fine grains throughout	
Pyrite	Fine to very fine anhedral grains, locally coated by a thin rim of hematite and associated with chalcocite	
Chalcopyrite	Fine to very fine anhedral grains, associated with bornite and chalcocite	
Chalcocite	Very fine masses enclosing bornite and chalcopyrite	
Bornite	Very fine masses associated with chalcocite and chalcopyrite	



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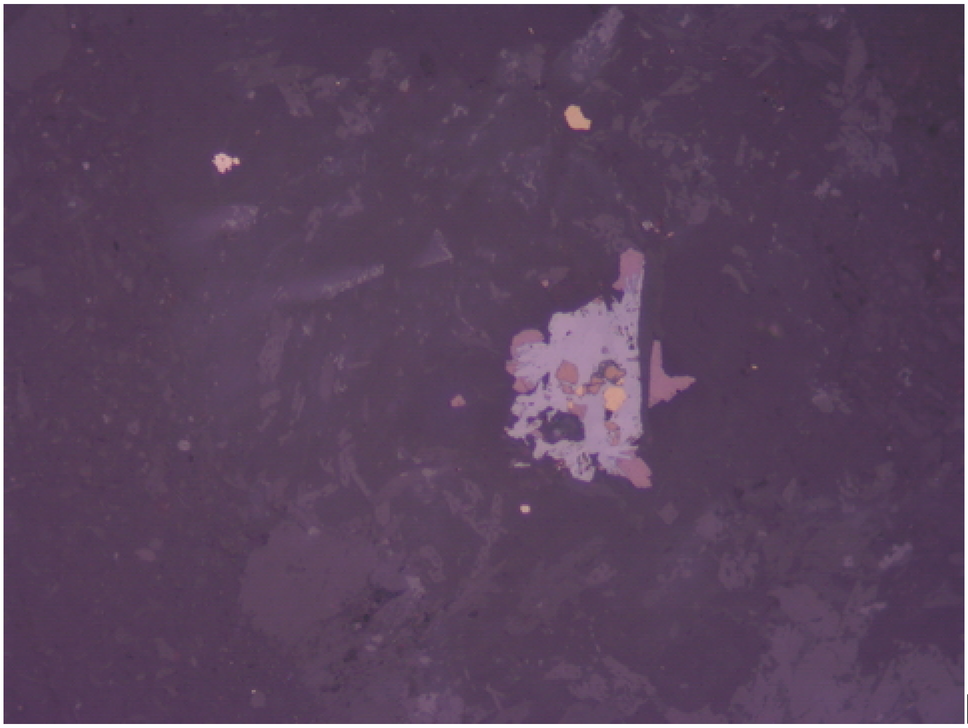


B

HC2: A) Representative view of the sample, showing a lithic fragment made of feldspar, chlorite, epidote-clinozoite, rutile and pyrite, as well as a medium-sized carbonate grains. PPL, FOV = ~ 2.5 mm. B) Detailed view of the occurrence of sulfides including pyrite (cream, top-left), chalcopyrite (yellow), chalcocite (grey) and bornite (purple). RL, FOV = ~ 0.3 mm.

Sample: HC3 **2**

Hand Sample Description:
Powder of bimodal grain size, essentially made of 1) gravel-size, grey fragments of fine-grained intermediate rocks and translucent quartz or carbonate fragments, and of 2) cream, sand- to mud-sized particles, commonly covering the rock fragments.
The felsic minerals locally stained yellow with sodium cobaltinitrite indicating K-feldspar is present. Not magnetic, moderate fizz with dilute HCl in some of the fragments. Some oxidized fragments.

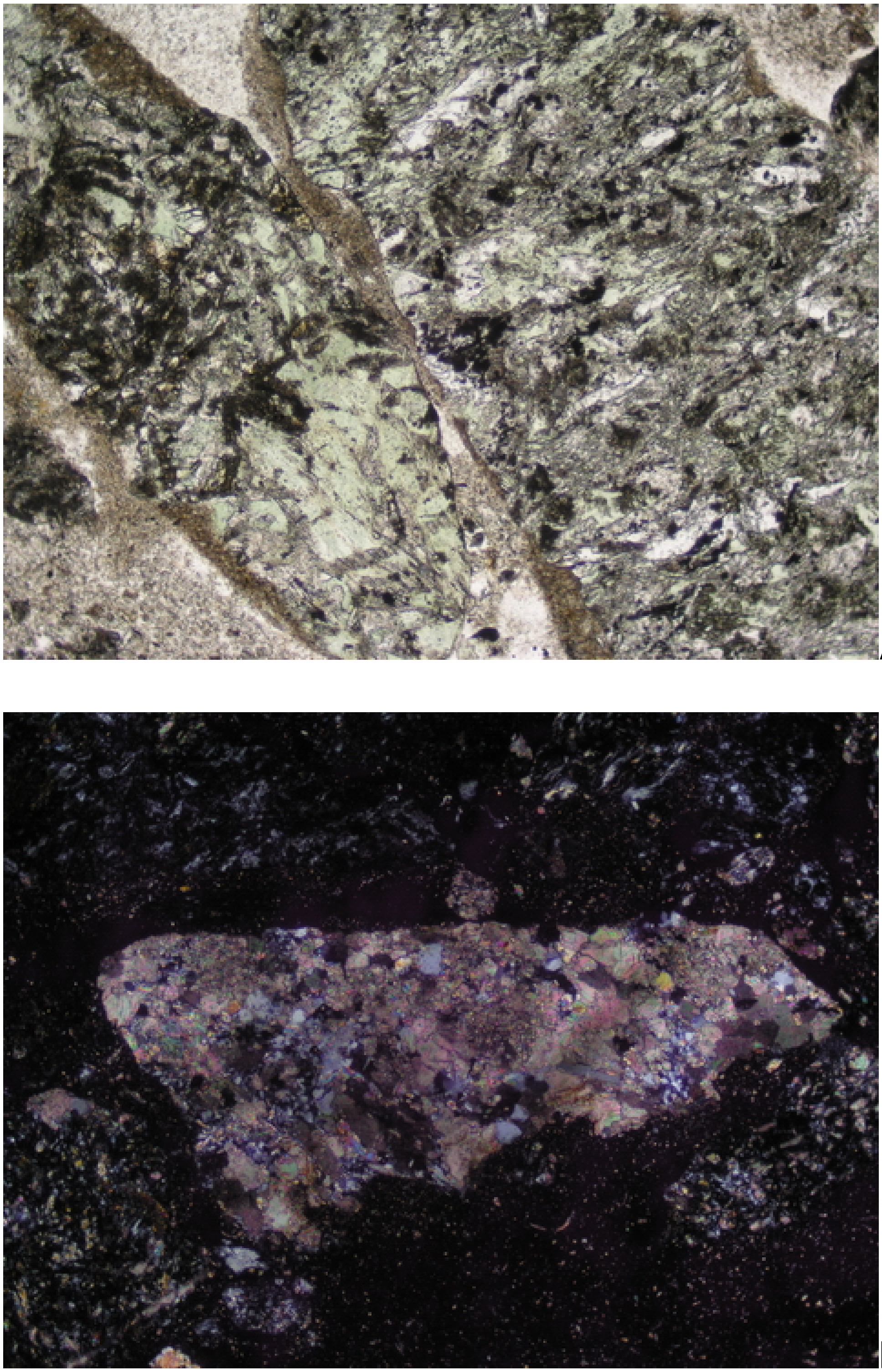
Thin Section Description:
Fragments typically consist of plagioclase and K-feldspar, both variously altered to 1) carbonate and associated with various amounts of chlorite ± rutile ± actinolite ± epidote-clinozoisite ± pyrite, or to 2) muscovite-sericite.
Carbonate alteration in the lithic clasts is more advanced than in the previous sample, at the expense of carbonate grains. Clots of intermixed fine-grained quartz and carbonate also occur, likely as vein material. Trace amounts of pyrite and chalcopyrite occur, locally coated by thin rims of hematite / goethite that also coats some fragments. One possible grain of magnetite was observed, rimmed by a thin layer of ilmenite. Extremely fine grains, likely made of the above-cited minerals, are disseminated between the coarser fragments.

MAJOR MINERALS

Mineral	Distribution & Characteristics	Optical
Carbonate	1) Fine, anhedral, occurring in fragments with quartz 2) Very fine-grained in fragments with feldspar ± chlorite ± rutile ± epidote-clinozoisite	
Plagioclase	Very fine laths and anhedral grains within fragments, partially preserved from alteration	
Chlorite	Fine to very fine sheaves and needles, occurring in fragments with rutile ± carbonate ± epidote-clinozoisite	*Weak pleo. Abnormal δ colors*
Epidote-clinozoisite	Fine to very fine, granular. Occurs in clots with chlorite ± rutile ± carbonate	
Quartz	Fine to very fine, granular, typically in fragments intermixed with carbonate	
Rutile	Extremely fine-grained clusters intermixed with epidote	
Actinolite	Fine fibrous to prismatic grains, occurring in fragments with chlorite ± rutile ± carbonate ± epidote-clinozoisite	*Green , very weak pleo*
K-feldspar (stain)	Cloudy, very fine laths and anhedral grains partially preserved from carbonate alteration	

MINOR MINERALS

Mineral	Distribution & Characteristics	Optical
Hematite / goethite	Thin rim around pyrite, chalcopyrite and locally around fragments. Very fine grains disseminated	
Muscovite-sericite	Very fine-grained foliated masses	
Magnetite / ilmenite	One fine hexagonal grain, rimmed by ilmenite	*Brown isotropic*
Pyrite	Fine to very fine anhedral grains, typically coated by a thin rim of hematite / goethite	
Chalcopyrite	Fine to very fine anhedral grains	



A

B

HC3: A) Representative view of the sample, showing lithic fragments similar to the ones in HC2. PPL, FOV = ~ 2.5 mm.
B) Different view of the sample showing a quartz-carbonate grains. XPL, FOV = ~ 2.5 mm.

Sample: HC4 **3**

Hand Sample Description:
Powder of bimodal grain size, essentially made of gravel-size, green to black mafic fragments, and of cream, sand-sized particles of felsic minerals, commonly covering the mafic fragments.
Felsic minerals also occur throughout the fragments, aligned in bands defining a foliation, or as patches.
Staining with sodium cobaltinitrite locally developed a yellow coloration within the felsic minerals, indicating K-feldspar is present. Not magnetic, very local fizz with dilute HCl.

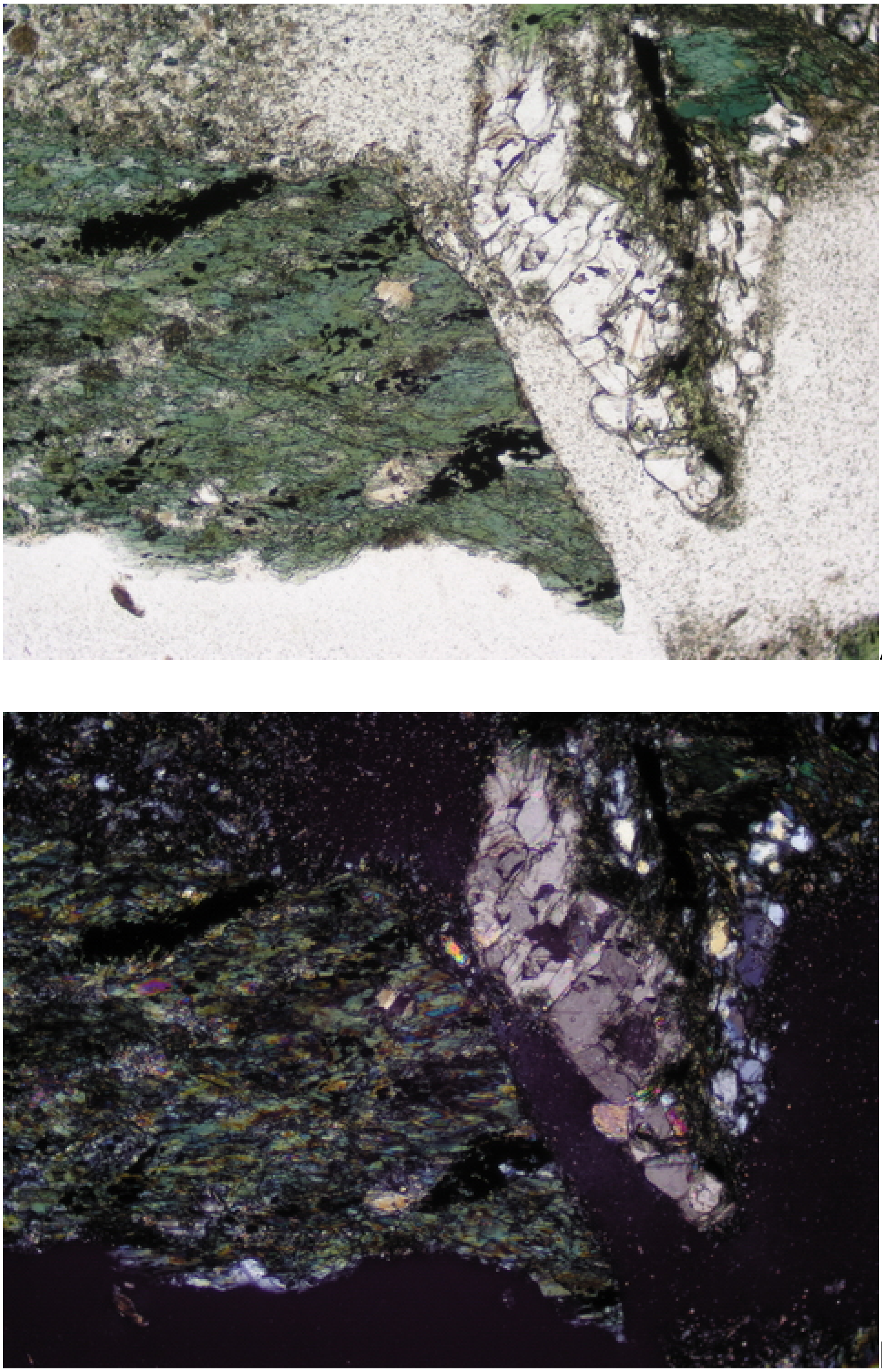
Thin Section Description:
In this sample, foliated fragments dominate, made of sheaves of green amphibole, intermixed with ilmenite and granular quartz or variously altered to granular masses of chlorite ± quartz ± carbonate ± rutile. Plagioclase and K-feldspar occur locally, partially preserved from muscovite-sericite and / or carbonate alteration. Few fragments made of titanite also occur.
Trace amounts of pyrite and chalcopyrite occur, with pyrite typically coated by thin rims of hematite that also occur in masses throughout.
Very fine grains made of the above-cited minerals also occur between the fragments.

MAJOR MINERALS

Mineral	Distribution & Characteristics	Optical
Amphibole	Fine to medium-sized sheaves, aligned, intermixed with quartz, alternating with bands of ilmenite to define a foliation. Commonly altered to chlorite ± quartz ± carbonate ± rutile	*Bluish-green in PPL, sg pleochroism*
Quartz	Fine, granular, locally with hexagonal cross-section. Occurs with amphibole or its alteration products.	
Carbonate	Fine-grained clots and debris, monomineralic or alternating with amphibole or its alteration products	
Chlorite	Fine to very fine sheaves and needles, variously distributed throughout as alteration of amphibole	*Weak pleo. Abnormal δ colors*
K-feldspar (stain)	Fine anhedral grains	

MINOR MINERALS

Mineral	Distribution & Characteristics	Optical
Titanite	Fine anhedral grains in fragments	*Extreme δ*
Ilmenite	Fine subhedral tabular grains, commonly in discontinuous bands within the foliation and locally rimmed by ?rutile	*Pink brown, anisotropic*
Pyrite	Fine to very fine anhedral grains, typically coated by a thin rim of hematite	
Rutile	Very fine disseminated anhedral to skeletal grains and granular clusters	
Hematite	Thin rim around pyrite and fine anhedral masses	
Muscovite-sericite	Very fine-grained foliated masses	
Plagioclase	Fine grains, vaguely tabular and twinned, partly altered by muscovite-sericite and / or carbonate	
Chalcopyrite	Fine to very fine anhedral grains throughout	



A

B

HC4: A) & B) Representative view of the sample showing fragments dominated by biotite ± quartz ± ilmenite with local occurrence of carbonate. A) PPL, B) XPL, FOV = ~ 2.5 mm.

