Waste Rock Management Plan

Doris North Project, Nunavut

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1.0 INTRODUCTION

All waste rock brought to surface through the development of the underground mine will be placed into storage in a temporary waste rock pile to be constructed immediately to the south of the ore stockpile and portal access road. The pile will be constructed within a perimeter berm designed to contain and direct all runoff from the pile into a dedicated runoff collection pond. The berm will also direct clean runoff away from the waste rock pile. The water collected in the runoff collection pond will be assumed to be contaminated and pumped to the mill tailings pump box and from there onto the Tail Lake tailings containment area.

2.0 PURPOSE OF THE WASTE ROCK MANAGEMENT PLAN

The purpose of this Waste Rock Management Plan is to provide a summary document that describes how waste rock generated by underground mining at the Doris North Project is to be handled and managed to comply with the commitments made by Miramar Hope Bay Ltd. (MHBL) during the environmental assessment process and to comply with the conditions set out by the Nunavut Impact Review Board (NIRB) in the Doris North Project Certificate. It is not intended to be a design document for the waste rock management facilities. The reader is referred to the following sources for this design information:

- Design of the Surface Infrastructure Components Doris North Project, Hope Bay, Nunavut, Canada, prepared for MHBL by SRK Consulting Engineers and Scientists, dated March 2007. (Supporting Document S2 to the Revised Water License Application Support Document, April 2007)
    - Section 4.13 Temporary Waste Rock Pile Pad; and
    - Section 4.14 Pollution Control Pond.

- Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components, Doris North Project, Nunavut, Canada, prepared for MHBL by SRK Consulting Engineers and Scientists, dated March 2007. (Supporting Document S4 to the Revised Water License Application Support Document, April 2007)
    - Drawing S-07 Camp and Mill Pad Plan; and
    - Drawing S-08 Camp and Mill Pad Typical Sections and Details.

- Technical Specifications for Tailings Containment Area and Surface Infrastructure Components, Doris North Project, Hope Bay, Nunavut, Canada, prepared for MHBL by SRK Consulting Engineers and Scientists, dated March 2007. (Supporting Document S3 to the Revised Water License Application Support Document, April 2007)
    - Section 10.2.14 Temporary Waste Rock Pile Pad;
    - Section 10.2.16 Temporary Waste Rock Pile Pollution Control Pond;
    - General material specifications for fill materials is contained in Section 7,
    - General specifications for geosynthetics is contained in Section 8, and
    - General specifications for fill placement is contained in Section 9.

This Management Plan is a component of the Doris North Environmental Management System and will be updated after the water license has been issued to incorporate any new commitments made by MHBL during the license process and to incorporate any conditions contained within the water license relating to the handling and management of underground waste rock. This Management Plan will be reviewed annually during the first quarter of each calendar year by the mine's environmental staff and updated as needed to reflect changes in operating procedures. The revised Waste Rock Management Plan is to be made available to the appropriate mine operating staff with appropriate refresher training and sent to the Nunavut Water Board (NWB) for inclusion in the public registry.

The Waste Rock Management Plan is intended to provide the mine's operating staff with a summary of the underground mine waste handling and management procedures developed through the environmental assessment and mine design process. It similarly provides a summary of the same to the regulatory agencies and to the land owner who have regulatory interest over the mine facilities.

The Waste Rock Management Plan is not intended to provide a detailed review of the geochemical characterization work conducted on the underground waste rock. For this information the reader is referred to the following sources:

- ARD and Metal Leaching Characterization Studies in 2003 – 2005 Doris North Project, Nunavut Canada, prepared for MHBL by AMEC Earth and Environmental, dated October 2005 (Supporting document B2 to the Final Environmental Impact Statement Technical Report submitted to NIRB in June 2005) – Section 2;

- Hope Bay Joint Venture Hope Bay Project Integrated ARD Characterization Report, prepared for MHBL by Knight Piesold, dated June 2002 (Supporting Document B4 to the Final Environmental Impact Statement Technical Report submitted to NIRB in June 2005) – Section 1 through 3; and

- Geochemical Characterization of Portal Development Rock, Doris North Project, Hope Bay, Nunavut, Canada, prepared for MHBL by SRK Consulting Engineers and Scientists, dated March 2007 (Supporting Document S8 to the Revised Water License Application Support Document, April 2007) – deals with additional characterization of drill holes along the upper portion of the underground decline.

3.0 WASTE ROCK MANAGEMENT STRATEGY

MHBL does not plan to use any of the underground waste rock for construction of the site roads, building pads, laydown areas, tailings dams or other site infrastructure to ensure that only non-acid generating rock is used in such construction. Under the mining plan it is expected that all development waste rock will be used internally as backfill within the mine workings. All of the underground waste rock brought to surface will be placed onto the temporary waste rock stockpile to be returned into the underground mine during the mine life. A schedule of mine waste rock and ore production over the mine life (8 months of development and 24 months of production) is presented in Table 3-1. The table shows on a month by month basis the predicted tonnage of underground waste rock generated, the amount of waste rock moved from the mine to the temporary stockpile, the amount of waste rock returned into the underground mine as fill and the net stockpile balance. This production schedule shows the stockpile growing in size to reach a maximum of 137,041 tonnes in month 13 (5 months after mill production starts), then dropping to a zero balance by the end of the projected mine life. The pile is projected to be fully gone by the end of August 2010 with the mill ceasing production four months later.

There is sufficient open void space within the planned production stopes at the Doris North underground mine to receive all of the underground waste and the dewatered cyanide leach residue. The estimated void space is 148,000 m^3. The dewatered leach residue generated over the two year mine life is estimated to be 25,000 m^3 at the average concentrate weight pull of 10% (i.e., 10% of the tonnes milled reports to the dewatered cyanide leach residue, the remaining 90% being flotation tailings), leaving 123,000 m^3 of void space to accommodate the estimated 110,451 m^3 (198,812 tonnes at a broken specific gravity of 1.8 tonnes/m^3) of underground mine waste rock.

Table 3.1: Doris North – Backfill and Waste Rock Stockpile Schedule (Oct 2006)

Month*	Tonnage Mined		Ore Tonnage Source			Fill Requirement**		Stockpile	Ending
	Ore	Waste	Dev	C&F	Open	C&F Stope	Open	Movement	Stockpile
1	0	6,387	0	0	0	0	0	6,387	6,387
2	0	12,230	0	0	0	0	0	12,230	18,617
3	0	12,638	0	0	0	0	0	12,638	31,255
4	0	13,804	0	0	0	0	0	13,804	45,059
5	0	12,136	0	0	0	0	0	12,136	57,195
6	1,738	11,817	1,738	0	0	0	0	11,817	69,012
7	5,839	16,036	5,839	0	0	0	0	16,036	85,048
8	11,430	17,440	7,182	4,248	0	1,159	0	16,281	101,329
9	12,958	16,214	5,907	2,747	4,304	6,724	0	9,489	110,818
10	19,520	14,580	3,688	5,724	10,107	6,619	0	7,961	118,779
11	21,742	13,738	5,407	5,613	10,722	7,754	0	5,984	124,763
12	18,328	12,994	3,734	4,909	9,685	6,201	0	6,793	131,556
13	21,789	12,363	5,165	5,902	10,722	6,878	0	5,485	137,041
14	19,567	10,970	3,998	11,024	4,545	6,424	21,779	-17,233	119,808
15	21,557	10,681	5,559	7,068	8,930	10,793	0	-112	119,696
16	21,767	663	4,591	0	17,176	7,377	0	-6,715	112,981
17	24,700	0	6,403	467	17,831	3,706	0	-3,706	109,275
18	21,795	0	1,759	2,206	17,831	3,372	0	-3,372	105,904
19	22,887	0	0	6,846	16,041	5,739	0	-5,739	100,165
20	17,653	0	0	6,935	10,718	5,736	0	-5,736	94,428
21	20,506	0	0	10,134	10,372	4,623	0	-4,623	89,805
22	18,487	0	0	8,756	9,731	6,756	0	-6,756	83,050
23	18,654	0	0	1,975	16,679	5,837	0	-5,837	77,212
24	17,086	0	0	4,153	12,932	1,316	0	-1,316	75,896
25	22,002	0	0	11,517	10,485	2,769	0	-2,769	73,127
26	15,498	0	0	15,498	0	7,678	0	-7,678	65,449
27	16,088	0	0	16,088	0	10,332	0	-10,332	55,117
28	19,303	0	0	19,303	0	10,725	0	-10,725	44,392
29	19,793	0	0	19,793	0	12,869	0	-12,869	31,523
30	17,245	0	0	17,245	0	13,195	0	-13,195	18,327
31	10,246	0	0	10,246	0	11,497	0	-11,497	6,831
32	0	0	0	0	0	6,831	0	-6,831	0
Total	**458,177**	**194,689**	**60,969**	**198,397**	**198,812**	**172,910**	**21,779**		