Appendix B
Results of Electron Microprobe Analysis of Selected Carbonate Grains

	Oxide wt.% (*CO2 from stoichiometry)						Structural Formula on the basis of 6 O and 2CO2					
Sample ID	**MgO**	**CaO**	**MnO**	**FeO**	**CO2 ***	**Total**	**Mg2+**	**Ca2+**	**Mn2+**	**Fe2+**	**C4+**	**Sum**
PSA 726												
HC4-1	0.03	56.36	0.20	0.07	44.43	101.09	0.00	1.99	0.01	0.00	2.00	4.00
HC4-2	0.04	56.41	0.07	0.08	44.41	101.01	0.00	1.99	0.00	0.00	2.00	4.00
HC4-3	0.03	55.88	0.25	0.24	44.19	100.59	0.00	1.99	0.01	0.01	2.00	4.00
HC4-4	0.02	57.03	0.14	0.10	44.93	102.22	0.00	1.99	0.00	0.00	2.00	4.00
HC4-5	0.19	54.99	0.38	0.67	44.01	100.24	0.01	1.96	0.01	0.02	2.00	4.00
HC4-7	0.80	53.15	0.59	1.53	43.89	99.96	0.04	1.90	0.02	0.04	2.00	4.00
HC4-8	0.93	52.31	0.60	2.21	43.79	99.84	0.05	1.88	0.02	0.06	2.00	4.00
HC4-9	0.40	54.46	0.52	1.16	44.21	100.75	0.02	1.93	0.02	0.03	2.00	4.00
HC4-10	0.56	53.38	0.56	1.62	43.84	99.96	0.03	1.91	0.02	0.05	2.00	4.00
HC4-11	0.58	53.57	0.59	1.44	43.92	100.10	0.03	1.91	0.02	0.04	2.00	4.00
HC4-12	0.50	53.71	0.61	1.30	43.87	99.99	0.03	1.92	0.02	0.04	2.00	4.00
HC4-13	1.14	52.17	0.69	2.38	44.07	100.45	0.06	1.86	0.02	0.07	2.00	4.00
HC4-14	1.11	52.20	0.76	2.37	44.10	100.54	0.06	1.86	0.02	0.07	2.00	4.00
HC4-15	1.03	52.19	0.70	2.41	43.99	100.32	0.05	1.86	0.02	0.07	2.00	4.00
HC4-16	0.24	56.23	0.34	0.04	44.63	101.48	0.01	1.98	0.01	0.00	2.00	4.00
HC4-17	0.45	55.72	0.50	0.16	44.63	101.46	0.02	1.96	0.01	0.00	2.00	4.00
HC4-18	0.02	56.83	0.37	0.05	44.88	102.15	0.00	1.99	0.01	0.00	2.00	4.00
HC4-19	0.03	56.58	0.21	0.43	44.83	102.08	0.00	1.98	0.01	0.01	2.00	4.00
HC4-21	1.40	52.98	0.00	1.94	44.29	100.61	0.07	1.88	0.00	0.05	2.00	4.00
HC4-22	0.07	56.57	0.42	0.12	44.81	101.99	0.00	1.98	0.01	0.00	2.00	4.00
HC4-23	0.08	56.16	0.19	0.13	44.36	100.92	0.00	1.99	0.01	0.00	2.00	4.00
HC4-24	0.31	54.84	0.53	0.82	44.21	100.71	0.02	1.95	0.02	0.02	2.00	4.00
HC4-25	0.20	54.89	0.31	0.46	43.77	99.63	0.01	1.97	0.01	0.01	2.00	4.00
HC4-26	0.22	55.38	0.36	0.44	44.19	100.59	0.01	1.97	0.01	0.01	2.00	4.00
HC4-27	0.12	55.30	0.21	0.53	43.98	100.14	0.01	1.97	0.01	0.02	2.00	4.00
HC4-28	0.19	56.02	0.26	0.37	44.56	101.40	0.01	1.97	0.01	0.01	2.00	4.00
HC4-29	0.06	56.21	0.28	0.19	44.47	101.21	0.00	1.98	0.01	0.01	2.00	4.00
HC4-31	0.00	56.64	0.12	0.04	44.55	101.35	0.00	2.00	0.00	0.00	2.00	4.00
HC4-32	0.02	56.77	0.21	0.14	44.79	101.93	0.00	1.99	0.01	0.00	2.00	4.00
HC4-33	0.04	56.87	0.02	0.05	44.72	101.70	0.00	2.00	0.00	0.00	2.00	4.00
HC4-34	0.03	56.50	0.02	0.11	44.45	101.11	0.00	2.00	0.00	0.00	2.00	4.00
HC4-35	0.08	55.75	0.30	0.22	44.16	100.51	0.00	1.98	0.01	0.01	2.00	4.00
HC3-1	12.26	29.85	0.56	13.09	45.18	100.94	0.59	1.04	0.02	0.36	2.00	4.00
HC3-2	11.68	29.57	0.44	14.67	45.22	101.58	0.56	1.03	0.01	0.40	2.00	4.00
HC3-3	0.07	55.43	0.34	0.35	44.00	100.19	0.00	1.98	0.01	0.01	2.00	4.00
HC3-4	14.58	29.29	1.17	9.55	45.48	100.07	0.70	1.01	0.03	0.26	2.00	4.00
HC3-6	13.32	29.02	0.71	13.03	45.74	101.82	0.64	1.00	0.02	0.35	2.00	4.00
HC3-7	0.02	57.45	0.11	0.00	45.18	102.76	0.00	2.00	0.00	0.00	2.00	4.00
HC3-8	0.00	57.28	0.03	0.00	44.97	102.28	0.00	2.00	0.00	0.00	2.00	4.00
HC3-10	19.25	32.29	0.51	1.19	47.41	100.65	0.89	1.07	0.01	0.03	2.00	4.00
HC3-11	17.84	31.28	1.26	3.20	46.77	100.35	0.83	1.05	0.03	0.08	2.00	4.00
HC3-12	17.83	31.23	1.26	3.48	46.89	100.69	0.83	1.05	0.03	0.09	2.00	4.00
HC3-13	12.46	29.41	0.50	13.57	45.31	101.25	0.60	1.02	0.01	0.37	2.00	4.00
HC3-14	12.96	30.15	0.65	12.19	45.68	101.63	0.62	1.04	0.02	0.33	2.00	4.00
HC3-16	15.94	29.94	0.67	8.11	46.29	100.95	0.75	1.02	0.02	0.22	2.00	4.00
HC3-17	11.26	29.53	0.80	14.65	44.94	101.18	0.55	1.03	0.02	0.40	2.00	4.00
HC3-18	12.12	29.88	0.53	13.91	45.53	101.97	0.58	1.03	0.01	0.37	2.00	4.00
HC3-19	13.24	29.58	0.39	12.45	45.54	101.20	0.64	1.02	0.01	0.34	2.00	4.00
HC3-20	13.61	29.64	0.38	12.46	45.99	102.08	0.65	1.01	0.01	0.33	2.00	4.00
HC3-21	12.12	29.58	0.41	14.36	45.50	101.97	0.58	1.02	0.01	0.39	2.00	4.00
HC3-22	13.18	29.65	0.29	12.99	45.80	101.91	0.63	1.02	0.01	0.35	2.00	4.00
HC3-23	11.16	28.65	0.50	15.12	44.24	99.67	0.55	1.02	0.01	0.42	2.00	4.00
HC3-24	0.02	56.82	0.26	0.21	44.90	102.21	0.00	1.99	0.01	0.01	2.00	4.00
HC3-27	0.05	56.33	0.27	0.25	44.58	101.48	0.00	1.98	0.01	0.01	2.00	4.00
HC3-28	0.06	57.18	0.25	0.12	45.17	102.78	0.00	1.99	0.01	0.00	2.00	4.00
HC3-29	0.11	56.05	0.45	0.35	44.60	101.56	0.01	1.97	0.01	0.01	2.00	4.00

	Oxide wt.% (*CO2 from stoichiometry)						Structural Formula on the basis of 6 O and 2CO2					
Sample ID	**MgO**	**CaO**	**MnO**	**FeO**	**CO2 ***	**Total**	**Mg2+**	**Ca2+**	**Mn2+**	**Fe2+**	**C4+**	**Sum**
HC3-30	11.10	29.37	0.42	15.33	44.82	101.04	0.54	1.03	0.01	0.42	2.00	4.00
HC3-31	13.38	29.39	0.55	12.07	45.41	100.80	0.64	1.02	0.02	0.33	2.00	4.00
HC3-32	12.38	29.24	0.45	13.79	45.19	101.05	0.60	1.02	0.01	0.37	2.00	4.00
HC3-33	12.08	29.39	0.32	14.24	45.18	101.21	0.58	1.02	0.01	0.39	2.00	4.00
HC3-34	14.14	29.90	0.42	11.07	45.95	101.48	0.67	1.02	0.01	0.30	2.00	4.00
HC3-38	12.48	28.41	0.38	13.04	44.15	98.46	0.62	1.01	0.01	0.36	2.00	4.00
HC3-39	12.62	28.60	0.58	12.98	44.54	99.32	0.62	1.01	0.02	0.36	2.00	4.00
HC3-40	0.09	55.41	0.28	0.53	44.08	100.39	0.00	1.97	0.01	0.02	2.00	4.00
HC3-46	13.04	29.44	0.43	12.66	45.36	100.93	0.63	1.02	0.01	0.34	2.00	4.00
HC3-47	13.40	29.40	0.53	12.49	45.68	101.50	0.64	1.01	0.01	0.34	2.00	4.00
HC2-2	0.49	55.37	0.24	0.58	44.49	101.17	0.02	1.95	0.01	0.02	2.00	4.00
HC2-5	0.00	57.42	0.17	0.00	45.17	102.76	0.00	2.00	0.01	0.00	2.00	4.00
HC2-7	17.94	33.07	0.78	1.46	46.92	100.17	0.84	1.11	0.02	0.04	2.00	4.00
HC2-11	0.00	57.46	0.09	0.00	45.15	102.70	0.00	2.00	0.00	0.00	2.00	4.00
HC2-12	0.02	57.16	0.06	0.02	44.93	102.19	0.00	2.00	0.00	0.00	2.00	4.00
HC2-13	0.02	57.14	0.06	0.07	44.94	102.23	0.00	2.00	0.00	0.00	2.00	4.00
HC2-14	0.02	57.00	0.14	0.00	44.84	102.00	0.00	2.00	0.00	0.00	2.00	4.00
HC2-15	0.03	56.83	0.16	0.10	44.79	101.91	0.00	1.99	0.00	0.00	2.00	4.00
HC2-20	0.02	56.89	0.18	0.07	44.82	101.98	0.00	1.99	0.01	0.00	2.00	4.00
HC2-21	0.01	57.26	0.20	0.05	45.10	102.62	0.00	1.99	0.01	0.00	2.00	4.00
HC2-22	0.01	57.31	0.15	0.00	45.08	102.55	0.00	2.00	0.00	0.00	2.00	4.00
HC2-23	0.12	56.35	0.28	0.32	44.72	101.79	0.01	1.98	0.01	0.01	2.00	4.00
HC2-25	0.11	56.62	0.28	0.44	45.00	102.45	0.01	1.98	0.01	0.01	2.00	4.00
HC2-26	0.02	57.09	0.19	0.17	45.05	102.52	0.00	1.99	0.01	0.01	2.00	4.00
HC2-30	0.00	57.48	0.02	0.11	45.19	102.80	0.00	2.00	0.00	0.00	2.00	4.00
HC2-32	0.01	57.34	0.08	0.14	45.15	102.72	0.00	1.99	0.00	0.00	2.00	4.00
HC2-34	0.06	56.96	0.12	0.07	44.88	102.09	0.00	1.99	0.00	0.00	2.00	4.00
HC2-35	0.02	56.64	0.14	0.01	44.56	101.37	0.00	2.00	0.00	0.00	2.00	4.00
HC2-36	0.03	57.49	0.12	0.00	45.22	102.86	0.00	2.00	0.00	0.00	2.00	4.00
HC2-37	14.24	28.89	0.21	11.69	45.51	100.54	0.68	1.00	0.01	0.32	2.00	4.00

Appendix C
2006 Quarry Characterization Drillhole Logs

Table of Drillhole Equivalents

2006 geochemical characterization drillholes were drilled and logged using drillhole names beginning with '06TDD6'. Sampling and chemical analysis was carried out after renaming drillholes with names beginning with 'MHBL06-', and the drillhole plan in Figure 1 shows the 'MHBL06-' series labels. The table below shows how the drillhole logs correspond to mapped collar locations and analytical results.

Quarry Location	**Drillhole** sampled, analyzed and mapped as:	**Drillhole** drilled and logged as:
Quarry 1	MHBL06-02	06TDD617
Quarry 1	MHBL06-01	06TDD618
Quarry 2	MHBL06-03	06TDD619
Quarry 2	MHBL06-04	06TDD620
Quarry 3	MHBL06-08	06TDD621
Quarry 3	MHBL06-07	06TDD622
Quarry 4	MHBL06-06	06TDD610
Quarry 4	MHBL06-05	06TDD612

HBJV Drill Log
ZONE

Signature: ______________________________

06TDD610

Initials: ________

From	To	Litho	Surface Code	Simple Geo
0.00	12.23	PLBS	1py	

entire hole is amygdaloidal pillowed flows. Well developed hyaloclastite in pillow slevages. Amygduales are small and filled with qtz-cc and rare pyrite.

Sulfides are fine grained and in trace amounts except for an interval between 5.61-7.00 m where it is up tp 3% as subcentimtre clost developed in pillow selvages.

STRUCTURES

From	To	Struct	CA	Strain
0.00	12.23	FOL	15	VW
	massive, very weak foliation			

ALTERATION

From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP
0.00	12.23	VW	VW	VW	VW	VW	-	-	-	-	-
	unaltered greenschist facies chl-cc pillowed flows										

VEINS

From	To	Vn%	QZ%	DL%	CC%	V/m	CA	Septa
0.00	6.36	2	50	0	50	12		
	random small qtz-cc veinlets							
6.36	6.58	45	40	0	40	1	14	-
	single qtz-cc vein w/ ~ 10% epidote							
6.58	12.23	4	50	0	50	20		
	random small qtz-cc veinlets, mainly concentrated in pillow selvages							

MINERALIZATION

From	To	PY%	Style	VG	Min	Min%	Min2	M2%
0.00	5.61	0.1	FG	-				
	very fine grained pyrite in trace amounts, dominiately in amygduales							
5.61	7.00	3	MG	-				
	pyrite clots developed in pillow selvages							
7.00	12.23	0.1	FG	-				
	very fine grained pyrite in trace amounts							

SAMPLES

From	To	Sample	Au g/t
0.00	1.00	203301	
1.00	2.00	203302	
2.00	3.00	203303	
3.00	4.00	203304	
4.00	5.00	203305	
5.00	5.61	203306	
5.61	6.00	203307	
6.00	7.00	203308	
7.00	8.00	203309	

06TDD610

Initials: _______

From	To	Litho	Surface Code	Simple Geo
0.00	12.23	PLBS	1py	

(Continued from previous page)

STRUCTURES					ALTERATION												VEINS									MINERALIZATION									SAMPLES			
From	To	Struct	CA	Strain	From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	From	To	Vn%	QZ%	DL%	CC%	V/m	CA	Septa	From	To	PY%	Style	VG	Min	Min%	Min2	M2%	From	To	Sample	Au g/t
																																			8.00	9.00	203310	
																																			9.00	10.00	203311	
																																			10.00	11.00	203312	
																																			11.00	12.00	203313	
																																			12.00	12.23	203314	

HBJV Drill Log
ZONE

Signature: ______________________

06TDD612

Initials: ________

From	To	Litho	Surface Code
1.30	10.00	PLBS	1pf

pillowed flow with fine felted feldspars. Very consistent unit through, small interval of higher qtz-cc-epidote veinlets concentrated in pillow selvages

trace pyrite throughout

STRUCTURES

From	To	Struct	CA	Strain
0.00	10.00	FOL	15	VW
	very weak foliation developed			

ALTERATION

From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT

VEINS

From	To	Vn%	QZ%	DL%	V/m	CA
0.00	7.67	2	40	0	7	
	random qtz-cc-epidote veinlets					
7.67	8.21	10	40	0	5	
	random qtz-cc-epidote veins at pillow selvages					
8.21	10.00	2	40	0	10	
	small qtz-cc-epidote veinlets					

MINERALIZATION

From	To	PY%	Style	VG	Min	Min%	Min2	M2%
0.00	10.00	0.1	FG	-				
	trace fine diss pyrite							

SAMPLES

From	To	Sample	Au g/t
1.30	2.00	203315	
2.00	3.00	203316	
3.00	4.00	203317	
4.00	5.00	203318	
5.00	6.00	203319	
6.00	7.00	203320	
7.00	7.67	203321	
7.67	8.00	203322	
8.00	8.21	203323	
8.21	9.00	203324	
9.00	10.00	203325	

06TDD612

Initials: _______

From	To	Litho	Surface Code
0.00	1.30	OB	

boulders, no core

STRUCTURES					ALTERATION													VEINS							MINERALIZATION									SAMPLES			
From	To	Struct	CA	Strain	From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT	From	To	Vn%	QZ%	DL%	V/m	CA	From	To	PY%	Style	VG	Min	Min%	Min2	M2%	From	To	Sample	Au g/t

HBJV Drill Log
Doris

Signature: ____________________

06TDD617

Initials: ______

From	To	Litho	Surface Code	Simple Geo
0.00	1.62	OB		

Overburden

STRUCTURES					ALTERATION												VEINS									MINERALIZATION									SAMPLES			
From	To	Struct	CA	Strain	From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	From	To	Vn%	QZ%	DL%	CC%	V/m	CA	Septa	From	To	PY%	Style	VG	Min	Min%	Min2	M2%	From	To	Sample	Au g/t

From	To	Litho	Surface Code	Simple Geo
1.62	11.00	PLBS	1pk	

Pillow Basalt

Grey/green basalt with several large selvages (mostly massive). Rubble zone of basalt for the first 1.3 meters. Veining is quartz/dolomite and calcite/epidote. Very weakly foliated, 35 deg. TCA. where evident. Flowery feldspar t/o. Chlorite alteration. Mineralization is pyrite and chalcopyrite. Some hematite on fractures.

STRUCTURES

From	To	Struct	CA	Strain
1.62	11.00	FOL	35	VW

Mostly massive, very weak foliation evident in a few places.

ALTERATION

From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP
1.62	11.00	W	-	-	W	M	-	-	-	-	-

Green to grey. Epidote in some veins and on selvage margins.

VEINS

From	To	Vn%	QZ%	DL%	CC%	V/m	CA	Septa
1.62	1.73	50	80	20			45	
	Larger veins, one at 45 and one at 80-90 deg. TCA. Most dolomite on margins.							
1.73	2.24	0	0	0				
	Void							
2.24	2.38	80	90	8	2		80	
	Mostly quartz, some minor calcite on edges.							

MINERALIZATION

From	To	PY%	Style	VG	Min	Min%	Min2	M2%
1.62	11.00	0.01	FG	-	CP	0.01	HM	0.01

Trace pyrite and chalcopyrite t/o. Mostly visable on cross section. Some euhedral grains of pyrite, chalcopyrite is semi massive blebs. Hematite in fractures.

SAMPLES

From	To	Sample	Au g/t
1.62	2.16	214588	
2.16	2.31	214589	
2.31	3.31	214590	

06TDD617

Initials: _______

From	To	Litho	Surface Code	Simple Geo
1.62	11.00	PLBS	1pk	

(Continued from previous page)

STRUCTURES

From	To	Struct	CA	Strain

ALTERATION

From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP

VEINS

From	To	Vn%	QZ%	DL%	CC%	V/m	CA	Septa
2.38	3.75	0.5	60	40			45	
	Smaller .5 cm veins at 45 and 90 deg. TCA.							
3.75	3.87	97	60	40				
	Part of rubble.							
3.87	11.00	0.5	85	13	2		35	
	Several sets of veins at different orientations, most follow foliation. Smaller veins, 5 mm and under, dendrritic calcite/epidote veinlets (less than 1 mm) t/o.							

MINERALIZATION

From	To	PY%	Style	VG	Min	Min%	Min2	M2%

SAMPLES

From	To	Sample	Au g/t
3.31	3.85	214591	
3.85	3.96	214592	
3.96	4.00	214593	
4.00	5.00	214594	
5.00	6.00	214595	
6.00	7.00	214596	
7.00	8.00	214597	
8.00	9.00	214598	
9.00	10.00	214599	
10.00	11.00	214600	

HBJV Drill Log
Doris Hinge

Signature: ____________________

06TDD618

Initials: ______

From	To	Litho	Surface Code
0.00	1.84	OB	

Overburden

STRUCTURES					ALTERATION													VEINS							MINERALIZATION									SAMPLES			
From	To	Struct	CA	Strain	From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT	From	To	Vn%	QZ%	DL%	V/m	CA	From	To	PY%	Style	VG	Min	Min%	Min2	M2%	From	To	Sample	Au g/t
																																		1.84	2.84	241101	

From	To	Litho	Surface Code
2.00	11.00	PLBS	1pk

Pillow basalt

Grey/green pillow basalt with numerous large selvages. Weakly foliated mostly massive structure. Veining is quartz/dolomite, calcite with epidote and epidote. Altered to chlorite with hematite in veins and on fractures. Chlorite stringers also present. Hematite on vein and fracture margins as well as on selvage margins. Mineralization is pyrite.

STRUCTURES					ALTERATION													VEINS							MINERALIZATION									SAMPLES			
From	To	Struct	CA	Strain	From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT	From	To	Vn%	QZ%	DL%	V/m	CA	From	To	PY%	Style	VG	Min	Min%	Min2	M2%	From	To	Sample	Au g/t
2.00	11.00	FOL	30	W	2.00	11.00	-	-	-	-	M	-	-	-	-	M		2.00	11.00	1	75	15		67	2.00	11.00	0.01	FG	-	HM	0.1						
Mostly massive with calcite/epidote veins orient at 30 deg. TCA.					*Moderate to strong cholrite alteration. Epidote within calcite veins.*													*Orientation ranges from 50 to 75 deg. TCA. Some with no general orientation. 10% of veins are calcite/epidote veins. Larger veins are quartz/dolomite up to 5 cm. Calcite/epidote veins are much smaller (veinlets) and worm like.*							*Some euhedral and semi-massive blebs of pyrite, pyrite only seen in cross section and within chlorite stringers and quartz veins. Hematite within veins and on fractures.*												
																																		2.84	3.84	241102	
																																		3.84	4.84	241103	
																																		4.84	5.84	241104	
																																		5.84	6.84	241105	
																																		6.84	7.84	241106	
																																		7.84	8.84	241107	
																																		8.84	9.84	241108	
																																		9.84	10.84	241109	
																																		10.84	11.00	241110	

HBJV Drill Log

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Signature: ____________________

06TDD619

Initials: ________

From	To	Litho	Surface Code
0.00	1.20	OB	

Overburdan

STRUCTURES

From	To	Struct	CA	Strain

ALTERATION

From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT

VEINS

From	To	Vn%	QZ%	DL%	V/m	CA

MINERALIZATION

From	To	PY%	Style	VG	Min	Min%	Min2	M2%

SAMPLES

From	To	Sample	Au g/t

From	To	Litho	Surface Code
1.20	11.00	PLBS	1pk

Pillow basalt

Light green /grey pillow basalt with numerous pillow selvages greater than 2cm. Mostly non-foliated or massive. Veining is calcite/epidote (wormy epidote) stringers and small quartz/dolomite veins (less than .5 cm), no general oriuentation. Void of mineralization.

STRUCTURES

From	To	Struct	CA	Strain
1.20	11.00	FOL	30	VW

Very weak to weak foliation only barely visable in in the orientation of some veins.

ALTERATION

From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT
1.20	11.00	-	-	-	-	W	-	-	-	W	W	

Pale grey to light green color throughout, homogenous.

VEINS

From	To	Vn%	QZ%	DL%	V/m	CA
1.20	11.00	2	40	20	40	

Calcite veins are ore over printed with wormy epidote veining. Quartz/dolomite veins are less than .5 cm. No general orientation however some veins may follow very weak foliation at 30 deg. TCA.