* Month 1 is the start of the main ramp development
** Fill placed takes into consideration swell factor from SG 2.7 to 1.8 (solid to broken rock)
C&F: Cut and Fill Stoping (mining method requiring fill)
Open: Open Stoping (mining method typically requiring no fill)

4.0 SURFACE HANDLING AND MANAGEMENT PROCEDURES

4.1 Temporary Waste Rock Pile Construction[1]

The purpose of the temporary waste rock pile pad is to preserve the underlying permafrost such that waste rock can be stockpiled and reloaded during any season of the year. Therefore, other than ensuring that the section of the pile receiving waste rock is clear of snow, there are no special operating requirements for this pad.

During mine development a peak of 137,000 tonnes of waste rock will require temporary storage, prior to all being returned underground (there is however capacity to store at least 200,000 tonnes of waste rock on the temporary pad). Total waste rock storage space will only be required for a period of 32 months. The waste rock pile will be constructed in lifts, each a maximum of 5 m high. Secondary lifts will not be benched. Pile side slopes will be angle of repose. Peak waste rock deposition rate will be approximately 545 tonnes per day.

The temporary waste rock pile can be classified as being in Stability Class I, according to Table 5.2, page 70, in the British Columbia Mine Waste Rock Pile Research Committee's manual on Mined Rock and Overburden Piles (BCMWRPRC 1991)[2]; based on the following criteria:

> *The temporary waste rock stockpile will be less than 50 m in height, it will contain less than 1 million tonnes of waste, it will have an overall compound slope of 40^o, and it will be constructed in lifts less than 25 m in height, at a rate significantly less than 25 m3/linial metre of crest per day. Furthermore, the pile will be moderately confirmed by natural topography and will be constructed from strong and durable waste. Percolation of water through the dump is expected to be limited, since freezing in the dump will likely occur rapidly*.

For such piles the failure hazard is classified as negligible and the design can be based on basic reconnaissance and baseline data such as is available for this site.

4.2 Waste Rock Pile Operating and Handling Procedures

- All waste rock brought to surface from the underground mine will be trucked to the bermed Temporary Waste Rock Pile pad and end dumped onto the pad. The location of this temporary waste rock pile in relation to the mill and ore stockpile is shown on Figure 4-1. Periodically a dozer will be used to shape the pile to maintain stable angles, that is to reduce any overhangs or over steepened slopes and to maintain a safe truck access ramp onto the pile.

- No underground waste rock is to be taken anywhere outside this Temporary Waste Rock Pile pad without authorization from the Mine General Manager who will ensure

[1] Design and construction information taken from Sections 5.5.5 and 5.5.6 from the SRK report "Design of the Surface Infrastructure Components, Doris North Project, Hope Bay, Nunavut, dated March 2007 (Supporting Document S2 to the Revised Water License Application Support Document, April 2007).
[2] British Columbia Mine Waste Rock Pile Research Committee. 1991. *Mined Rock and Overburden Piles – Investigation and design manual.* Interim Guidelines, May 1991.