MINERALIZATION

From	To	PY%	Style	VG	Min	Min%	Min2	M2%
1.20	11.00	0.01	FG	-				

Almost completely void of any mineralization. One or two grains viasible.

SAMPLES

From	To	Sample	Au g/t
1.20	2.20	214753	
2.20	3.20	214754	
3.20	4.20	214755	
4.20	5.20	214756	
5.20	6.20	214757	
6.20	7.20	214758	
7.20	8.20	214759	
8.20	9.20	214760	
9.20	10.20	214761	
10.20	11.00	214762	

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06TDD620

Initials: ________

From	To	Litho	Surface Code
0.00	1.81	OB	

Overburden

STRUCTURES					ALTERATION													VEINS							MINERALIZATION									SAMPLES			
From	To	Struct	CA	Strain	From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT	From	To	Vn%	QZ%	DL%	V/m	CA	From	To	PY%	Style	VG	Min	Min%	Min2	M2%	From	To	Sample	Au g/t

From	To	Litho	Surface Code
1.81	11.00	GAB	7a

Gabbro

Dark green to grey in color, very weakly foliated. Veining is bull quartz, quartz dolomite, and calcite. Void of mineralization. Grain size 1-2 mm and decreases slighty down hole (possible chill margin).

STRUCTURES

From	To	Struct	CA	Strain
1.81	11.00	FOL	35	VW

Mostly massive, coarse grained visable cpx and plag 1-2 mm in size. Grain size decreases slightly towards end of hole, possible chill margin. Vein orientation indicates very weak foliation, not visable otherwise.

ALTERATION

From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT
1.81	11.00	-	-	-	-	M	-	-	-	W	VW	

Dark green to grey in color .

VEINS

From	To	Vn%	QZ%	DL%	V/m	CA
1.81	11.00	4	40	20		40

Ranges from 30-40 deg. TCA. Larger bull quartz veins forming sharp contact with quartz/dolomite veins. 40% calcite veining. Small amount of epidote stringers (less than 2mm).

MINERALIZATION

From	To	PY%	Style	VG	Min	Min%	Min2	M2%
1.81	11.00	0.01	MG	-				

One or two euhedral grains seen in cross section. Virtually void of mineralization.

SAMPLES

From	To	Sample	Au g/t
1.81	2.81	241111	
2.81	3.81	241112	
3.81	4.81	214113	
4.81	5.81	241114	
5.81	6.81	241115	
6.81	7.81	241116	
7.81	8.81	241117	
8.81	9.81	241118	
9.81	10.81	214119	
10.81	11.00	241120	

Initials: _______

From	To	Litho	Surface Code
1.81	11.00	GAB	7a

(Continued from previous page)

STRUCTURES					ALTERATION													VEINS							MINERALIZATION									SAMPLES			
From	To	Struct	CA	Strain	From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT	From	To	Vn%	QZ%	DL%	V/m	CA	From	To	PY%	Style	VG	Min	Min%	Min2	M2%	From	To	Sample	Au g/t

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06TDD621

Initials: ________

From	To	Litho	Surface Code
0.00	0.76	OB	

Overburden

STRUCTURES					ALTERATION													VEINS							MINERALIZATION									SAMPLES			
From	To	Struct	CA	Strain	From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT	From	To	Vn%	QZ%	DL%	V/m	CA	From	To	PY%	Style	VG	Min	Min%	Min2	M2%	From	To	Sample	Au g/t

From	To	Litho	Surface Code
0.76	11.00	PLBS	1pn

Pillow basalt

Weak to moderate foliation t/o. Very strong chlorite alteration (almost black with lighter green sections). Veining is quartz, quartz/dolomite, and calcite, zones of whispy calcite veining. Small amount of albitic veins at 7 meters. Mineralization is trace pyrite t/o. Magnetite noticeable after first 5 meters.

STRUCTURES

From	To	Struct	CA	Strain
0.76	6.85	FOL	70	M
Weak to moderate strain.				

ALTERATION

From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT
0.76	11.00	-	-	-	-	VS	-	-	-	W	-	
Very strong chlorite alteration t/o. Dark green to black in color. Some sections are lighter green and contain a different stile of veining, more calcite.												

VEINS

From	To	Vn%	QZ%	DL%	V/m	CA
0.76	2.60	2	10	0		70
80% calcite veinlets, under 2 mm. Some crosscut general trend.						
2.60	4.50	20	20	10		80
Increase in vein intensity, abundant wispy calcite veining, up to 1 cm. Larger quartz/dolomite veining concentrated on possible selvages..						

MINERALIZATION

From	To	PY%	Style	VG	Min	Min%	Min2	M2%
0.76	11.00	0.01	FG	-				
A few grains seen on cross section and within veins.								

SAMPLES

From	To	Sample	Au g/t
0.78	1.78	241212	
1.78	2.78	214122	
2.78	3.78	214123	
3.78	4.78	214124	

From	To	Litho	Surface Code
0.76	11.00	PLBS	1pn

(Continued from previous page)

STRUCTURES

From	To	Struct	CA	Strain
6.85	11.00	FOL	40	M
Foliation only evident through vein alignment.				

ALTERATION

From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT

VEINS

From	To	Vn%	QZ%	DL%	V/m	CA
4.50	6.00	2	10	0		70
Same as .76-2.6 meter interval.						
6.00	7.65	20	20	10		40
Similer to 2.6-4.5 meter interval on calcite veins, more patchy.						
7.65	11.00	2	0	0		40
Calcite veinlets <1 mm. Two sets that crosscut each other, both at 40 deg. TCA.						

MINERALIZATION

From	To	PY%	Style	VG	Min	Min%	Min2	M2%

SAMPLES

From	To	Sample	Au g/t
4.78	5.78	214125	
5.78	6.78	214126	
6.78	7.78	214127	
7.78	8.78	214128	
8.78	9.78	214129	
9.78	10.78	214130	
10.78	11.00	214131	

HBJV Drill Log

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Initials: ________

06TDD622

From	To	Litho	Surface Code
0.00	0.78	OB	

Overburden

STRUCTURES

From	To	Struct	CA	Strain

ALTERATION

From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT

VEINS

From	To	Vn%	QZ%	DL%	V/m	CA

MINERALIZATION

From	To	PY%	Style	VG	Min	Min%	Min2	M2%

SAMPLES

From	To	Sample	Au g/t

From	To	Litho	Surface Code
0.78	11.00	BSLT	1a

Basalt

Basalt strongly chloritized, dark green to black in color. Weak to moderate foliation. Veining is primarily calcite with a few larger (up to 3cm) bull quartz veins and some smaller quartz/dolomite veins. Mineralization is trace pyrite with some hematite veins and staining on fractures.

STRUCTURES

From	To	Struct	CA	Strain
0.78	11.00	FOL	30	W

Weak to moderate foliation. Only evident in veining orientation.

ALTERATION

From	To	INT	SR	SIL	DL	CL	TO	AB	FU	CC	EP	MT
0.78	11.00	-	-	-	-	VS	-	-	-	-	-	

Dark green to black.

VEINS

From	To	Vn%	QZ%	DL%	V/m	CA
0.78	11.00	2	10	5		30

85% calcite stringers and veinlets. Some follow foliation, 50% of veins have no general orientation.

MINERALIZATION

From	To	PY%	Style	VG	Min	Min%	Min2	M2%
0.78	11.00	0.01	FG	-	HM	0.01		

Trace pyrite t/o, some hematite veins and staining on fractures.

SAMPLES

From	To	Sample	Au g/t
0.78	1.78	241132	
1.78	2.78	241133	
2.78	3.78	241134	
3.78	4.78	241145	
4.78	5.78	241136	
5.78	6.78	241137	
6.78	7.78	241138	
7.78	8.78	241139	
8.78	9.78	241140	
9.78	10.78	241141	
10.78	11.00	241142	

Appendix D
Static Test Results

Laboratory sample ID and equivalent drillhole and sample interval

Sample ID	From (m)	To (m)	Drillhole drilled and logged as:	Drillhole sampled and analyzed as:	Quarry Location
HB-214588	1.62	2.16	06TDD617	MHBL06-02	Quarry 1
HB-214589	2.16	2.31	06TDD617	MHBL06-02	Quarry 1
HB-214590	2.31	3.31	06TDD617	MHBL06-02	Quarry 1
HB-214591	3.31	3.85	06TDD617	MHBL06-02	Quarry 1
HB-214592	3.85	3.96	06TDD617	MHBL06-02	Quarry 1
HB-214593	3.96	4	06TDD617	MHBL06-02	Quarry 1
HB-214594	4	5	06TDD617	MHBL06-02	Quarry 1
HB-214595	5	6	06TDD617	MHBL06-02	Quarry 1
HB-214596	6	7	06TDD617	MHBL06-02	Quarry 1
HB-214597	7	8	06TDD617	MHBL06-02	Quarry 1
HB-214598	8	9	06TDD617	MHBL06-02	Quarry 1
HB-214599	9	10	06TDD617	MHBL06-02	Quarry 1
HB-214600	10	11	06TDD617	MHBL06-02	Quarry 1
HB-214753	1.2	2.2	06TDD619	MHBL06-03	Quarry 2
HB-214754	2.2	3.2	06TDD619	MHBL06-03	Quarry 2
HB-214755	3.2	4.2	06TDD619	MHBL06-03	Quarry 2
HB-214756	4.2	5.2	06TDD619	MHBL06-03	Quarry 2
HB-214757	5.2	6.2	06TDD619	MHBL06-03	Quarry 2
HB-214758	6.2	7.2	06TDD619	MHBL06-03	Quarry 2
HB-214759	7.2	8.2	06TDD619	MHBL06-03	Quarry 2
HB-214760	8.2	9.2	06TDD619	MHBL06-03	Quarry 2
HB-214761	9.2	10.2	06TDD619	MHBL06-03	Quarry 2
HB-214762	10.2	11	06TDD619	MHBL06-03	Quarry 2
HB-241101	1.84	2.84	06TDD618	MHBL06-01	Quarry 1
HB-241102	2.84	3.84	06TDD618	MHBL06-01	Quarry 1
HB-241103	3.84	4.84	06TDD618	MHBL06-01	Quarry 1
HB-241104	4.84	5.84	06TDD618	MHBL06-01	Quarry 1
HB-241105	5.84	6.84	06TDD618	MHBL06-01	Quarry 1
HB-241106	6.84	7.84	06TDD618	MHBL06-01	Quarry 1
HB-241107	7.84	8.84	06TDD618	MHBL06-01	Quarry 1
HB-241108	8.84	9.84	06TDD618	MHBL06-01	Quarry 1
HB-241109	9.84	10.84	06TDD618	MHBL06-01	Quarry 1
HB-241110	10.84	11	06TDD618	MHBL06-01	Quarry 1
HB-241111	1.81	2.81	06TDD620	MHBL06-04	Quarry 2
HB-241112	2.81	3.81	06TDD620	MHBL06-04	Quarry 2
HB-241113	3.81	4.81	06TDD620	MHBL06-04	Quarry 2
HB-241114	4.81	5.81	06TDD620	MHBL06-04	Quarry 2
HB-241115	5.81	6.81	06TDD620	MHBL06-04	Quarry 2
HB-241116	6.81	7.81	06TDD620	MHBL06-04	Quarry 2
HB-241117	7.81	8.81	06TDD620	MHBL06-04	Quarry 2
HB-241118	8.81	9.81	06TDD620	MHBL06-04	Quarry 2
HB-241119	9.81	10.81	06TDD620	MHBL06-04	Quarry 2
HB-241120	10.81	11	06TDD620	MHBL06-04	Quarry 2

Laboratory sample ID and equivalent drillhole and sample interval

Sample ID	From (m)	To (m)	Drillhole drilled and logged as:	Drillhole sampled and analyzed as:	Quarry Location
HB-241121	0.78	1.78	06TDD621	MHBL06-08	Quarry 3
HB-241122	1.78	2.78	06TDD621	MHBL06-08	Quarry 3
HB-241123	2.78	3.78	06TDD621	MHBL06-08	Quarry 3
HB-241124	3.78	4.78	06TDD621	MHBL06-08	Quarry 3
HB-241125	4.78	5.78	06TDD621	MHBL06-08	Quarry 3
HB-241126	5.78	6.78	06TDD621	MHBL06-08	Quarry 3
HB-241127	6.78	7.78	06TDD621	MHBL06-08	Quarry 3
HB-241128	7.78	8.78	06TDD621	MHBL06-08	Quarry 3
HB-241129	8.78	9.78	06TDD621	MHBL06-08	Quarry 3
HB-241130	9.78	10.78	06TDD621	MHBL06-08	Quarry 3
HB-241131	10.78	11	06TDD621	MHBL06-08	Quarry 3
HB-241132	0.78	1.78	06TDD622	MHBL06-07	Quarry 3
HB-241133	1.78	2.78	06TDD622	MHBL06-07	Quarry 3
HB-241134	2.78	3.78	06TDD622	MHBL06-07	Quarry 3
HB-241135	3.78	4.78	06TDD622	MHBL06-07	Quarry 3
HB-241136	4.78	5.78	06TDD622	MHBL06-07	Quarry 3
HB-241137	5.78	6.78	06TDD622	MHBL06-07	Quarry 3
HB-241138	6.78	7.78	06TDD622	MHBL06-07	Quarry 3
HB-241139	7.78	8.78	06TDD622	MHBL06-07	Quarry 3
HB-241140	8.78	9.78	06TDD622	MHBL06-07	Quarry 3
HB-241141	9.78	10.78	06TDD622	MHBL06-07	Quarry 3
HB-241142	10.78	11	06TDD622	MHBL06-07	Quarry 3
HB-203301	0	1	06TDD610	MHBL06-06	Quarry 4
HB-203302	1	2	06TDD610	MHBL06-06	Quarry 4
HB-203303	2	3	06TDD610	MHBL06-06	Quarry 4
HB-203304	3	4	06TDD610	MHBL06-06	Quarry 4
HB-203305	4	5	06TDD610	MHBL06-06	Quarry 4
HB-203306	5	5.61	06TDD610	MHBL06-06	Quarry 4
HB-203307	5.61	6	06TDD610	MHBL06-06	Quarry 4
HB-203308	6	7	06TDD610	MHBL06-06	Quarry 4
HB-203309	7	8	06TDD610	MHBL06-06	Quarry 4
HB-203310	8	9	06TDD610	MHBL06-06	Quarry 4
HB-203311	9	10	06TDD610	MHBL06-06	Quarry 4
HB-203312	10	11	06TDD610	MHBL06-06	Quarry 4
HB-203313	11	12	06TDD610	MHBL06-06	Quarry 4
HB-203314	12	12.23	06TDD610	MHBL06-06	Quarry 4
HB-203315	1.3	2	06TDD612	MHBL06-05	Quarry 4
HB-203316	2	3	06TDD612	MHBL06-05	Quarry 4
HB-203317	3	4	06TDD612	MHBL06-05	Quarry 4
HB-203318	4	5	06TDD612	MHBL06-05	Quarry 4
HB-203319	5	6	06TDD612	MHBL06-05	Quarry 4
HB-203320	6	7	06TDD612	MHBL06-05	Quarry 4
HB-203321	7	7.67	06TDD612	MHBL06-05	Quarry 4
HB-203322	7.67	8	06TDD612	MHBL06-05	Quarry 4
HB-203323	8	8.21	06TDD612	MHBL06-05	Quarry 4
HB-203324	8.21	9	06TDD612	MHBL06-05	Quarry 4
HB-203325	9	10	06TDD612	MHBL06-05	Quarry 4

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Table 1: ABA Results for 65 Miramar Hope Bay Samples - Sept. 2006

Sample ID	Paste pH	CO2 (Wt.%)	CaCO3 Equiv. (Kg CaCO3/Tonne)	Total Sulphur (Wt.%)	Sulphate Sulphur (Wt.%)	Sulphide Sulphur* (Wt.%)	Maximum Potential Acidity** (Kg CaCO3/Tonne)	Neutralization Potential (Kg CaCO3/Tonne)	Net Neutralization Potential (Kg CaCO3/Tonne)	Fizz
HB-214588	9.0	2.87	65.2	0.06	0.01	0.05	1.6	91.9	90.3	Moderate
HB-214589	8.2	6.10	138.6	0.04	0.01	0.03	0.9	151.3	150.3	Moderate
HB-214590	9.1	2.90	65.9	0.08	0.01	0.07	2.2	93.1	90.9	Moderate
HB-214591	9.0	4.63	105.2	0.06	0.01	0.05	1.6	130.0	128.4	Moderate
HB-214592	8.6	11.71	266.1	0.03	0.01	0.02	0.6	281.3	280.6	Moderate
HB-214593	9.0	6.50	147.7	0.03	0.01	0.02	0.6	171.9	171.3	Moderate
HB-214594	9.1	4.27	97.0	0.08	<0.01	0.08	2.5	131.9	129.4	Moderate
HB-214595	9.1	2.62	59.5	0.10	0.01	0.09	2.8	84.4	81.6	Moderate
HB-214596	9.0	3.55	80.7	0.10	0.01	0.09	2.8	112.5	109.7	Moderate
HB-214597	9.0	3.91	88.9	0.10	0.01	0.09	2.8	110.6	107.8	Moderate
HB-214598	9.0	5.46	124.1	0.05	0.02	0.03	0.9	153.8	152.8	Moderate
HB-214599	8.8	3.88	88.2	0.08	0.02	0.06	1.9	110.0	108.1	Moderate
HB-214600	9.2	3.33	75.7	0.08	0.01	0.07	2.2	98.8	96.6	Moderate
HB-214753	8.8	4.02	91.4	0.08	0.01	0.07	2.2	128.8	126.6	Moderate
HB-214754	8.9	4.16	94.5	0.11	0.01	0.10	3.1	146.3	143.1	Moderate
HB-214755	8.9	4.16	94.5	0.06	0.02	0.04	1.3	121.3	120.0	Moderate
HB-214756	8.9	3.63	82.5	0.09	0.02	0.07	2.2	123.8	121.6	Moderate
HB-214757	8.9	3.98	90.5	0.05	0.03	0.02	0.6	126.3	125.6	Moderate
HB-214758	9.1	3.55	80.7	0.09	0.02	0.07	2.2	117.5	115.3	Moderate
HB-214759	8.8	2.92	66.4	0.02	0.02	0.00	0.0	127.5	127.5	Moderate
HB-214760	9.0	3.63	82.5	0.04	0.02	0.02	0.6	118.8	118.1	Moderate
HB-214761	9.0	4.52	102.7	0.02	0.01	0.01	0.3	128.8	128.4	Moderate
HB-214762	9.1	3.26	74.1	0.04	0.02	0.02	0.6	108.8	108.1	Moderate
HB-241101	9.3	2.59	58.9	0.09	0.01	0.08	2.5	112.5	110.0	Moderate
HB-241102	9.3	2.87	65.2	0.09	0.01	0.08	2.5	118.8	116.3	Moderate
HB-241103	9.2	5.06	115.0	0.13	0.01	0.12	3.8	156.3	152.5	Moderate
HB-241104	9.2	4.36	99.1	0.14	0.01	0.13	4.1	130.0	125.9	Moderate
HB-241105	9.3	3.52	80.0	0.13	0.01	0.12	3.8	116.9	113.1	Moderate
HB-241106	9.4	7.15	162.5	0.08	0.01	0.07	2.2	183.8	181.6	Moderate
HB-241107	9.1	4.14	94.1	0.06	0.02	0.04	1.3	127.5	126.3	Moderate
HB-241108	9.1	1.94	44.1	0.07	0.03	0.04	1.3	97.5	96.3	Moderate
HB-241109	9.1	2.14	48.6	0.10	0.01	0.09	2.8	79.4	76.6	Moderate
HB-241110	9.2	1.70	38.6	0.03	0.01	0.02	0.6	98.1	97.5	Moderate
HB-241111	9.0	1.04	23.6	0.13	0.02	0.11	3.4	55.0	51.6	Moderate
HB-241112	9.2	0.32	7.3	0.07	<0.01	0.07	2.2	18.3	16.1	Slight
HB-241113	9.1	0.80	18.2	0.09	<0.01	0.09	2.8	29.0	26.2	Slight
HB-241114	9.1	2.47	56.1	0.09	0.01	0.08	2.5	97.5	95.0	Moderate
HB-241115	9.0	0.42	9.5	0.09	0.01	0.08	2.5	53.1	50.6	Moderate
HB-241116	9.1	0.62	14.1	0.08	<0.01	0.08	2.5	51.9	49.4	Moderate
HB-241117	9.0	0.89	20.2	0.04	<0.01	0.04	1.3	62.5	61.3	Moderate
HB-241118	9.1	1.39	31.6	0.02	<0.01	0.02	0.6	83.8	83.1	Moderate
HB-241119	9.1	2.56	58.2	0.02	<0.01	0.02	0.6	107.5	106.9	Moderate
HB-241120	9.0	0.53	12.0	0.02	<0.01	0.02	0.6	55.0	54.4	Moderate
HB-241121	9.0	1.75	39.8	0.08	<0.01	0.08	2.5	62.5	60.0	Moderate
HB-241122	8.9	5.72	130.0	0.15	0.02	0.13	4.1	147.5	143.4	Moderate
HB-241123	8.8	9.83	223.4	0.16	<0.01	0.16	5.0	228.8	223.8	Moderate
HB-241124	8.8	7.19	163.4	0.17	0.01	0.16	5.0	192.5	187.5	Moderate
HB-241125	8.8	3.17	72.0	0.07	<0.01	0.07	2.2	97.5	95.3	Moderate
HB-241126	8.7	7.52	170.9	0.08	0.03	0.05	1.6	188.8	187.2	Moderate
HB-241127	8.5	8.65	196.6	0.46	0.04	0.42	13.1	210.0	196.9	Moderate
HB-241128	8.8	3.04	69.1	0.09	<0.01	0.09	2.8	90.0	87.2	Moderate
HB-241129	9.0	1.68	38.2	0.16	<0.01	0.16	5.0	61.3	56.3	Moderate
HB-241130	9.1	1.58	35.9	0.12	<0.01	0.12	3.8	190.0	186.3	Moderate
HB-241131	9.1	1.17	26.6	0.12	<0.01	0.12	3.8	43.8	40.0	Moderate
HB-241132	8.8	3.80	86.4	0.15	<0.01	0.15	4.7	101.3	96.6	Moderate
HB-241133	8.7	3.97	90.2	0.29	0.01	0.28	8.8	122.5	113.8	Moderate
HB-241134	8.7	4.40	100.0	0.25	<0.01	0.25	7.8	136.9	129.1	Moderate
HB-241135	8.7	1.70	38.6	0.10	<0.01	0.10	3.1	140.0	136.9	Moderate
HB-241136	8.9	1.39	31.6	0.08	0.01	0.07	2.2	60.0	57.8	Moderate
HB-241137	8.9	1.97	44.8	0.12	0.01	0.11	3.4	92.5	89.1	Moderate
HB-241138	8.9	3.31	75.2	0.08	0.01	0.07	2.2	111.9	109.7	Moderate
HB-241139	9.0	1.53	34.8	0.11	0.01	0.10	3.1	68.8	65.7	Moderate
HB-241140	9.1	1.00	22.7	0.09	<0.01	0.09	2.8	68.1	65.3	Moderate
HB-241141	9.0	3.73	84.8	0.12	<0.01	0.12	3.8	145.0	141.3	Moderate
HB-241142	8.9	3.76	85.5	0.10	0.01	0.09	2.8	147.5	144.7	Moderate
Detection Limits	*0.1*	*0.01*		*0.02*	*0.01*					
Vizon Method Number	7160	LECO	Calculation	LECO	7410	Calculation	Calculation	7110	Calculation	7150

*Based on difference between total sulphur and sulphate-sulphur
**Based on sulphide-sulphur
CO2 and Total Sulphur by LECO furnace

NP method used: Standard Sobek NP Method

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Table 1: ABA Results for Miramar Hope Bay Samples - July 2006

Sample	Paste pH	CO2 (Wt.%)	CaCO3 Equiv. (Kg CaCO3/Tonne)	Total Sulphur (Wt.%)	Sulphate Sulphur (Wt.%)	Sulphide Sulphur* (Wt.%)	Maximum Potential Acidity** (Kg CaCO3/Tonne)	Neutralization Potential (Kg CaCO3/Tonne)	Net Neutralization Potential (Kg CaCO3/Tonne)	Fizz
203301	8.2	4.32	98.2	0.09	0.01	0.08	2.4	129.4	127.0	Moderate
203302	8.5	6.19	140.7	0.07	0.01	0.06	1.9	203.8	201.9	Strong
203303	8.5	8.58	195.0	0.07	0.01	0.06	1.8	245.0	243.2	Strong
203304	8.6	6.53	148.4	0.02	0.00	0.02	0.5	229.4	228.9	Strong
203305	8.8	5.67	128.9	0.02	0.02	0.00	0.0	210.6	210.6	Strong
203306	8.8	8.21	186.6	<0.02	0.02	<0.02	<0.6	242.5	242.5	Strong
203307	8.6	8.40	190.9	0.85	0.01	0.84	26.1	246.3	220.1	Strong
203308	8.5	8.32	189.1	0.51	0.03	0.48	15.0	287.5	272.5	Strong
203309	8.5	9.63	218.9	0.28	0.01	0.27	8.3	256.3	248.0	Strong
203310	8.5	6.83	155.2	0.02	0.01	0.01	0.2	189.4	189.1	Strong
203311	8.7	6.41	145.7	0.03	0.01	0.02	0.5	182.5	182.0	Strong
203312	8.5	6.41	145.7	0.03	0.03	0.00	0.1	218.8	218.6	Strong
203313	8.6	7.50	170.5	0.02	0.01	0.01	0.3	218.8	218.4	Strong
203314	8.6	8.32	189.1	0.02	0.01	0.01	0.4	233.8	233.4	Strong
203315	8.6	2.30	52.3	0.13	0.02	0.11	3.6	76.2	72.7	Strong
203316	8.7	6.00	136.4	0.06	0.01	0.05	1.5	176.3	174.7	Strong
203317	8.7	1.77	40.2	0.06	0.01	0.05	1.5	68.8	67.3	Strong
203318	8.7	1.93	43.9	0.05	0.02	0.03	1.0	67.5	66.5	Strong
203319	8.6	2.06	46.8	0.09	0.02	0.07	2.3	83.8	81.4	Strong
203320	8.7	1.64	37.3	0.03	0.01	0.02	0.6	81.9	81.3	Strong
203321	8.5	4.17	94.8	<0.02	0.01	<0.02	<0.6	146.9	146.9	Strong
203322	8.6	6.64	150.9	0.02	<0.01	0.02	0.6	207.5	206.9	Strong
203323	8.6	6.97	158.4	0.02	0.01	0.01	0.3	196.9	196.5	Strong
203324	8.6	0.89	20.2	0.02	0.01	0.01	0.3	62.5	62.3	Moderate
203325	8.8	3.43	78.0	0.03	0.03	0.00	0.0	153.8	153.8	Strong
Detection Limits	*0.1*	*0.01*		*0.02*	*0.01*					
Vizon Method	7160	LECO	Calculation	LECO	7410	Calculation	Calculation	7110	Calculation	7150

*Based on difference between total sulphur and sulphate-sulphur
**Based on sulphide-sulphur
CO2 and Total Sulphur by LECO furnace

NP method used: Standard Sobek ABA Method

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Table 2a: QA/QC for NP Determination

Sample ID	Neutralization Potential (kgCaCO3/Tonne)	Neutralization Potential (kgCaCO3/Tonne)
Duplicates - NP		
HB214291	15.3	15.8
HB-214300	16.0	16.5
HB-214516	17.5	18.4
HB-214525	15.8	15.3
HB-214573	102.5	102.5
HB-214582	162.5	160.0
HB-214599	110.0	115.0
HB-214760	118.8	122.5
HB-241115	53.1	53.8
HB-241124	192.5	195.0
KZK-1 Reference (NP = 59)	58.8	57.6
KZK-1 Reference (NP = 59)	60.8	60.3
KZK-1 Reference (NP = 64.8)	63.1	-

Table 2b: QA/QC for Sulphur Speciation

Sample ID	Sulphur (Wt.%)	Sulphur (Wt.%)
Duplicates - Total Sulphur		
HB-214300	0.06	0.07
HB-214510	0.30	0.27
HB-214520	0.03	0.03
HB-214560	0.15	0.11
HB-214570	0.11	0.09
HB-214580	0.11	0.12
HB-214590	0.08	0.08
HB-214600	0.08	0.08
HB-214762	0.04	0.04
HB-241110	0.03	0.03
HB-241120	0.02	0.02
HB-241130	0.12	0.13
HB-241140	0.09	0.10
HB-241142	0.10	0.10
Vizon Ref. (0.11% S)	0.09	0.12
Vizon Ref. (0.11% S)	0.11	0.12
Vizon Ref. (0.11% S)	0.12	-
STD CSC (4.19% S)	4.20	4.23
STD CSC (4.19% S)	4.19	4.22
STD CSC (4.19% S)	4.24	-
Duplicates - Sulphate-Sulphur		
HB214291	0.01	0.02
HB-214300	0.01	0.01
HB-214516	0.01	<0.01
HB-214525	0.02	0.01
HB-214582	0.05	0.06
HB-214599	0.02	0.01
HB-214760	0.02	0.01
HB-241115	0.01	<0.01
HB-241124	0.01	0.01
Vizon Ref. (0.27% SO4-S)	0.30	0.29
Vizon Ref. (0.27% SO4-S)	0.25	-

Table 2c: QA/QC for CO2 Determination

Sample ID	CO2 (Wt.%)	CO2 (Wt.%)
Duplicates - CO2		
HB-214300	0.03	<0.01
HB-214510	0.02	0.01
HB-214520	<0.01	<0.01
HB-214560	2.38	2.38
HB-214570	0.80	0.81
HB-214580	4.83	4.73
HB-214590	2.90	2.89
HB-214600	3.33	3.26
HB-214762	3.26	3.36
HB-241110	1.70	1.70
HB-241120	0.53	0.45
HB-241130	1.58	1.51
HB-241140	1.00	0.95
HB-241142	3.76	3.70
STD CSC (1.49% CO2)	1.50	1.51
STD CSC (1.49% CO2)	1.51	1.51
STD CSC (1.49% CO2)	1.51	-

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Table 2a: QA/QC for NP Determination

Sample	Neutralization Potential (kgCaCO3/Tonne)	Neutralization Potential (kgCaCO3/Tonne)
Duplicates - NP		
203301	129.4	127.5
203310	189.4	192.5
203320	81.9	80.0
KZK-1 Reference (NP = 64.8)	59.4	-

Table 2b: QA/QC for Sulphur Speciation

Sample	Sulphur (Wt.%)	Sulphur (Wt.%)
Duplicates - Total Sulphur		
203310	0.02	0.02
203320	0.03	0.04
203325	0.03	0.03
Vizon Ref. (0.11% S)	0.12	-
Std. CSC (4.19% S)	4.22	-
Duplicates - Sulphate-Sulphur		
203301	0.01	0.02
203310	0.01	0.01
203320	0.01	0.01
Vizon Ref. (0.27% SO4-S)	0.24	-

Table 2c: QA/QC for CO2 Determination

Sample	CO2 (Wt.%)	CO2 (Wt.%)
Duplicates - CO2		
203310	6.83	6.79
203320	1.64	1.68
203325	3.43	3.47
Std. CSB (1.50% CO2)	1.51	-

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Table 3: Trace Metals Using Aqua Regia Digestion with ICP-MS Finish for Miramar Hope Bay Samples - Sept. 2006