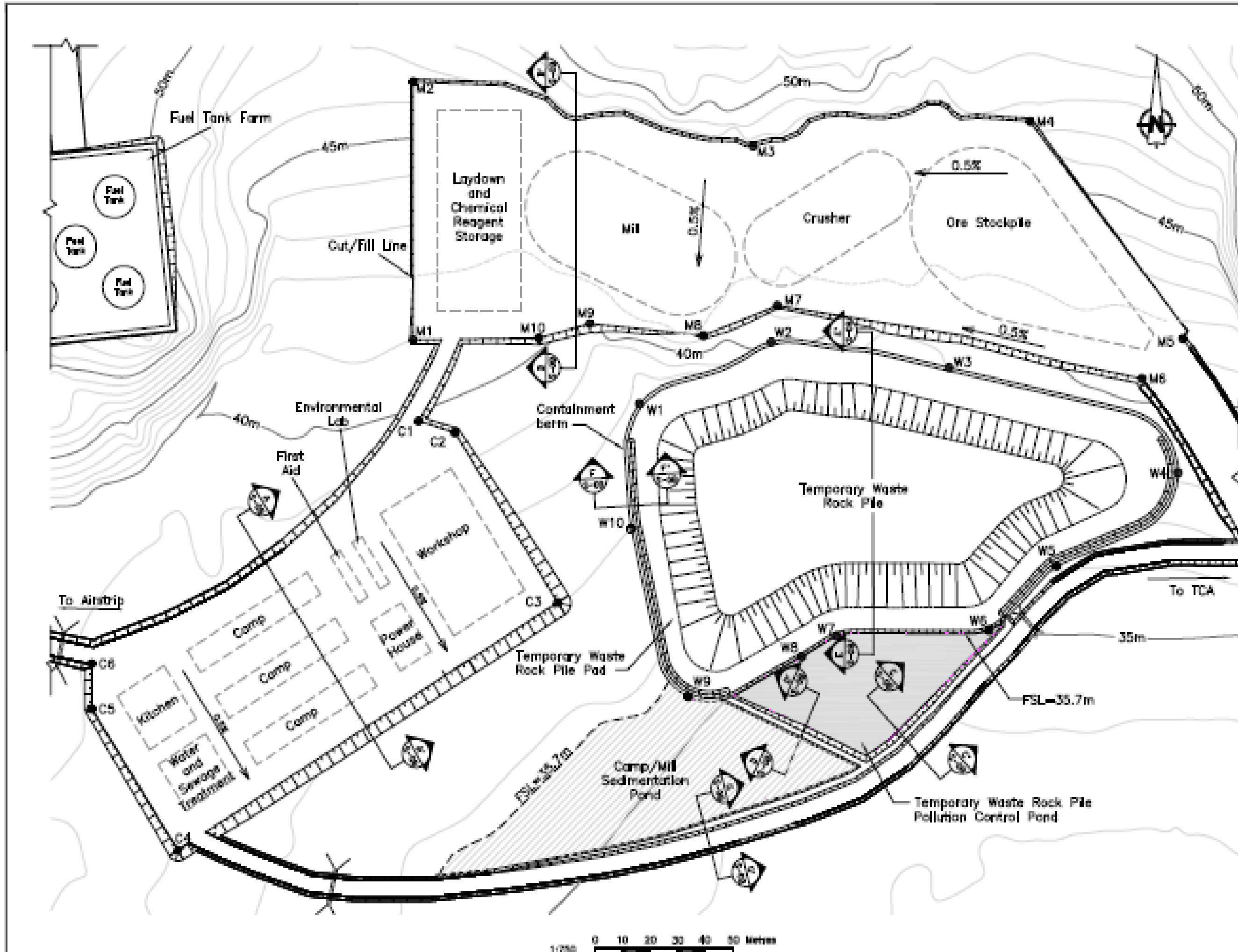
that appropriate authorization has been obtained from the Nunavut Water Board using the procedures outlined in Section 7.0 of this Management Plan.

- All precipitation runoff from within the bermed area of the Temporary Waste Rock Stockpile is to be directed to the Temporary Waste Rock Pile Pollution Control Pond.

- The water that accumulates within the Temporary Waste Rock Pile Pollution Control Pond is to be pumped to the tailings pump box within the mill so that it can be transferred to the tailings containment area. No water is to be discharged onto the surrounding tundra without the authorization of the Nunavut Water Board.

- The water that accumulates within the Temporary Waste Rock Pile Pollution Control Pond is to be sampled monthly[3] during periods of open water and sent for analysis (pH, TSS, Total Ammonia, Total Sulphate, Total CN, Total Oil and Grease, Alkalinity, Chloride, Al, As, Cu, Fe, Pb, Ni, and Zn). The results are to be reported to the Nunavut Water Board under the Surveillance Network Program (SNP) contained within the water license. MHBL environmental staff will use this data as one key input required to verify calibration and updates of the Tail Lake water quality model.