Sample ID	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	Ga	Se	Hg
	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	ug/g
HB-214291	0.9	214.5	3.4	143	0.1	18.9	23.0	1583	6.63	1	0.1	0.6	0.3	5	<.1	0.1	0.1	155	0.44	0.057	5	17	1.88	5	0.096	14	2.14	0.083	0.02	0.1	0.01	4.9	<.1	12	0.5	< 0.001
HB-214292	0.4	151.8	2.7	122	<.1	17.7	22.8	1694	7.04	0.6	<.1	<.5	0.2	5	<.1	<.1	<.1	157	0.51	0.052	2	9	1.99	3	0.087	10	2.33	0.071	0.02	<.1	<.01	4.9	<.1	12	<.5	< 0.001
HB-214293	1.0	193.5	1.6	79	<.1	22.7	27.6	1057	7.27	2.4	0.1	3.4	0.3	5	<.1	0.1	0.1	184	0.35	0.060	3	15	2.18	9	0.117	11	2.25	0.075	0.04	<.1	<.01	5.6	<.1	13	0.5	< 0.001
HB-214294	0.5	156.4	1.3	87	<.1	17.7	21.5	1173	6.67	1.3	<.1	24.4	0.2	5	<.1	0.1	0.1	153	0.46	0.058	3	12	1.89	3	0.096	10	2.10	0.081	0.02	0.1	<.01	4.9	<.1	11	0.6	< 0.001
HB-214295	0.6	280.3	1.1	74	<.1	17.4	25.2	1009	6.47	1.7	0.1	23.4	0.2	7	<.1	0.1	0.1	139	0.45	0.053	6	11	1.95	5	0.116	10	2.04	0.084	0.03	0.1	<.01	3.7	<.1	10	<.5	< 0.001
HB-214296	0.5	445.3	0.7	68	<.1	20.5	31.5	951	6.65	3.9	<.1	21.7	0.3	7	<.1	0.1	0.1	164	0.54	0.053	4	12	1.94	7	0.139	11	2.08	0.091	0.04	<.1	<.01	4.1	<.1	11	0.8	< 0.001
HB-214297	1.2	220.7	1.1	60	<.1	18.3	26.0	771	6.19	2.2	0.1	4.7	0.2	9	<.1	0.1	0.1	173	0.56	0.052	7	22	1.75	7	0.172	11	1.82	0.096	0.05	<.1	<.01	4.5	<.1	10	<.5	< 0.001
HB-214298	0.7	477.8	1.4	77	<.1	23.5	31.6	1033	6.77	2.6	0.1	4	0.2	7	<.1	0.1	0.1	174	0.43	0.053	6	16	2.11	5	0.126	13	2.08	0.094	0.02	<.1	<.01	4.0	<.1	12	0.6	< 0.001
HB-214299	0.7	614.7	3.2	97	<.1	24.3	30.3	1491	7.11	1.9	<.1	6	0.3	6	<.1	0.2	0.1	180	0.44	0.052	2	15	2.20	4	0.133	11	2.33	0.104	0.02	0.1	<.01	4.7	<.1	13	0.9	< 0.001
HB-214300	0.7	756.0	1.3	111	<.1	21.9	28.9	1618	7.65	<.5	0.1	3.8	0.3	5	0.1	0.1	<.1	177	0.34	0.057	2	17	2.44	4	0.101	12	2.51	0.095	0.02	<.1	<.01	3.8	<.1	15	0.8	< 0.001
HB-214501	0.7	5038.1	5.3	134	0.4	51.2	54.4	1623	9.22	5.3	0.1	70.2	0.2	6	<.1	0.1	0.4	194	0.41	0.062	2	16	2.81	4	0.107	13	2.77	0.105	0.02	<.1	<.01	4.3	<.1	15	3	< 0.001
HB-214502	0.7	1657.0	4.2	111	0.3	32.7	38.5	1418	7.35	1.2	0.1	13.2	0.3	6	<.1	0.1	0.1	188	0.43	0.060	3	17	2.49	5	0.109	12	2.40	0.111	0.02	<.1	0.01	4.4	<.1	12	1.5	< 0.001
HB-214503	0.6	562.9	2.0	131	0.2	30.2	36.8	1826	7.99	0.5	<.1	6.7	0.3	5	<.1	<.1	0.1	208	0.39	0.056	2	18	2.79	5	0.122	13	2.62	0.095	0.02	<.1	<.01	3.7	<.1	14	0.9	< 0.001
HB-214504	0.4	263.0	1.6	143	<.1	29.6	37.3	1991	8.55	<.5	<.1	1.3	0.3	5	<.1	0.1	<.1	201	0.35	0.055	1	14	2.88	4	0.108	16	2.76	0.087	0.02	<.1	<.01	3.9	<.1	15	<.5	< 0.001
HB-214505	0.5	153.2	1.9	105	<.1	24.0	30.8	1605	11.41	1	0.1	0.8	0.2	7	<.1	0.2	<.1	189	0.31	0.048	2	13	2.60	8	0.107	31	2.61	0.083	0.03	0.1	<.01	3.5	<.1	14	<.5	< 0.001
HB-214506	0.7	979.6	1.8	95	0.2	24.9	33.2	1418	7.59	0.6	0.1	1125	0.2	6	<.1	0.1	0.1	181	0.38	0.059	2	17	2.40	3	0.113	18	2.39	0.087	0.02	<.1	<.01	4.2	<.1	13	0.6	< 0.001
HB-214507	0.7	900.8	2.7	84	0.3	30.6	32.8	1418	6.98	0.7	0.1	14.5	0.3	4	<.1	0.1	0.1	203	0.38	0.058	2	21	1.92	3	0.127	10	2.13	0.089	0.02	<.1	<.01	4.9	<.1	12	0.5	< 0.001
HB-214508	1.3	2430.3	2.7	105	0.5	34.6	45.7	1365	7.01	1	0.1	18.3	0.2	5	<.1	0.1	0.1	173	0.40	0.058	4	26	2.11	3	0.116	9	2.13	0.099	0.01	<.1	0.01	4.2	<.1	12	1.6	< 0.001
HB-214509	0.4	904.2	1.2	126	0.2	30.7	44.3	1532	8.97	0.6	0.1	6.2	0.2	6	<.1	<.1	<.1	182	0.44	0.061	4	15	3.17	5	0.089	15	2.96	0.120	0.03	<.1	<.01	4.8	<.1	16	<.5	< 0.001
HB-214510	0.6	2489.4	2.8	113	0.4	35.6	47.0	1452	8.57	1.7	<.1	4.9	0.2	5	<.1	0.1	0.1	190	0.43	0.074	3	18	2.74	4	0.077	14	2.74	0.107	0.02	<.1	<.01	5.4	<.1	14	0.7	< 0.001
HB-214511	1.3	4676.2	4.6	99	1.4	52.5	50.3	1096	6.91	4.2	0.1	61	0.2	5	<.1	0.1	0.2	112	0.38	0.059	2	20	1.87	5	0.085	16	1.82	0.094	0.02	<.1	0.01	3.5	<.1	10	3	< 0.001
HB-214512	0.7	84.8	0.7	133	<.1	30.4	32.8	1808	8.45	<.5	0.1	1.7	0.3	6	<.1	<.1	<.1	192	0.47	0.057	2	20	2.89	5	0.093	16	2.92	0.108	0.02	<.1	<.01	5.5	<.1	15	<.5	< 0.001
HB-214513	0.3	1643.2	3.1	142	0.3	38.3	47.5	1879	8.18	2	0.1	7.7	0.3	6	<.1	0.1	0.2	174	0.48	0.064	4	14	2.76	5	0.090	16	2.77	0.112	0.02	0.1	<.01	5.3	<.1	14	1.3	< 0.001
HB-214514	0.3	364.1	1.9	123	0.2	30.0	39.0	1822	7.29	1.2	<.1	1.1	0.2	6	<.1	0.1	0.1	161	0.52	0.047	2	15	2.32	5	0.087	12	2.47	0.097	0.02	0.1	<.01	5.2	<.1	12	<.5	< 0.001
HB-214515	0.3	22.9	1.8	124	<.1	30.7	28.9	1803	6.77	0.9	<.1	<.5	0.2	5	<.1	<.1	<.1	155	0.43	0.053	2	15	2.44	4	0.080	14	2.51	0.094	0.02	<.1	<.01	4.5	<.1	11	<.5	< 0.001
HB-214516	1.8	231.2	1.0	109	<.1	32.9	31.3	1581	7.81	0.6	0.1	0.7	0.2	6	<.1	<.1	<.1	164	0.48	0.049	2	36	2.64	6	0.080	15	2.65	0.102	0.03	<.1	<.01	5.3	<.1	13	<.5	< 0.001
HB-214517	0.4	296.5	1.1	70	<.1	34.3	33.5	1099	6.55	1	<.1	4.3	0.2	9	<.1	<.1	0.1	160	0.55	0.052	3	19	2.45	52	0.091	12	2.48	0.098	0.26	<.1	<.01	4.5	0.1	11	<.5	< 0.001
HB-214518	0.4	267.4	1.1	52	<.1	37.1	28.6	808	6.37	1.2	<.1	4	0.2	13	<.1	<.1	0.1	154	0.43	0.049	3	21	2.32	28	0.106	9	2.29	0.093	0.20	<.1	<.01	3.5	<.1	10	<.5	< 0.001
HB-214519	0.5	98.8	2.0	33	<.1	36.3	32.3	518	5.87	1.2	<.1	1.5	0.2	23	<.1	0.1	0.1	161	0.53	0.050	2	22	1.86	39	0.101	10	2.10	0.117	0.34	<.1	<.01	2.9	<.1	8	0.5	< 0.001
HB-214520	0.4	219.2	1.0	43	<.1	33.4	30.5	601	6.37	<.5	<.1	2.4	0.2	23	<.1	<.1	<.1	176	0.52	0.050	2	24	2.14	39	0.088	10	2.36	0.128	0.34	<.1	<.01	3.1	<.1	9	<.5	< 0.001
HB-214521	0.7	94.8	1.8	34	<.1	31.2	27.4	495	6.35	<.5	0.1	2	0.3	25	<.1	0.1	0.1	169	0.92	0.045	3	26	1.63	19	0.213	15	1.58	0.093	0.08	<.1	<.01	2.9	<.1	8	0.6	< 0.001
HB-214522	0.5	44.5	2.8	42	0.1	39.6	33.1	544	6.32	1.2	<.1	<.5	0.3	28	0.1	0.2	0.1	174	0.74	0.056	3	25	2.08	32	0.164	11	2.22	0.131	0.28	<.1	<.01	2.8	0.1	9	0.5	< 0.001
HB-214523	0.4	48.9	2.1	50	<.1	42.0	35.5	613	6.59	0.6	<.1	<.5	0.3	21	<.1	0.2	<.1	184	0.66	0.053	2	24	2.23	24	0.159	9	2.39	0.117	0.22	<.1	<.01	2.5	0.1	11	<.5	< 0.001
HB-214524	0.4	53.1	6.3	52	<.1	39.6	34.7	604	6.47	0.7	<.1	<.5	0.3	23	<.1	0.1	0.1	167	0.78	0.049	2	25	1.83	8	0.151	10	2.22	0.139	0.05	<.1	<.01	2.3	<.1	10	0.6	< 0.001
HB-214525	1.0	51.9	14.3	77	0.1	40.1	37.6	540	6.47	<.5	<.1	<.5	0.3	43	0.1	0.1	<.1	160	1.05	0.050	3	30	1.78	14	0.134	10	2.63	0.188	0.09	<.1	<.01	2.4	<.1	10	0.5	< 0.001
HB-214556	0.7	31.8	1.0	124	<.1	1.1	28.7	1565	8.46	0.7	<.1	<.5	0.4	43	0.1	0.1	<.1	73	2.52	0.094	5	6	1.47	1	0.022	<1	2.37	0.014	<.01	0.1	<.01	22.4	<.1	14	0.6	< 0.001
HB-214557	0.9	31.5	1.4	134	<.1	0.8	32.3	1700	9.69	0.9	<.1	<.5	0.4	36	0.1	0.1	0.1	82	2.63	0.092	5	7	1.60	2	0.030	1	2.57	0.018	0.01	0.1	<.01	21.0	<.1	15	0.5	< 0.001
HB-214558	0.6	29.2	0.8	132	<.1	0.8	30.4	1682	9.14	0.8	0.1	<.5	0.5	37	0.2	0.1	<.1	78	2.28	0.089	4	6	1.50	1	0.094	1	2.39	0.016	0.01	<.1	<.01	19.1	<.1	15	<.5	< 0.001
HB-214559	1.2	30.6	0.8	139	<.1	1.0	31.7	1663	8.93	0.9	0.1	<.5	0.5	34	0.2	0.1	<.1	75	2.04	0.098	5	10	1.51	1	0.172	<1	2.36	0.016	<.01	<.1	<.01	17.4	<.1	14	<.5	< 0.001
HB-214560	1.0	36.5	0.8	134	<.1	0.9	31.4	1728	9.08	0.9	0.1	<.5	0.6	35	0.1	0.1	<.1	78	2.17	0.096	5	7	1.57	2	0.198	1	2.50	0.016	<.01	<.1	<.01	17.1	<.1	14	0.8	< 0.001
HB-214561	0.7	36.5	0.6	144	<.1	0.7	31.0	1657	9.17	0.8	0.1	<.5	0.5	33	<.1	0.1	<.1	79	2.10	0.095	5	6	1.64	2	0.168	2	2.64	0.016	<.01	<.1	<.01	19.5	<.1	14	<.5	< 0.001
HB-214562	0.7	38.3	0.8	150	<.1	0.8	34.9	1828	9.88	1.1	0.1	<.5	0.6	46	0.1	0.1	<.1	85	2.73	0.097	5	5	1.68	2	0.131	1	2.79	0.017	0.01	<.1	<.01	20.1	<.1	16	<.5	< 0.001
HB-214563	0.5	31.6	0.6	150	<.1	0.6	30.4	1789	10.22	1.3	0.1	<.5	0.5	59	0.1	<.1	<.1	91	2.71	0.098	6	3	1.72	1	0.029	<1	3.14	0.014	<.01	<.1	<.01	24.3	<.1	18	<.5	< 0.001
HB-214564	1.4	21.5	2.2	75	<.1	0.8	32.0	1356	10.02	113.3	<.1	362.7	0.3	61	0.1	0.3	0.2	74	2.72	0.091	2	10	1.32	2	0.009	<1	1.98	0.019	<.01	0.1	0.01	16.8	<.1	12	1.4	< 0.001
HB-214565	0.6	30.8	0.5	136	<.1	0.7	31.1	1713	9.44	1.8	0.1	2.3	0.6	47	0.1	0.1	<.1	83	2.43	0.095	5	5	1.62	1	0.096	<1	2.69	0.014	<.01	<.1	<.01	20.3	<.1	16	<.5	< 0.001
HB-214566	0.9	23.1	0.8	154	<.1	0.8	30.8	1733	9.58	1.2	0.1	<.5	0.6	35	0.1	0.1	<.1	79	2.26	0.102	5	6	1.68	1	0.174	1	2.65	0.015	<.01	<.1	<.01	18.7	<.1	15	0.5	< 0.001
HB-214567	1.4	34.0	0.4	139	<.1	0.9	31.7	1658	9.25	1.9	0.1	<.5	0.6	28	0.1	0.1	<.1	78	1.84	0.093	4	11	1.53	1	0.209	<1	2.33	0.016	<.01	<.1	<.01	16.1	<.1	13	<.5	< 0.001
HB-214568	0.9	29.2	0.4	143	<.1	1.1	33.0	1702	9.85	1.4	0.1	0.5	0.6	40	<.1	0.1	<.1	85	1.98	0.098	4	7	1.57	4	0.104	<1	2.44	0.016	<.01	<.1	<.01	16.0	<.1	14	<.5	< 0.001
HB-214569	1.2	34.6	0.4	154	<.1	1.1	31.1	1666	9.80	1.1	0.1	<.5	0.6	21	0.1	0.1	<.1	75	1.40	0.099	4	6	1.56	3	0.222	<1	2.30	0.014	<.01	<.1	<.01	11.4	<.1	13	<.5	< 0.001
HB-214570	1.1	34.8	0.5	151	<.1	1.1	30.7	1618	9.18	0.9	0.1	<.5	0.6	22	0.1	0.1	<.1	65	1.12	0.098	4	9	1.52	2	0.251	<1	2.27	0.014	0.01	0.1	<.01	10.1	<.1	11	0.7	< 0.001
HB-214571	1.3	35.9	0.4	146	<.1	0.9	33.6	1667	9.12	1.5	0.1	<.5	0.6	26	0.1	0.1	<.1	66	1.47	0.094	4	9	1.52	2	0.259	<1	2.38	0.016	0.01	<.1	<.01	12.0	<.1	12	<.5	< 0.001
HB-214572	1.0	37.4	0.8	149	<.1	1.3	31.3	1775	9.72	1.3	0.1	<.5	0.6	42	0.1	0.1	<.1	83	2.13	0.103	5	8	1.50	2	0.151	<1	2.55	0.016	0.01	<.1	<.01	14.9	<.1	13	<.5	< 0.001
HB-214573	0.8	25.2	1.0	124	<.1	0.7	31.6	1630	9.65	3.1	<.1	0.7	0.6	38	0.1	0.1	<.1	87	3.00	0.094	5	5	1.40	2	0.046	<1	2.86	0.013	<.01	<.1	<.01	21.6	<.1	16	<.5	< 0.001
HB-214574	0.6	33.6	0.4	146	<.1	0.8	31.8	1689	10.19	1.3	<.1	<.5	0.6	46	0.1	<.1	<.1	92	3.79	0.099	5	3	1.36	1	0.044	<1	3.30	0.009	<.01	<.1	<.01	22.2	<.1	17	<.5	< 0.001
HB-214575	0.5	45.5	0.5	139	<.1	0.6	31.1	1605	9.88	0.8	<.1	<.5	0.4	57	0.2	<.1	0.1	88	4.21	0.087	5	3	1.21	2	0.033	<1	3.15	0.010	<.01	0.1	0.01	23.5	<.1	16	<.5	< 0.001
HB-214576	0.8	31.3	0.4	121	<.1	1.0	31.5	1689	10.09	0.8	<.1	<.5	0.4	44	0.1	<.1	<.1	91	2.99	0.095	6	7	1.33	2	0.028	<1	2.88	0.015	<.01	<.1	<.01	25.1	<.1	15	<.5	< 0.001
HB-214577	0.7	27.7	0.4	129	<.1	0.7	28.0	1744	9.92	0.8	<.1	202.2	0.4	45	0.1	<.1	<.1	91	3.13	0.096	5	5	1.31	1	0.029	<1	2.69	0.017	<.01	<.1	<.01	23.7	<.1	16	<.5	< 0.001
HB-214578	0.5	28.4	0.6	120	<.1	0.5	30.2	1938	10.01	0.9	<.1	2.7	0.3	82	0.1	<.1	<.1	86	5.07	0.085	4	3	1.38	1	0.029	<1	3.16	0.010	<.01	<.1	<.01	24.6	<.1	18	0.5	< 0.001
HB-214579	0.9	21.9	0.6	125	<.1	0.7	28.4	1585	9.90	0.9	<.1	0.8	0.3	90	0.1	<.1	<.1	87	5.91	0.087	5	4	1.21	2	0.035	<1	3.03	0.010	<.01	<.1	<.01	21.7	<.1	17	<.5	< 0.001
HB-214580	0.5	27.5	0.3	129	<.1	0.7	32.2	1268	10.23	0.9	<.1	<.5	0.3	42	0.1	<.1	<.1	89	3.93	0.089	5	2	1.51	1	0.034	2	3.38	0.012	<.01	<.1	<.01	26.8	<.1	17	<.5	< 0.001
HB-214581	0.7	33.9	1.3	122	<.1	0.6	32.0	1060	10.21	1.8	<.1	<.5	0.4	27	<.1	0.1	<.1	87	3.13	0.089	5	5	1.56	1	0.076	4	3.22	0.020	<.01	<.1	0.01	20.9	<.1	17	<.5	< 0.001
HB-214582	0.6	22.5	1.0	124	<.1	0.7	30.9	1327	9.74	1.1	<.1	0.8	0.3	36	<.1	0.1	<.1	82	3.98	0.084	5	4	1.47	1	0.031	1	3.08	0.013	<.01	<.1	<.01	21.8	<.1	16	<.5	< 0.001
HB-214583	0.9	29.2	0.2	120	<.1	0.8	30.3	1162	10.11	0.9	<.1	<.5	0.3	32	<.1	<.1	<.1	84	3.48	0.083	5	6	1.43	1	0.033	1	3.04	0.012	<.01	<.1	0.01	23.9	<.1	16	<.5	< 0.001
HB-214584	0.6	22.9	0.5	121	<.1	0.6	29.4	1507	9.24	0.9	<.1	1.1	0.3	37	0.1	<.1	<.1	83	3.55	0.077	4	4	1.43	1	0.024	3	2.69	0.011	<.01	<.1	<.01	23.5	<.1	17	0.5	< 0.001
HB-214585	0.7	33.5	0.5	130	<.1	0.7	32.1	1661	9.88	1.1	<.1	<.5	0.3	33	0.1	0.1	<.1	83	2.86	0.088	3	5	1.43	1	0.023	<1	2.40	0.016	<.01	<.1	<.01	23.8	<.1	16	0.6	< 0.001
HB-214586	1.0	31.4	1.1	86	<.1	0.7	28.7	564	9.25	2.1	0.1	0.8	0.5	10	<.1	0.1	<.1	82	1.17	0.093	5	8	1.06	1	0.131	2	1.67	0.032	<.01	0.1	0.01	14.2	<.1	13	0.8	< 0.001
HB-214587	1.4	40.2	2.7	76	<.1	0.7	32.2	491	9.53	4.1	0.1	1	0.6	7	<.1	0.2	0.1	81	0.77	0.102	6	12	0.96	1	0.141	2	1.47	0.040	<.01	<.1	<.01	11.2	<.1	13	<.5	< 0.001

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Table 3: Trace Metals Using Aqua Regia Digestion with ICP-MS Finish for Miramar Hope Bay Samples - Sept. 2006

Sample ID	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	Ga ppm	Se ppm	Hg ug/g
HB-214588	0.6	171.8	0.7	69	<.1	59.1	39.1	832	5.83	<.5	<.1	1.3	0.1	13	0.1	<.1	<.1	122	2.60	0.022	1	62	2.64	1	0.198	3	3.00	0.007	<.01	<.1	<.01	4.3	<.1	8	<.5	< 0.001
HB-214589	3.2	146.3	1.0	66	<.1	42.8	26.5	808	4.23	<.5	<.1	2.2	0.1	12	0.2	<.1	<.1	104	5.06	0.017	1	92	2.03	1	0.188	121	2.18	0.005	0.01	0.1	<.01	4.5	<.1	6	0.5	< 0.001
HB-214590	0.6	138.8	0.9	64	<.1	53.8	38.7	898	5.86	<.5	<.1	2.9	0.1	14	<.1	<.1	<.1	132	2.83	0.023	1	68	2.70	1	0.254	5	3.00	0.011	0.01	<.1	<.01	4.8	<.1	7	0.6	< 0.001
HB-214591	0.5	101.8	0.8	64	<.1	57.2	36.5	914	5.58	<.5	<.1	0.8	0.1	18	<.1	<.1	<.1	141	4.19	0.021	1	86	2.60	1	0.255	4	2.88	0.008	0.01	<.1	<.01	8.2	<.1	7	0.6	< 0.001
HB-214592	2.8	58.7	0.5	44	<.1	37.9	23.1	1032	4.77	0.9	<.1	<.5	0.1	15	<.1	<.1	<.1	94	9.51	0.009	1	77	1.99	2	0.083	4	2.19	0.004	0.04	<.1	<.01	8.5	<.1	6	0.6	< 0.01
HB-214593	0.7	143.1	0.6	59	<.1	58.2	36.9	1054	5.93	<.5	<.1	0.7	0.1	17	<.1	<.1	<.1	168	5.81	0.022	1	103	2.69	1	0.316	3	3.04	0.011	0.01	<.1	<.01	12.3	<.1	8	0.6	< 0.01
HB-214594	0.4	133.4	2.5	80	<.1	53.0	38.9	923	5.67	<.5	<.1	3	0.1	12	0.3	<.1	<.1	125	3.98	0.021	1	65	2.44	1	0.239	9	2.85	0.009	0.01	<.1	0.01	5.4	<.1	6	0.7	< 0.01
HB-214595	0.6	123.6	2.7	64	<.1	46.4	35.5	795	4.90	<.5	<.1	1.1	0.1	13	0.1	<.1	<.1	100	2.67	0.023	1	51	2.17	1	0.246	56	2.52	0.012	0.01	<.1	<.01	3.3	<.1	6	<.5	< 0.01
HB-214596	0.5	128.5	1.2	71	<.1	50.3	37.9	857	5.15	<.5	<.1	1.5	<.1	14	0.2	<.1	<.1	102	3.37	0.022	1	62	2.31	1	0.249	29	2.66	0.009	0.01	<.1	<.01	3.3	<.1	6	<.5	< 0.01
HB-214597	0.2	128.4	3.3	67	<.1	50.7	41.1	926	5.54	<.5	<.1	<.5	0.1	14	0.2	0.3	<.1	120	3.66	0.021	1	60	2.37	1	0.293	19	2.79	0.011	0.01	<.1	<.01	4.1	<.1	7	<.5	< 0.01
HB-214598	0.4	138.1	0.7	70	<.1	55.2	39.4	1042	6.00	<.5	<.1	1.2	0.1	14	0.1	<.1	<.1	140	5.07	0.022	1	81	2.69	1	0.268	54	3.06	0.011	<.01	<.1	<.01	5.8	<.1	8	0.5	< 0.01
HB-214599	0.3	121.5	2.4	66	<.1	49.3	37.0	873	5.37	<.5	<.1	1.3	0.1	16	0.1	0.3	<.1	109	3.71	0.023	1	58	2.32	1	0.229	66	2.75	0.008	<.01	<.1	<.01	3.9	<.1	6	<.5	< 0.01
HB-214600	0.4	123.5	1.4	69	<.1	46.8	35.4	856	5.23	<.5	<.1	2.7	0.1	11	0.2	<.1	<.1	113	3.20	0.023	1	54	2.29	2	0.227	41	2.65	0.012	0.01	<.1	<.01	3.6	0.1	7	<.5	< 0.01
HB-214753	0.6	117.4	0.7	81	<.1	67.4	38.2	1302	6.30	<.5	<.1	1.2	0.1	15	0.1	<.1	<.1	148	3.65	0.027	1	124	2.65	1	0.260	4	3.14	0.011	<.01	<.1	<.01	5.2	<.1	8	<.5	< 0.01
HB-214754	0.5	126.7	1.4	78	<.1	75.1	42.9	1276	6.12	<.5	<.1	<.5	0.1	15	0.1	<.1	<.1	148	3.94	0.030	1	129	2.65	1	0.262	2	3.04	0.011	<.01	<.1	<.01	5.0	<.1	8	<.5	< 0.01
HB-214755	0.3	127.0	0.6	69	<.1	68.7	39.0	1102	4.94	<.5	<.1	<.5	0.1	15	0.1	<.1	<.1	129	3.69	0.026	1	113	2.33	1	0.237	3	2.61	0.010	<.01	<.1	0.01	4.5	<.1	6	0.5	< 0.01
HB-214756	0.3	135.1	0.5	82	<.1	74.6	40.7	1183	5.56	<.5	<.1	1.1	0.1	16	0.1	0.1	<.1	144	3.44	0.029	1	119	2.56	1	0.271	2	2.91	0.012	0.01	<.1	0.01	6.1	<.1	7	0.6	< 0.01
HB-214757	0.2	114.9	1.3	81	<.1	70.1	39.4	1281	6.16	<.5	<.1	1.8	0.1	15	0.1	0.1	<.1	141	3.61	0.027	<1	110	2.69	1	0.248	2	3.12	0.009	<.01	<.1	<.01	4.6	<.1	7	<.5	< 0.01
HB-214758	0.5	134.2	1.6	81	<.1	71.7	45.6	1375	6.72	<.5	<.1	1	0.1	11	0.1	0.1	<.1	168	3.34	0.028	1	125	2.87	1	0.251	3	3.31	0.012	<.01	<.1	<.01	5.7	<.1	8	0.6	< 0.01
HB-214759	0.2	80.4	0.4	87	<.1	75.1	40.2	1531	7.76	<.5	<.1	1	<.1	13	0.1	<.1	<.1	161	2.81	0.026	1	124	3.11	1	0.265	9	3.74	0.009	<.01	<.1	0.01	5.6	<.1	8	<.5	< 0.01
HB-214760	0.5	170.8	2.0	82	<.1	69.8	41.6	1441	6.66	0.9	<.1	4.2	0.1	15	<.1	0.2	<.1	137	3.29	0.025	1	113	2.74	1	0.241	7	3.27	0.009	<.01	<.1	<.01	5.1	<.1	7	<.5	< 0.01
HB-214761	0.3	106.9	1.0	81	<.1	68.2	39.8	1419	6.37	1	<.1	2	<.1	17	<.1	0.1	<.1	148	4.25	0.024	1	124	2.64	1	0.255	3	3.15	0.012	<.01	<.1	<.01	5.7	<.1	7	0.5	< 0.01
HB-214762	0.3	118.0	1.2	76	<.1	72.2	38.2	1268	5.87	<.5	<.1	<.5	0.1	15	0.1	<.1	<.1	138	3.19	0.027	1	118	2.54	1	0.255	6	3.02	0.016	<.01	<.1	<.01	5.9	<.1	7	0.7	< 0.01
HB-241101	1.1	133.2	1300.2	59	0.4	53.8	33.9	871	5.19	1.1	<.1	2.1	0.1	15	<.1	104.9	0.5	147	2.49	0.027	2	98	2.57	4	0.232	7	2.65	0.048	0.03	0.1	0.01	6.5	<.1	8	<.5	< 0.01
HB-241102	0.3	109.0	12.2	68	<.1	51.8	39.5	1008	5.90	0.6	<.1	1.3	0.1	11	<.1	0.8	<.1	148	2.62	0.022	1	86	2.99	1	0.250	7	3.04	0.019	0.02	<.1	0.01	9.6	<.1	9	<.5	< 0.01
HB-241103	0.3	114.7	1.8	70	<.1	51.7	37.5	1156	6.12	1.4	<.1	<.5	0.1	13	<.1	0.1	<.1	146	4.31	0.021	1	82	2.87	1	0.242	5	3.08	0.015	0.02	<.1	<.01	8.2	<.1	8	<.5	< 0.01
HB-241104	0.7	114.6	1.2	59	<.1	49.7	33.9	973	5.23	<.5	<.1	1.1	0.1	10	<.1	<.1	<.1	124	3.67	0.023	1	80	2.47	1	0.235	4	2.66	0.013	0.01	<.1	<.01	5.4	<.1	6	0.5	< 0.01
HB-241105	0.3	86.0	0.8	61	<.1	46.7	38.3	958	5.49	<.5	<.1	1	0.1	11	<.1	<.1	<.1	125	3.02	0.022	1	73	2.63	1	0.246	5	2.72	0.017	0.01	<.1	<.01	5.0	<.1	7	<.5	< 0.01
HB-241106	0.4	139.5	1.0	58	<.1	46.9	37.1	1114	5.56	<.5	<.1	0.6	0.1	10	<.1	<.1	<.1	132	5.85	0.022	1	72	2.63	1	0.204	2	2.80	0.011	<.01	<.1	<.01	4.7	<.1	7	<.5	< 0.01
HB-241107	0.3	111.6	0.8	63	<.1	51.2	38.7	1011	5.65	<.5	<.1	1.8	0.1	9	<.1	<.1	<.1	128	3.56	0.020	1	77	2.78	2	0.229	2	2.97	0.013	0.01	<.1	<.01	5.7	0.1	7	<.5	< 0.01
HB-241108	0.4	85.7	0.9	76	<.1	61.4	45.4	1054	6.73	<.5	<.1	1	0.1	10	<.1	0.1	<.1	143	1.99	0.023	1	78	3.34	1	0.271	7	3.45	0.021	0.02	0.2	<.01	6.1	<.1	8	<.5	< 0.01
HB-241109	1.3	109.1	5.8	66	<.1	48.4	31.5	752	4.50	<.5	<.1	0.5	0.1	10	0.4	<.1	<.1	91	2.16	0.027	1	69	2.15	1	0.200	2	2.39	0.013	0.01	<.1	<.01	2.7	<.1	5	<.5	< 0.01
HB-241110	0.7	47.3	0.5	57	<.1	42.8	30.6	854	5.11	<.5	<.1	<.5	0.1	7	<.1	<.1	<.1	109	1.79	0.026	1	83	2.45	1	0.226	2	2.72	0.014	0.01	<.1	<.01	3.3	<.1	6	<.5	< 0.01
HB-241111	1.1	142.7	1.6	58	<.1	92.5	36.3	794	4.77	<.5	<.1	<.5	0.1	13	0.1	0.1	<.1	77	1.30	0.028	1	121	1.98	1	0.187	1	2.41	0.009	<.01	<.1	<.01	2.4	<.1	4	<.5	< 0.01
HB-241112	0.8	156.7	1.3	70	<.1	100.0	36.4	821	4.83	<.5	<.1	1.1	0.1	22	0.2	0.1	<.1	77	0.89	0.029	1	109	2.09	1	0.239	3	2.55	0.014	<.01	<.1	0.01	2.9	<.1	5	<.5	< 0.01
HB-241113	0.6	152.1	0.7	64	<.1	105.9	36.4	917	5.20	<.5	<.1	0.6	0.1	22	0.1	0.1	<.1	81	1.27	0.031	1	109	2.21	1	0.197	1	2.70	0.014	<.01	<.1	<.01	2.9	<.1	5	<.5	< 0.01
HB-241114	0.6	110.8	0.4	62	<.1	95.8	37.6	974	5.38	<.5	<.1	<.5	0.1	15	0.1	<.1	<.1	94	2.43	0.028	1	125	2.25	1	0.208	4	2.74	0.012	<.01	<.1	0.01	3.9	<.1	5	<.5	< 0.01
HB-241115	0.9	136.2	0.7	67	<.1	97.9	35.8	876	5.04	<.5	<.1	0.5	0.1	13	0.2	0.1	<.1	74	0.85	0.030	1	107	2.13	1	0.195	2	2.56	0.014	<.01	<.1	<.01	2.2	<.1	4	<.5	< 0.01
HB-241116	0.6	132.2	1.1	62	<.1	92.4	33.3	802	4.61	<.5	<.1	1.6	0.1	19	0.2	0.1	<.1	74	1.09	0.028	1	102	2.03	1	0.199	1	2.45	0.014	<.01	<.1	<.01	2.7	<.1	4	<.5	< 0.01
HB-241117	0.5	116.2	0.6	59	<.1	88.8	32.9	819	4.73	0.9	<.1	<.5	0.1	18	0.1	0.1	<.1	79	1.24	0.027	1	108	2.17	2	0.202	2	2.53	0.013	0.01	<.1	<.01	2.9	<.1	4	<.5	< 0.01
HB-241118	0.5	100.4	0.6	65	<.1	107.8	38.7	1068	6.28	0.7	<.1	1.2	0.1	12	<.1	<.1	<.1	130	1.46	0.024	1	140	2.87	1	0.214	2	3.31	0.012	<.01	0.1	<.01	6.0	0.1	6	<.5	< 0.01
HB-241119	0.7	92.1	0.2	70	<.1	105.3	39.7	1079	6.34	1.7	<.1	0.5	0.1	10	<.1	<.1	<.1	132	2.38	0.023	1	143	2.90	1	0.184	2	3.29	0.010	<.01	<.1	<.01	6.9	<.1	7	<.5	< 0.01
HB-241120	0.4	124.4	0.4	58	<.1	102.3	38.2	899	5.32	2.6	<.1	<.5	0.1	10	<.1	0.1	<.1	95	0.87	0.028	1	150	2.53	1	0.242	3	2.86	0.012	0.01	<.1	0.01	3.5	<.1	6	<.5	< 0.01
HB-241121	0.6	139.8	0.3	37	<.1	53.6	23.8	539	3.43	0.6	<.1	1.1	0.2	16	<.1	<.1	<.1	84	2.34	0.028	2	58	1.55	2	0.148	2	1.97	0.092	0.02	<.1	0.01	5.7	<.1	5	<.5	< 0.01
HB-241122	0.5	132.3	1.4	53	<.1	72.4	33.6	912	4.90	3.6	<.1	1.3	0.1	29	0.1	0.2	<.1	128	4.68	0.025	1	78	1.77	4	0.119	1	2.38	0.055	0.03	<.1	<.01	10.9	<.1	6	0.6	< 0.01
HB-241123	0.3	122.2	0.5	77	<.1	87.7	42.1	1334	7.51	3.9	<.1	1.8	0.1	42	0.1	0.1	<.1	198	6.95	0.023	1	99	2.43	3	0.042	<1	3.24	0.008	0.01	<.1	<.01	21.5	<.1	11	0.5	< 0.01
HB-241124	0.4	104.0	0.8	69	<.1	77.2	35.0	1096	6.41	1.1	<.1	0.9	0.2	23	0.1	0.1	<.1	167	5.56	0.026	1	91	2.10	2	0.088	1	2.80	0.020	0.01	<.1	<.01	15.4	<.1	8	0.7	< 0.01
HB-241125	0.6	126.6	0.3	41	<.1	49.7	22.4	622	3.54	0.5	<.1	1.6	0.1	12	<.1	0.1	<.1	96	3.13	0.028	2	60	1.33	2	0.111	<1	1.74	0.060	0.01	<.1	<.01	7.3	<.1	5	0.7	< 0.01
HB-241126	0.4	106.6	0.3	79	<.1	90.1	42.3	1158	7.25	1.4	<.1	1.9	0.1	26	0.1	0.1	<.1	209	5.47	0.024	1	112	2.44	3	0.034	1	3.34	0.010	0.01	<.1	<.01	22.8	<.1	11	<.5	< 0.01
HB-241127	0.3	191.3	0.7	92	<.1	57.6	44.5	1174	8.71	3	<.1	3.1	0.3	34	0.1	<.1	<.1	279	5.68	0.049	3	51	2.21	4	0.033	1	3.21	0.010	0.01	<.1	<.01	22.2	<.1	12	1.1	< 0.01
HB-241128	0.4	48.9	0.8	72	<.1	23.3	26.8	670	5.23	0.6	0.1	1.4	0.5	14	0.1	0.1	<.1	186	3.10	0.067	6	11	1.25	5	0.121	2	2.05	0.064	0.03	<.1	<.01	10.6	<.1	8	<.5	< 0.01
HB-241129	0.7	118.6	0.6	33	<.1	53.4	24.2	480	3.33	0.7	<.1	0.8	0.2	11	<.1	<.1	<.1	93	2.17	0.031	2	45	1.15	3	0.140	<1	1.54	0.086	0.02	<.1	<.01	7.1	<.1	5	0.5	< 0.01
HB-241130	0.7	129.2	0.7	34	<.1	50.6	22.7	513	3.13	0.7	<.1	0.9	0.1	14	<.1	<.1	<.1	82	2.26	0.025	2	53	1.20	3	0.143	1	1.74	0.112	0.02	<.1	<.01	6.1	<.1	4	<.5	< 0.01
HB-241131	1.2	145.6	0.5	31	<.1	42.8	19.4	377	2.53	0.6	<.1	1.6	0.2	11	0.1	<.1	<.1	58	1.60	0.022	2	50	0.97	2	0.070	1	1.33	0.073	0.01	<.1	<.01	4.2	<.1	4	0.7	< 0.01
HB-241132	1.0	115.0	0.7	45	<.1	33.5	19.3	528	2.95	<.5	0.1	0.7	0.3	13	0.1	<.1	<.1	76	4.15	0.044	3	43	0.70	3	0.071	1	1.20	0.047	0.02	0.1	<.01	5.8	<.1	4	0.5	< 0.01
HB-241133	0.8	155.9	0.7	72	<.1	53.4	34.2	710	6.02	<.5	0.1	0.9	0.4	15	0.1	<.1	<.1	164	3.75	0.046	4	69	1.83	2	0.063	1	2.46	0.021	0.01	<.1	<.01	13.0	<.1	9	0.5	< 0.01
HB-241134	0.4	139.3	0.6	80	<.1	71.9	38.1	795	6.88	0.5	<.1	0.9	0.4	15	0.1	0.1	<.1	191	4.03	0.038	3	77	2.18	1	0.064	1	2.85	0.015	0.01	<.1	<.01	17.7	<.1	10	<.5	< 0.01
HB-241135	0.8	117.4	1.2	44	<.1	42.5	20.9	390	3.22	<.5	0.1	2.3	0.4	8	0.1	0.1	<.1	82	2.02	0.040	3	39	1.07	2	0.070	<1	1.44	0.043	0.01	<.1	<.01	5.5	0.1	4	0.8	< 0.01
HB-241136	0.8	115.9	0.7	45	<.1	42.6	20.6	401	3.35	<.5	0.1	0.9	0.4	8	0.1	0.1	<.1	85	1.77	0.038	3	43	1.13	2	0.084	2	1.51	0.052	0.01	<.1	<.01	6.2	<.1	5	0.5	< 0.01
HB-241137	0.8	105.5	1.8	46	<.1	45.0	25.2	447	3.65	0.7	<.1	1.7	0.3	7	0.1	0.2	<.1	92	2.12	0.038	3	46	1.21	2	0.082	2	1.64	0.037	0.01	<.1	<.01	5.3	<.1	5	<.5	< 0.01
HB-241138	1.1	107.7	1.8	46	<.1	45.3	28.2	538	4.43	1.6	0.1	0.8	0.3	8	<.1	0.2	<.1	115	3.61	0.042	3	57	1.43	2	0.096	44	2.05	0.036	0.01	<.1	<.01	6.5	<.1	7	<.5	< 0.01
HB-241139	1.4	116.7	0.7	40	<.1	44.2	25.1	461	3.68	0.7	0.1	0.9	0.3	9	0.1	<.1	<.1	95	2.05	0.043	3	49	1.13	3	0.105	3	1.57	0.067	0.02	<.1	<.01	6.0	<.1	5	<.5	< 0.01
HB-241140	1.1	124.7	0.7	35	<.1	35.7	19.7	412	3.09	0.7	<.1	<.5	0.3	7	0.1	<.1	<.1	74	1.64	0.039	3	37	0.98	2	0.089	2	1.37	0.061	0.02	<.1	<.01	4.2	<.1	4	<.5	< 0.01
HB-241141	1.5	129.0	0.7	61	<.1	43.7	25.7	579	4.39	1.1	0.1	1.1	0.4	11	0.1	<.1	<.1	111	3.77	0.045	4	62	1.23	2	0.092	2	1.80	0.051	0.01	<.1	0.01	8.1	<.1	7	<.5	< 0.01
HB-241142	0.6	110.3	1.5	66	<.1	51.5	31.7	695	5.90	1.1	0.1	0.8	0.3	10	0.1	0.1	<.1	169	3.57	0.047	3	72	1.64	3	0.089	2	2.43	0.035	0.01	<.1	<.01	16.8	<.1	9	<.5	< 0.01

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Table 3: Trace Metals Using Aqua Regia Digestion with ICP-MS Finish for Miramar Hope Bay Samples - Sept. 2006

Sample ID	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
QA/QC																		
RE HB-214300	0.9	783	1.7	115	<.1	23.8	30.5	1683	7.96	<.5	0.1	3.2	0.2	5	<.1	0.1	0.1	186
RE HB-214510	0.7	2567	3	119	0.4	36.9	50	1470	8.69	1.6	<.1	10.6	0.3	5	<.1	0.1	0.1	195
RE HB-214520	0.5	227.2	0.9	45	<.1	36.6	32.7	613	6.48	0.9	<.1	1.9	0.2	24	<.1	<.1	<.1	180
RE HB-214560	0.8	40.7	0.8	156	<.1	1	34	1765	9.3	0.8	0.1	<.5	0.6	34	<.1	0.1	<.1	81
RE HB-214570	1.2	34.6	0.5	146	<.1	1	34.4	1666	9.39	1.4	0.1	<.5	0.6	22	0.1	0.2	<.1	67
RE HB-214580	0.5	24.9	0.4	131	<.1	0.7	30.3	1277	10.32	1.4	<.1	<.5	0.3	42	0.1	<.1	<.1	91
RE HB-214590	0.5	130.4	1.1	68	<.1	53.4	37.3	870	5.63	<.5	<.1	1.4	0.1	14	0.1	<.1	<.1	128
RE HB-214600	0.3	122.4	1	68	<.1	46.5	34.5	831	5.05	<.5	<.1	2.4	<.1	10	0.2	<.1	<.1	109
RE HB-214762	0.2	116	1.2	78	<.1	71.1	38.3	1257	5.81	<.5	<.1	<.5	0.1	14	<.1	0.1	<.1	138
RE HB-241110	0.6	49.4	0.5	56	<.1	45	32	866	5.19	<.5	<.1	0.6	0.1	7	<.1	<.1	<.1	109
RE HB-241120	0.4	120.2	0.3	57	<.1	98.9	36.4	902	5.34	2.6	<.1	2.1	0.1	9	<.1	<.1	<.1	94
RE HB-241130	0.7	137.6	0.7	35	<.1	52.8	21.7	498	3.04	0.6	<.1	1.4	0.1	13	0.1	0.1	<.1	79
RE HB-241140	1.8	126.3	0.6	36	<.1	36.1	20.3	421	3.15	<.5	<.1	2	0.3	8	0.1	<.1	<.1	76
RE HB-241142	0.8	106.2	2	69	<.1	51.7	33.5	684	5.8	1.1	0.1	<.5	0.3	11	0.1	0.1	<.1	167
STANDARD DS7	20.3	109.3	67.9	405	0.9	55.8	9.6	619	2.37	47.1	4.6	43.6	3.4	67	6.3	5.2	4.4	83
STANDARD DS7	20.1	108.9	68.1	403	0.9	54.6	9.5	620	2.36	47.3	4.7	45.3	4.2	68	6.2	5.6	4.3	84
STANDARD DS7	20.9	107.2	69.6	407	0.9	56.1	9.5	630	2.41	48.2	4.8	59.5	4.3	71	6.3	5.6	4.5	85
STANDARD DS7	19.7	105.3	67.9	399	0.9	55.4	9.5	616	2.35	47.3	4.8	43.8	4.4	68	6.1	5	4.4	84
STANDARD DS7	20.9	107.3	69.6	411	0.9	56	9.7	630	2.39	49.2	4.9	53.6	4.3	69	6.4	5.1	4.5	85
True Value STD DS7	20.92	109	70.6	411	0.89	56	9.7	627	2.39	48.2	4.9	70	4.4	68.7	6.38	5.86	4.51	86
Percent Difference	-2.96	0.28	-3.82	-1.46	1.12	-0.36	-1.03	-1.28	-0.84	-2.28	-6.12	-37.71	-22.73	-2.47	-1.25	-11.26	-2.44	-3.49
Detection Limits	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.1	0.5	0.1	1	0.1	0.1	0.1	2
Method	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX

Sample ID	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Hg ppm	Sc ppm	Tl ppm	Ga ppm	Se ppm	Hg ug/g
QA/QC																		
RE HB-214300	0.37	0.057	2	18	2.55	3	0.111	14	2.6	0.096	0.02	<.1	<.01	4.1	<.1	14	0.7	-
RE HB-214510	0.45	0.076	3	20	2.77	4	0.085	13	2.77	0.112	0.02	<.1	<.01	5.6	<.1	15	1.1	-
RE HB-214520	0.52	0.054	2	25	2.16	43	0.091	10	2.4	0.133	0.37	<.1	<.01	3.7	0.1	11	<.5	-
RE HB-214560	2.24	0.095	5	6	1.62	2	0.213	<1	2.59	0.017	<.01	<.1	<.01	18.9	<.1	15	<.5	-
RE HB-214570	1.15	0.102	4	9	1.56	2	0.254	<1	2.33	0.015	0.01	0.1	<.01	10	<.1	12	<.5	-
RE HB-214580	3.95	0.091	5	2	1.52	1	0.032	1	3.4	0.012	<.01	<.1	<.01	25.2	<.1	17	<.5	-
RE HB-214590	2.77	0.022	1	64	2.63	1	0.234	6	2.88	0.011	0.01	<.1	0.01	4.4	<.1	7	0.6	-
RE HB-214600	3.1	0.023	1	50	2.23	2	0.223	39	2.55	0.012	0.01	<.1	0.01	3.4	<.1	7	<.5	-
RE HB-214762	3.14	0.027	1	118	2.51	1	0.252	5	3.01	0.015	<.01	<.1	<.01	5.8	<.1	7	0.5	-
RE HB-241110	1.8	0.026	1	84	2.49	1	0.244	1	2.77	0.014	0.01	<.1	<.01	3.4	<.1	6	<.5	-
RE HB-241120	0.86	0.026	1	138	2.52	1	0.215	3	2.87	0.011	0.01	<.1	<.01	3.4	<.1	5	<.5	-
RE HB-241130	2.21	0.023	2	52	1.17	3	0.153	1	1.7	0.109	0.02	<.1	<.01	6.3	<.1	4	<.5	-
RE HB-241140	1.66	0.043	3	51	0.99	3	0.101	3	1.38	0.068	0.02	<.1	<.01	5	<.1	4	<.5	-
RE HB-241142	3.53	0.042	3	68	1.62	3	0.088	2	2.43	0.036	0.01	<.1	<.01	15.5	<.1	9	<.5	-
STANDARD DS7	0.9	0.077	9	165	1.03	350	0.11	38	0.93	0.072	0.44	3.6	0.2	2.4	4	4	3.5	-
STANDARD DS7	0.92	0.077	11	169	1.03	364	0.119	38	0.95	0.077	0.44	3.6	0.19	2.5	4	4	3.6	-
STANDARD DS7	0.94	0.08	12	171	1.05	370	0.121	38	0.98	0.078	0.44	3.7	0.2	2.6	4.2	5	4	-
STANDARD DS7	0.92	0.076	12	169	1.03	362	0.119	37	0.95	0.077	0.43	3.1	0.19	2.5	4.1	4	3.2	-
STANDARD DS7	0.93	0.08	12	168	1.05	352	0.103	39	0.98	0.077	0.43	3.9	0.21	2.5	4.2	5	3.4	-
True Value STD DS7	0.93	0.08	12.7	163	1.05	370.3	0.124	38.6	0.959	0.073	0.44	3.8	0.2	2.5	4.19	4.6	3.5	-
Percent Difference	-3.23	-3.75	-29.13	1.23	-1.90	-5.48	-11.29	-1.55	-3.02	-1.37	0.00	-5.26	0.00	-4.00	-4.53	-13.04	0.00	-
Detection Limits	0.01	0.001	1	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	1	0.5	0.001/0.01
Method	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	CVAA

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Table 3: Trace Metals Using Aqua Regia Digestion with ICP-MS Finish for Miramar Hope Bay Samples - July 2006

Sample	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	Sc ppm	Tl ppm	Ga ppm	Se ppm	Hg ug/g
203301	1.1	127.7	12.0	70	0.5	72.1	37.7	1304	5.34	1.4	<.1	5.8	0.1	13	0.1	0.1	<.1	110	3.90	0.019	1	179	2.13	128	0.323	5	2.83	0.011	0.01	1.8	4.7	<.1	5	<.5	< 0.01
203302	0.7	132.7	1.5	71	<.1	69.3	37.5	1538	6.03	0.6	<.1	14.8	<.1	12	0.1	<.1	<.1	109	5.63	0.021	<1	177	2.23	7	0.332	4	3.13	0.010	0.01	0.1	3.8	<.1	5	<.5	< 0.01
203303	0.4	121.8	1.5	64	0.1	61.6	35.3	1622	5.89	<.5	<.1	1.7	<.1	12	0.1	0.1	<.1	112	7.67	0.017	<1	163	2.21	4	0.261	9	3.00	0.008	0.01	0.2	3.3	<.1	5	<.5	< 0.01
203304	0.5	129.6	1.0	74	<.1	73.0	40.2	1753	6.89	1.3	<.1	1	<.1	11	0.1	<.1	<.1	124	6.09	0.018	<1	177	2.61	3	0.311	5	3.54	0.009	0.01	0.1	4.5	<.1	6	<.5	< 0.01
203305	0.6	110.6	0.7	68	<.1	66.7	38.4	1654	6.50	2.4	<.1	5	0.1	12	0.1	<.1	<.1	137	5.44	0.022	<1	199	2.43	2	0.353	2	3.34	0.016	0.01	<.1	5.7	<.1	7	<.5	< 0.01
203306	0.6	93.8	0.4	56	<.1	62.3	34.4	1689	5.95	<.5	<.1	<.5	<.1	14	<.1	<.1	<.1	114	7.65	0.019	<1	172	2.17	2	0.294	1	3.07	0.012	<.01	0.1	4.3	<.1	5	<.5	< 0.01
203307	0.5	132.0	6.7	106	0.1	73.8	44.4	2661	11.83	1.6	<.1	10.5	0.1	12	0.1	0.6	<.1	155	8.60	0.020	<1	205	3.45	1	0.244	23	5.29	0.008	<.01	0.1	6.2	0.1	10	2.3	< 0.01
203308	0.9	225.8	8.3	226	0.2	69.1	45.0	2192	10.30	1.3	<.1	12	0.1	12	1.5	0.1	<.1	148	7.84	0.019	1	181	3.10	1	0.257	35	4.31	0.010	<.01	0.1	6.1	0.1	9	1.5	< 0.01
203309	0.7	162.2	5.9	85	0.1	74.8	45.0	2367	10.82	25	<.1	18.6	0.1	17	<.1	0.2	<.1	186	8.87	0.022	1	212	3.18	1	0.270	6	4.61	0.013	<.01	0.1	12.8	<.1	10	1.1	< 0.01
203310	0.6	104.7	0.4	59	<.1	61.6	37.8	1723	6.48	0.5	<.1	1.2	0.1	14	<.1	<.1	<.1	140	6.31	0.021	1	189	2.48	1	0.276	2	3.33	0.014	<.01	0.1	6.2	<.1	7	<.5	< 0.01
203311	0.5	97.2	0.4	68	<.1	65.6	34.6	1763	6.87	<.5	<.1	1.6	0.1	14	<.1	<.1	<.1	136	6.14	0.021	<1	189	2.57	1	0.244	2	3.52	0.010	<.01	0.1	6.3	<.1	6	<.5	< 0.01
203312	0.9	169.3	1.0	82	<.1	78.5	44.6	1959	8.07	1.8	<.1	0.9	0.1	13	<.1	<.1	<.1	186	6.13	0.021	1	218	3.36	1	0.290	3	4.30	0.013	<.01	0.1	13.3	<.1	9	<.5	< 0.01
203313	0.3	125.0	1.4	76	<.1	71.4	41.2	1911	8.58	1.4	<.1	1.7	0.1	12	0.1	<.1	<.1	212	6.69	0.022	1	215	3.34	4	0.249	1	4.39	0.009	0.02	0.1	17.4	<.1	10	<.5	< 0.01
203314	0.4	104.7	0.5	64	<.1	62.8	39.1	1805	7.08	<.5	<.1	<.5	0.1	15	<.1	<.1	<.1	206	7.50	0.021	1	203	3.12	1	0.291	1	3.79	0.010	0.01	<.1	16.4	<.1	9	<.5	< 0.01
203315	1.8	120.5	2.4	42	<.1	77.8	32.7	765	3.55	4	<.1	<.5	0.1	15	0.1	0.3	<.1	68	2.45	0.014	<1	168	1.38	1	0.232	3	1.97	0.011	<.01	<.1	3.7	<.1	3	0.6	< 0.01
203316	1.0	106.7	1.8	45	<.1	74.3	29.4	1105	4.37	0.6	<.1	10.1	<.1	14	<.1	0.1	<.1	76	5.80	0.015	<1	159	1.82	1	0.231	25	2.38	0.014	<.01	<.1	3.1	<.1	3	<.5	< 0.01
203317	1.2	133	1.0	49	<.1	74.2	32.3	786	4.02	0.9	<.1	1.4	<.1	14	0.1	0.1	<.1	78	2.12	0.015	<1	184	1.80	1	0.251	13	2.32	0.012	<.01	<.1	3.6	<.1	3	<.5	< 0.01
203318	1.2	146.4	1.3	45	<.1	78.5	32.8	829	4.17	1.8	<.1	0.5	<.1	17	0.1	0.1	<.1	83	2.33	0.016	1	209	1.86	1	0.258	2	2.42	0.013	<.01	0.2	3.8	<.1	3	<.5	< 0.01
203319	1.1	129.0	0.9	59	<.1	82.0	34.5	847	4.19	0.8	<.1	0.6	<.1	14	0.2	0.1	<.1	82	2.36	0.016	<1	206	1.83	1	0.250	14	2.37	0.013	<.01	<.1	3.5	0.1	4	0.5	< 0.01
203320	1.2	128.6	0.3	43	<.1	72.5	31.2	774	3.86	1.2	<.1	3.3	0.1	14	0.1	<.1	<.1	76	2.09	0.017	1	203	1.73	1	0.260	3	2.24	0.016	<.01	<.1	4.2	<.1	4	<.5	< 0.01
203321	0.6	112.8	0.3	71	<.1	106.3	45.3	1437	6.74	1.5	<.1	<.5	<.1	9	<.1	<.1	<.1	136	4.12	0.019	1	253	3.36	1	0.363	8	3.87	0.013	<.01	<.1	5.0	<.1	6	<.5	< 0.01
203322	2.2	121.6	0.2	54	<.1	86.9	33.7	1098	4.88	1.8	<.1	0.6	<.1	12	0.2	<.1	<.1	88	6.26	0.015	<1	202	2.29	1	0.278	133	2.70	0.016	<.01	<.1	3.7	<.1	4	<.5	< 0.01
203323	1.4	65.5	1.3	52	<.1	86.4	35.0	1052	4.76	2.5	<.1	<.5	<.1	12	0.1	<.1	<.1	100	6.29	0.016	<1	213	2.20	1	0.284	40	2.65	0.016	<.01	<.1	4.1	<.1	4	<.5	< 0.01
203324	1.5	104.5	1.1	50	<.1	76.9	31.4	825	4.36	2.1	<.1	<.5	0.1	14	0.1	0.1	<.1	79	1.44	0.017	1	219	2.17	1	0.246	16	2.63	0.014	<.01	<.1	3.9	<.1	4	<.5	< 0.01
203325	1.6	100.8	1.7	52	<.1	88.7	34.7	979	5.28	7.2	<.1	2.3	0.1	16	<.1	0.2	<.1	128	3.46	0.017	1	230	2.74	4	0.243	3	3.15	0.014	0.01	<.1	8.5	<.1	6	<.5	< 0.01
QA/QC																																			
RE 203310	0.6	110.5	0.5	64	<.1	61.6	35	1714	6.48	0.6	<.1	1.7	0.1	14	<.1	<.1	<.1	141	6.32	0.021	1	198	2.47	1	0.284	2	3.29	0.014	<.01	0.1	6.4	<.1	7	<.5	-
RE 203320	1.2	131.1	0.3	43	<.1	71.9	29.7	770	3.84	0.8	<.1	1.7	0.1	14	0.1	<.1	<.1	77	2.08	0.017	1	193	1.71	1	0.245	2	2.24	0.015	<.01	<.1	4.1	<.1	3	<.5	-
RE 203325	1.5	96.9	2.4	53	<.1	84.6	34.7	963	5.18	5.9	<.1	<.5	0.1	15	<.1	0.2	<.1	125	3.38	0.017	1	228	2.71	3	0.244	4	3.1	0.014	0.01	<.1	8.4	<.1	6	<.5	-
STANDARD DS6	11.3	119.3	28.4	137	0.3	24.1	10.6	685	2.77	20.9	6.4	39.1	2.9	40	6	2.9	4.9	54	0.84	0.076	13	173	0.57	151	0.08	16	1.88	0.07	0.15	3.2	3.2	1.7	5	4.1	-
True Value Std DS6	11.72	122	28.95	141	0.271	24.8	10.8	704	2.796	21.5	6.48	46.3	3	39.6	5.98	3.42	5.02	56	0.848	0.079	14.2	190.9	0.57	167.2	0.081	16.1	1.89	0.071	0.149	3.33	3.3	1.69	6.2	4.3	-
Percent Difference	-3.58	-2.25	-1.90	-2.84	10.70	-2.82	-1.85	-2.70	-0.93	-2.79	-1.23	-15.55	-3.33	1.01	0.33	-15.20	-2.39	-3.57	-0.94	-3.80	-8.45	-9.38	0.00	-9.69	-1.23	-0.62	-0.53	-1.41	0.67	-3.90	-3.03	0.59	-19.35	-4.65	-
Detection Limits	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.1	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001	1	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.1	0.1	1	0.5	0.01
Method	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	CVAA

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Table 4: Results of Whole Rock Analysis by XRF for Miramar Hope Bay Samples - Sept. 2006

Sample ID	SiO2 %	TiO2 %	Al2O3 %	Fe2O3 %	MnO %	MgO %	CaO %	Na2O %	K2O %	P205 %	Ba(F) %	LOI %	Total %
HB-214291	48.78	1.49	13.95	17.45	0.29	5.25	4.49	4.76	0.40	0.21	0.02	2.72	99.81
HB-214292	47.55	1.47	13.83	18.55	0.31	5.58	4.76	4.41	0.37	0.16	0.02	2.92	99.92
HB-214293	49.05	1.56	14.22	16.87	0.18	5.62	3.93	4.86	0.39	0.17	0.01	2.90	99.75
HB-214294	48.77	1.47	13.80	17.76	0.22	5.40	4.49	4.68	0.33	0.17	0.01	2.76	99.85
HB-214295	48.01	1.49	13.77	17.63	0.21	5.88	4.96	4.28	0.50	0.16	0.01	2.70	99.60
HB-214296	47.56	1.50	14.04	17.74	0.19	5.59	5.03	4.31	0.52	0.16	0.01	2.80	99.45
HB-214297	48.97	1.53	14.11	16.68	0.17	5.28	5.13	4.75	0.57	0.20	0.01	2.48	99.89
HB-214298	48.21	1.50	14.15	17.40	0.20	5.77	4.36	4.44	0.65	0.16	0.02	2.93	99.78
HB-214299	47.44	1.53	14.34	17.60	0.27	6.05	4.15	4.52	0.45	0.18	0.02	3.38	99.95
HB-214300	47.29	1.53	14.67	17.63	0.27	6.16	3.82	4.59	0.43	0.15	0.02	3.36	99.91
HB-214501	44.91	1.44	14.07	19.52	0.25	6.60	3.67	4.16	0.40	0.17	0.01	3.83	99.03
HB-214502	47.61	1.50	14.09	17.60	0.25	6.21	4.36	4.25	0.57	0.15	0.03	3.22	99.85
HB-214503	47.28	1.50	14.24	17.66	0.28	6.49	3.76	4.30	0.74	0.15	0.06	3.38	99.84
HB-214504	45.92	1.48	13.99	19.19	0.30	6.86	3.49	4.06	0.68	0.21	0.05	3.67	99.89
HB-214505	43.08	1.29	12.90	25.47	0.25	6.12	2.91	3.99	0.37	0.14	0.02	3.46	99.99
HB-214506	47.87	1.48	14.30	17.65	0.25	6.05	3.80	4.80	0.49	0.15	0.02	3.13	99.99
HB-214507	49.98	1.55	15.16	15.68	0.22	4.70	3.34	5.67	0.53	0.17	0.01	2.82	99.82
HB-214508	49.05	1.42	13.86	17.16	0.23	5.42	4.01	5.09	0.26	0.14	0.01	2.73	99.39
HB-214509	44.61	1.44	13.32	20.16	0.24	7.63	3.90	3.65	0.40	0.15	0.01	4.28	99.79
HB-214510	46.30	1.46	13.90	18.81	0.24	6.62	3.55	4.31	0.47	0.19	0.01	3.69	99.54
HB-214511	50.98	1.20	12.08	17.31	0.17	5.65	4.02	4.61	0.28	0.18	0.01	2.58	99.06
HB-214512	45.25	1.41	13.50	20.08	0.30	7.26	4.11	3.54	0.49	0.17	0.02	3.77	99.90
HB-214513	45.54	1.39	13.64	19.68	0.29	6.78	4.05	4.00	0.46	0.20	0.01	3.49	99.54
HB-214514	46.32	1.39	13.19	19.32	0.32	6.57	4.68	3.83	0.53	0.13	0.03	3.26	99.57
HB-214515	47.36	1.36	13.88	17.85	0.31	6.53	4.31	4.20	0.62	0.21	0.03	3.21	99.86
HB-214516	45.61	1.37	13.61	19.82	0.27	6.88	4.43	3.67	0.60	0.14	0.04	3.42	99.86
HB-214517	46.44	1.39	13.78	17.78	0.22	7.34	5.29	3.40	0.93	0.13	0.03	3.07	99.82
HB-214518	46.82	1.36	13.82	17.40	0.19	7.29	5.50	3.51	0.77	0.13	0.02	2.89	99.68
HB-214519	47.18	1.39	13.80	17.63	0.23	6.59	6.66	3.25	0.89	0.12	0.01	2.14	99.89
HB-214520	47.26	1.32	14.33	17.53	0.23	6.63	5.70	3.47	0.96	0.16	0.02	2.37	99.99
HB-214521	47.04	1.26	13.12	18.49	0.21	5.86	7.23	2.32	1.79	0.12	0.06	2.23	99.71
HB-214522	47.16	1.33	13.81	17.69	0.23	6.94	6.21	2.92	1.07	0.14	0.02	2.37	99.89
HB-214523	46.36	1.34	14.08	18.24	0.24	7.26	5.61	3.32	0.76	0.19	0.01	2.52	99.94
HB-214524	46.51	1.29	13.48	19.42	0.27	6.79	6.47	2.63	0.85	0.13	0.02	2.15	99.99
HB-214525	46.46	1.28	13.50	19.38	0.28	6.64	7.11	1.89	0.85	0.12	0.02	2.14	99.68
HB-214556	53.13	1.34	12.51	16.04	0.20	2.90	4.31	4.10	0.06	0.23	0.01	4.90	99.73
HB-214557	52.28	1.35	12.62	16.72	0.22	3.00	4.37	4.03	0.11	0.28	0.01	4.97	99.94
HB-214558	52.66	1.35	12.67	16.78	0.22	2.93	4.37	3.92	0.11	0.26	0.01	4.57	99.84
HB-214559	52.93	1.37	12.74	16.90	0.22	2.95	4.52	3.82	0.09	0.25	0.01	4.11	99.91
HB-214560	52.80	1.36	12.62	16.80	0.23	3.03	4.83	3.67	0.08	0.24	0.01	4.29	99.95
HB-214561	53.14	1.36	12.62	16.99	0.21	3.08	4.32	3.52	0.10	0.25	0.01	4.30	99.90
HB-214562	52.06	1.34	12.47	16.69	0.22	3.04	4.91	3.58	0.10	0.24	0.01	5.05	99.71
HB-214563	52.32	1.35	12.50	16.75	0.22	3.18	4.48	3.24	0.07	0.25	0.01	5.57	99.94
HB-214564	49.86	1.26	11.90	15.84	0.17	2.50	4.69	4.28	0.05	0.21	0.01	5.08	95.85
HB-214565	52.75	1.36	12.59	16.59	0.22	3.09	4.58	3.43	0.06	0.25	0.01	4.91	99.84
HB-214566	52.88	1.35	12.61	16.81	0.22	3.12	4.52	3.57	0.07	0.23	0.01	4.53	99.92
HB-214567	53.41	1.37	12.70	16.86	0.23	3.01	4.31	3.82	0.05	0.25	0.01	3.86	99.88
HB-214568	53.28	1.37	12.77	16.89	0.22	2.97	4.33	3.75	0.03	0.26	0.01	3.93	99.80
HB-214569	53.91	1.39	12.99	17.03	0.22	2.93	4.22	3.87	0.04	0.29	0.01	2.63	99.52
HB-214570	54.22	1.39	12.87	17.16	0.23	2.97	4.79	3.24	0.05	0.31	0.01	2.72	99.96
HB-214571	53.35	1.37	12.89	17.05	0.24	2.93	5.35	2.99	0.06	0.24	0.01	3.30	99.78
HB-214572	52.77	1.36	12.76	16.86	0.24	2.82	5.31	3.20	0.04	0.26	0.01	4.28	99.92
HB-214573	52.00	1.35	12.39	16.32	0.21	2.76	5.48	3.13	0.04	0.27	0.01	5.82	99.79
HB-214574	51.08	1.32	12.22	16.18	0.21	2.55	6.32	2.78	0.03	0.22	0.01	6.74	99.67
HB-214575	50.13	1.28	11.95	15.96	0.21	2.44	7.19	2.70	0.02	0.22	0.01	7.77	99.89
HB-214576	52.26	1.34	12.52	16.41	0.21	2.56	5.02	3.49	0.03	0.23	0.01	5.79	99.88
HB-214577	51.78	1.34	12.41	16.35	0.22	2.56	5.32	3.72	0.03	0.29	0.01	5.85	99.89
HB-214578	48.74	1.24	11.47	15.33	0.25	2.63	8.40	2.57	0.02	0.21	0.01	8.71	99.59
HB-214579	47.98	1.21	11.17	14.79	0.20	2.37	9.69	2.57	0.03	0.23	0.01	9.75	99.99
HB-214580	50.42	1.31	12.14	16.01	0.17	2.93	6.45	2.68	0.02	0.26	0.01	7.44	99.84
HB-214581	50.98	1.34	12.46	16.41	0.17	3.29	5.44	3.09	0.02	0.22	0.01	6.34	99.78
HB-214582	49.67	1.31	11.95	15.67	0.20	3.09	6.91	2.75	0.02	0.23	0.01	7.98	99.80
HB-214583	50.64	1.31	12.30	16.19	0.16	3.06	6.02	3.06	0.02	0.23	0.01	6.92	99.92
HB-214584	50.62	1.30	12.00	15.48	0.22	3.12	6.30	3.16	0.02	0.23	0.01	7.38	99.83
HB-214585	51.85	1.31	12.12	15.96	0.22	2.93	4.95	3.91	0.02	0.22	0.01	6.21	99.72
HB-214586	53.75	1.36	12.80	17.43	0.20	3.05	3.50	5.17	0.08	0.25	0.01	2.38	99.97
HB-214587	54.40	1.39	13.10	17.66	0.20	2.87	2.90	5.50	0.07	0.28	0.01	1.56	99.94
HB-214588	46.22	0.86	13.50	13.46	0.16	8.04	9.79	1.25	0.16	0.14	0.01	6.34	99.92
HB-214589	48.97	0.70	10.70	9.62	0.50	5.52	13.61	0.57	0.18	0.06	0.01	8.72	99.16
HB-214590	47.65	0.83	13.41	12.60	0.16	7.60	9.36	1.43	0.52	0.10	0.01	6.21	99.90
HB-214591	48.16	0.82	13.32	11.26	0.15	6.23	10.10	1.57	0.20	0.12	0.01	8.05	99.98

Sample ID	SiO2 %	TiO2 %	Al2O3 %	Fe2O3 %	MnO %	MgO %	CaO %	Na2O %	K2O %	P205 %	Ba(F) %	LOI %	Total %
HB-214592	51.12	0.37	6.33	7.32	0.13	4.18	15.40	0.09	0.63	0.21	0.01	14.15	99.94
HB-214593	46.22	0.77	12.82	10.37	0.15	6.00	11.41	1.81	0.41	0.13	0.01	9.84	99.94
HB-214594	47.30	0.82	13.05	11.86	0.16	6.67	10.54	1.58	0.24	0.12	0.01	7.47	99.83
HB-214595	48.39	0.82	13.33	12.33	0.17	7.13	9.92	1.78	0.38	0.08	0.01	5.54	99.87
HB-214596	47.85	0.81	13.10	12.15	0.16	6.82	10.56	1.39	0.31	0.08	0.01	6.65	99.89
HB-214597	47.32	0.82	13.29	12.09	0.17	6.79	10.13	1.84	0.34	0.07	0.01	6.95	99.82
HB-214598	45.65	0.80	13.03	11.47	0.17	6.86	10.79	1.94	0.19	0.10	0.01	8.88	99.88
HB-214599	47.46	0.81	12.99	12.13	0.16	6.54	11.02	1.41	0.15	0.08	0.01	7.00	99.75
HB-214600	47.70	0.80	13.03	12.33	0.17	7.21	9.68	1.71	0.68	0.07	0.01	6.36	99.75
HB-214753	46.46	0.99	14.25	11.89	0.21	6.51	9.64	2.10	0.08	0.12	0.01	7.56	99.80
HB-214754	46.19	1.00	14.43	11.58	0.20	6.40	9.94	2.30	0.08	0.25	0.01	7.56	99.95
HB-214755	46.94	1.00	14.44	10.71	0.19	6.16	10.36	2.39	0.10	0.12	0.01	7.43	99.84
HB-214756	47.20	1.00	14.51	11.03	0.19	6.38	10.02	2.19	0.19	0.24	0.01	6.99	99.95
HB-214757	46.54	0.96	14.27	11.96	0.20	6.59	9.82	1.81	0.06	0.08	0.01	7.67	99.98
HB-214758	47.48	0.97	14.43	12.09	0.21	6.72	8.11	2.49	0.07	0.09	0.01	7.25	99.93
HB-214759	46.00	0.99	14.68	13.96	0.24	7.07	8.03	1.58	0.06	0.09	0.01	7.15	99.86
HB-214760	46.16	0.97	14.36	12.90	0.23	6.62	9.41	1.57	0.06	0.10	0.01	7.43	99.82
HB-214761	46.21	0.96	14.01	11.81	0.22	6.25	10.17	1.98	0.09	0.08	0.01	8.18	99.97
HB-214762	47.50	0.98	14.66	11.56	0.21	6.40	9.24	2.41	0.08	0.10	0.01	6.81	99.97
HB-241101	47.75	0.91	13.70	12.27	0.17	7.79	8.47	2.17	0.59	0.08	0.01	5.60	99.50
HB-241102	48.26	0.82	13.44	12.44	0.17	7.96	7.72	1.70	0.55	0.07	0.01	6.72	99.87
HB-241103	46.44	0.77	12.83	11.72	0.18	7.18	10.06	1.61	0.39	0.06	0.01	8.44	99.70
HB-241104	47.42	0.79	13.18	11.56	0.17	6.76	10.42	1.75	0.28	0.07	0.01	7.36	99.78
HB-241105	47.51	0.80	13.13	12.42	0.18	7.57	9.25	1.80	0.42	0.07	0.01	6.75	99.93
HB-241106	45.95	0.69	11.17	10.97	0.18	6.95	11.64	1.58	0.26	0.08	0.01	10.28	99.75
HB-241107	47.97	0.81	13.07	11.66	0.17	7.23	9.11	1.63	0.37	0.07	0.01	7.73	99.81
HB-241108	46.04	0.86	14.12	13.88	0.18	8.91	7.88	1.43	0.36	0.07	0.01	6.17	99.90
HB-241109	48.37	0.83	13.46	12.14	0.16	7.53	10.34	1.85	0.17	0.07	0.01	4.90	99.83
HB-241110	45.90	0.91	14.72	12.98	0.16	8.40	9.12	2.52	0.19	0.10	0.01	4.86	99.87
HB-241111	46.94	0.92	14.87	13.26	0.19	7.39	10.42	2.07	0.06	0.08	0.01	3.66	99.88
HB-241112	47.19	0.90	14.87	13.39	0.18	7.88	10.07	2.09	0.06	0.07	0.01	3.16	99.87
HB-241113	46.85	0.89	14.79	13.39	0.19	7.79	10.13	2.19	0.06	0.08	0.01	3.58	99.94
HB-241114	46.39	0.88	14.18	12.91	0.19	7.29	10.33	2.18	0.06	0.08	0.01	5.33	99.83
HB-241115	47.20	0.89	14.88	13.52	0.20	7.89	9.72	2.12	0.06	0.08	0.01	3.29	99.85
HB-241116	47.34	0.89	14.61	13.22	0.18	7.76	10.27	2.00	0.06	0.08	0.01	3.43	99.87
HB-241117	47.04	0.88	14.48	13.22	0.19	7.92	10.19	1.85	0.07	0.08	0.01	3.87	99.80
HB-241118	46.55	0.85	14.80	14.05	0.19	8.40	7.99	1.97	0.08	0.07	0.01	4.99	99.94
HB-241119	44.89	0.87	15.18	13.50	0.19	8.04	8.59	2.09	0.09	0.08	0.01	6.36	99.89
HB-241120	46.34	0.91	15.23	13.73	0.20	8.44	9.35	1.79	0.08	0.07	0.01	3.81	99.96
HB-241121	47.08	0.95	14.29	13.90	0.18	7.31	10.55	2.09	0.15	0.10	0.01	3.22	99.81
HB-241122	44.62	0.91	13.56	12.67	0.19	5.67	12.12	1.75	0.40	0.07	0.01	7.56	99.53
HB-241123	42.29	0.80	12.11	12.11	0.18	5.21	11.96	1.93	0.28	0.08	0.01	12.47	99.42
HB-241124	39.72	0.94	13.78	14.22	0.22	5.99	12.65	2.11	0.07	0.09	0.01	9.67	99.47
HB-241125	46.89	0.94	14.41	13.21	0.17	5.70	11.22	2.40	0.08	0.18	0.01	4.57	99.77
HB-241126	44.64	0.88	13.18	12.40	0.15	5.52	9.94	2.24	0.15	0.14	0.01	10.60	99.85
HB-241127	39.83	1.39	12.60	15.90	0.20	5.10	10.73	2.08	0.19	0.19	0.01	10.78	98.99
HB-241128	45.85	1.80	12.22	18.68	0.23	4.88	9.93	1.61	0.21	0.18	0.01	4.23	99.85
HB-241129	46.52	1.06	14.42	14.84	0.18	6.58	10.57	2.42	0.17	0.12	0.01	2.71	99.58
HB-241130	47.32	0.96	14.52	14.14	0.19	6.47	11.03	1.97	0.17	0.09	0.01	2.79	99.66
HB-241131	47.09	0.91	13.99	14.82	0.20	7.70	10.76	2.10	0.17	0.09	0.01	2.13	99.96
HB-241132	46.80	1.18	12.94	14.82	0.21	4.41	12.62	1.99	0.16	0.13	0.01	4.39	99.67
HB-241133	46.65	1.22	13.23	15.15	0.20	5.45	9.31	2.24	0.10	0.14	0.01	5.72	99.42
HB-241134	44.96	1.16	13.52	15.28	0.19	5.94	9.31	1.92	0.11	0.17	0.01	6.92	99.49
HB-241135	47.65	1.19	13.70	15.54	0.20	6.20	9.96	2.17	0.15	0.14	0.01	2.86	99.78
HB-241136	48.12	1.18	13.73	15.53	0.20	6.32	9.58	2.17	0.16	0.10	0.01	2.62	99.72
HB-241137	47.64	1.21	13.60	15.38	0.21	5.99	9.73	2.04	0.19	0.11	0.01	3.39	99.49
HB-241138	48.65	1.07	12.37	13.44	0.17	5.37	11.20	1.75	0.24	0.09	0.01	5.28	99.65
HB-241139	50.24	1.16	12.89	14.94	0.19	5.63	9.53	2.13	0.23	0.12	0.01	2.75	99.81
HB-241140	48.97	1.19	13.32	15.46	0.22	5.90	9.63	2.40	0.32	0.14	0.01	2.14	99.71
HB-241141	45.45	1.18	13.01	15.27	0.22	5.38	11.63	2.01	0.16	0.19	0.01	5.10	99.61
HB-241142	47.30	1.19	13.03	14.99	0.20	5.12	9.77	2.02	0.17	0.12	0.01	5.76	99.66
QAQC													
HB-214295	48.16	1.50	13.76	17.61	0.20	5.91	5.01	4.30	0.50	0.15	0.01	2.72	99.83
HB-214512	45.27	1.40	13.50	20.08	0.29	7.25	4.06	3.60	0.50	0.14	0.02	3.79	99.90
HB-214557	52.09	1.36	12.59	16.68	0.21	2.99	4.39	4.00	0.10	0.26	0.01	4.99	99.67
HB-214578	48.77	1.23	11.42	15.35	0.25	2.64	8.43	2.53	0.02	0.21	0.01	8.82	99.68
HB-214753	46.41	0.98	14.30	11.85	0.21	6.58	9.63	2.27	0.08	0.15	0.01	7.52	99.98
HB-241108	45.99	0.85	14.10	13.88	0.18	8.98	7.92	1.43	0.36	0.07	0.01	6.15	99.92
HB-241126	44.59	0.87	13.13	12.32	0.16	5.56	9.93	2.14	0.15	0.08	0.01	10.61	99.55
STD: SY-4	49.93	0.28	20.66	6.14	0.10	0.55	8.09	7.03	1.66	0.14	0.03	4.62	99.22
True Value Std SY-4	49.90	0.29	20.69	6.21	0.11	0.54	8.05	7.10	1.66	0.13	0.03	-	-
Percent Difference	-0.1	3.6	0.1	1.2	8.6	-1.1	-0.5	1.0	0.0	-6.2	1.5	-	-
Detection Limits	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-

ANALYTICAL METHODS
Other elements by Li borate fusion/XRF. Where no FeO value shown "Fe2O3" is total Fe as Fe2O3

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Table 4: Results of Whole Rock Analysis by XRF for Miramar Hope Bay Samples - July 2006

Sample	SiO2 %	TiO2 %	Al2O3 %	Fe2O3 %	MnO %	MgO %	CaO %	Na2O %	K2O %	P205 %	Ba(F) %	LOI %	Total %
203301	46.74	0.79	13.53	11.80	0.22	5.90	11.40	1.72	0.29	0.07	0.02	6.83	99.31
203302	43.23	0.77	13.02	12.39	0.25	5.88	13.22	1.41	0.14	0.07	0.01	8.87	99.26
203303	41.54	0.70	11.99	11.60	0.25	5.55	14.89	1.58	0.15	0.08	<0.01	11.04	99.37
203304	43.37	0.75	12.67	12.88	0.26	6.11	12.68	1.27	0.16	0.12	<0.01	9.65	99.92
203305	46.22	0.76	12.86	11.86	0.24	5.52	11.06	1.97	0.19	0.08	0.01	8.61	99.38
203306	42.27	0.72	12.18	11.19	0.26	5.20	14.86	1.48	0.17	0.07	0.04	10.81	99.25
203307	37.44	0.64	11.27	17.25	0.35	6.55	12.91	0.20	0.04	0.07	<0.01	11.29	98.01
203308	39.49	0.64	11.13	15.12	0.35	6.53	13.49	0.38	0.09	0.07	<0.01	11.30	98.59
203309	36.47	0.68	11.85	15.39	0.31	6.25	14.40	0.60	0.10	0.09	<0.01	12.87	99.01
203310	43.90	0.74	12.49	12.09	0.26	5.87	12.40	1.77	0.18	0.08	<0.01	9.75	99.53
203311	43.99	0.73	12.39	12.96	0.27	5.96	12.37	1.35	0.11	0.12	<0.01	9.54	99.79
203312	43.17	0.76	12.72	13.23	0.25	6.80	10.81	1.22	0.12	0.07	<0.01	10.35	99.50
203313	42.72	0.75	12.60	13.28	0.25	6.66	10.33	1.42	0.28	0.07	0.01	11.28	99.65
203314	42.58	0.75	12.07	11.68	0.24	6.19	12.06	1.58	0.19	0.07	<0.01	11.83	99.24
203315	47.49	0.70	14.41	11.33	0.19	5.75	13.70	1.24	0.07	0.06	<0.01	4.24	99.18
203316	43.68	0.62	12.97	10.73	0.21	5.84	15.06	1.83	0.07	0.08	<0.01	8.40	99.49
203317	47.12	0.69	14.19	11.9	0.18	7.04	12.68	1.17	0.08	0.06	<0.01	4.18	99.25
203318	46.89	0.70	14.02	11.98	0.19	6.98	12.97	0.99	0.08	0.06	<0.01	4.39	99.25
203319	46.78	0.71	14.14	12.09	0.19	6.92	12.84	1.15	0.11	0.06	<0.01	4.49	99.48
203320	47.49	0.71	14.21	11.68	0.18	7.10	12.56	1.54	0.06	0.12	<0.01	4.13	99.78
203321	43.88	0.77	15.79	12.21	0.19	6.68	9.90	2.19	0.08	0.06	<0.01	7.98	99.73
203322	45.78	0.62	12.75	9.76	0.16	5.45	13.60	1.91	0.06	0.06	<0.01	9.36	99.51
203323	41.74	0.67	13.51	10.23	0.18	6.17	14.45	2.33	0.10	0.06	<0.01	9.86	99.30
203324	46.43	0.72	15.01	12.44	0.19	7.84	11.69	1.21	0.07	0.06	<0.01	3.80	99.46
203325	45.75	0.68	14.05	11.68	0.17	7.52	11.54	1.50	0.08	0.06	<0.01	6.69	99.72
QA/QC													
203312	43.25	0.76	12.81	13.22	0.27	6.84	10.84	1.24	0.12	0.07	<0.01	10.34	99.76
STD: SY-4	49.81	0.28	20.74	6.18	0.10	0.52	8.06	7.12	1.62	0.13	0.03	4.80	99.38
True Value Std SY-4	49.90	0.29	20.69	6.21	0.11	0.54	8.05	7.10	1.66	0.13	0.03	-	-
Percent Difference	0.2	3.4	-0.2	0.5	9.1	3.7	-0.1	-0.3	2.4	0.0	11.8	-	-
Detection Limits	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-

ANALYTICAL METHODS
Other elements by Li borate fusion/XRF. Where no FeO value shown "Fe2O3" is total Fe as Fe2O3

Appendix E
Shake Flask Extraction Results

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Miramar-Doris North-Hopebay- Windy Lake, 14-Sept-06

Table 1: Results of SFE on 6 (from set of 132) Miramar-Doris North-Hope Bay Windy Lake Samples - Sept. 2006

Parameter	Units	Method	Detection Limit	HB-214588	HB-214753	HB-241101	HB-241111	HB-241121	HB-241132	Method Blank
Final pH (24h)	-	Meter	0.10	9.8	9.6	9.9	9.9	9.8	9.6	5.8
Conductivity	µs/cm	Meter	0.10	59	54	101	58	47	54	1
Alkalinity	mg/L	Titration/Cal	0.10	27	27	41	25	25	25	2
Sulphate	mg/L	IC	1.00	1.6	1.8	2.3	2.7	1.3	2.8	-
Chloride	mg/L	IC	0.20	1.1	0.6	2.9	0.7	0.4	0.8	-
Flouride	mg/L	SIE	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-
Dissolved Metals										
Al	mg/L	ICP-MS	0.005	0.480	0.670	0.470	0.420	0.640	0.740	-
Sb	mg/L	ICP-MS	0.001	0.001	0.001	0.007	0.011	0.001	0.003	-
As	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Ba	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Be	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Bi	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
B	mg/L	ICP-MS	0.05	0.06	0.05	0.07	< 0.05	< 0.05	< 0.05	-
Cd	mg/L	ICP-MS	0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	-
Ca	mg/L	ICP-MS	0.05	4.22	5.23	2.48	5.3	5.6	6.25	-
Cr	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Co	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Cu	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	-
Fe	mg/L	ICP-MS	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-
Pb	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Li	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Mg	mg/L	ICP-MS	0.05	0.48	0.57	0.38	0.62	0.62	0.75	-
Mn	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Hg	ug/L	CVAA	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	
Mo	mg/L	ICP-MS	0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	-
Ni	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
P	mg/L	ICP-MS	0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	-
K	mg/L	ICP-MS	0.15	0.80	0.10	3.80	0.40	0.40	0.40	-
Se	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Si	mg/L	ICP-MS	0.15	2.30	1.60	3.10	4.10	2.30	1.9	-
Ag	mg/L	ICP-MS	0.00025	< 0.00025	< 0.00025	< 0.00025	< 0.00025	< 0.00025	< 0.00025	-
Na	mg/L	ICP-MS	0.25	6.68	5.8	15.90	5.3	3.2	4.09	-
Sr	mg/L	ICP-MS	0.001	0.007	0.008	0.004	0.007	0.006	0.008	-
Te	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Tl	mg/L	ICP-MS	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	-
Th	mg/L	ICP-MS	0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	-
Sn	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	-
Ti	mg/L	ICP-MS	0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	-
U	mg/L	ICP-MS	0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	-
V	mg/L	ICP-MS	0.001	0.009	0.007	0.019	0.017	0.010	0.010	-
Zn	mg/L	ICP-MS	0.005	0.031	0.009	< 0.005	< 0.005	< 0.005	< 0.005	-
Zr	mg/L	ICP-MS	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-

Extraction Method: Using Rotary Extractor for 24h
Solid:Liquid ratio used = 1:3; 250g sample:750mL DI H_2O