[3] See Section 5.3.1, Monitoring and Follow-Up Plan, Supporting Document S10m to the Revised Water License Application Support Document, April 2007.



STAKE OUT TABLE		
Point	Northing	Easting
Cam Pad		
C1	7559056.0	433042.0
C2	7559052.0	433055.0
C3	7558993.0	433092.0
C4	7558906.0	432955.0
C5	7558955.0	432924.0
C6	7558971.0	432924.0
Mill Pad		
M1	7559084.0	433040.0
M2	7559174.0	433040.0
M3	7559152.0	433162.0
M4	7559160.0	433162.0
M5	7559084.0	433317.0
M6	7559071.0	433303.0
M7	7559096.0	433171.0
M8	7559086.0	433145.0
M9	7559090.0	433103.0
M10	7559085.0	433085.0
Waste Rock Pile Pad		
W1	7559062.0	433121.0
W2	7559083.0	433169.0
W3	7559074.0	433233.0
W4	7559038.0	433316.0
W5	7559005.0	433272.0
W6	7558983.0	433247.0
W7	7558981.0	433194.0
W8	7558974.0	433180.0
W9	7558960.0	433139.0
W10	7559018.0	433119.0

Notes:

1. The finished grade of the Mill Pad cannot be lower than elevation 42 m, and undulations cannot be more than 0.2m.
2. A nominal leveling layer of Surfacing material will be spread over the exposed bedrock surface before proceeding with foundation development.
3. The bedrock cut highwall for the Mill Pad should be site fitted with the direction from the Engineer. The maximum high-wall height will be 5m.
4. The Contractor may have to over excavate overburden on the highwall crest to ensure slope stability. The Engineer will confirm the slope finishing details on site.
5. The Contractor will be responsible for keeping the Ponds dry, and completely free of snow and water throughout the construction phase, or until otherwise instructed by the Engineer.
6. The Engineer will work with the Contractor to ensure that surface runoff drainage on the Camp and Mill pads are directed to the appropriate Pond as applicable.

Figure 4.1: Location of Temporary Waste Rock Stockpile in Relation to the Mill

5.0 SOURCE AND TYPE OF WASTE ROCK TO BE MINED

The total waste rock generated through mining of the Doris North Hinge Zone is expected to be 211,997 tonnes (117,776 m^3 at a broken specific gravity of 1.8 tonnes/m^3). Approximately 7% of this (13,600 tonnes) is expected to be over break within the production stopes, and will end being milled as ore. This over break will predominantly consist of Mafic Volcanic – D1 (Dolomite/Sericite Alteration).

The remaining 198,397 tonnes of waste rock is expected to come from the development of the main access ramp from surface, the internal ore access drifting and ramps, and the raises. The breakdown of this waste rock by lithological unit is as follows:

Franklin Diabase Dike Material: 50,000 tonnes – This material will predominantly come from the west portion of the main access ramp, although some of the internal production level access ramps also intersect the Diabase dike along the Fe Tholeiites/Diabase contact, which are included in this number;

Mg Tholeiitic Basalts: 1,100 tonnes – A small amount of Mg Tholeiite Basalt will be mined along the main access ramp in passing from the Diabase dike material into the Fe Tholeiite Basalts. The Mg Tholeiitic Basalts include the altered pillow basalt, altered gabbro, altered wall rock and altered amygdaloidal basalt rock types described in the Acid Base Accounting (ABA) database;

Fe Tholeiitic Basalts: 147,297 tonnes – The Fe Tholeiite Basalts will be encountered at the east end of the main access ramp, and most of the production level and internal ramp development waste extracted will come from this material. The Fe Tholeiitic Basalts include all of the Mafic Volcanic – Pillow flow, Mafic Volcanic – Dolomite Sericite Alteration, Mafic Volcanic Moderately to Weakly Foliated, and Mafic Volcanic – Finely banded to laminated, massive basalt, pillowed to massive basalt, gabbro, underground gabbro, and unaltered wall rock types described in the ABA database.

6.0 ARD POTENTIAL OF THE WASTE ROCK FROM THE UG MINE

The following is a brief summary of the characterization work conducted on underground waste rock to date. The reader is referred to the following sources for additional information:

- ARD and Metal Leaching Characterization Studies in 2003 – 2005 Doris North Project, Nunavut Canada, prepared for MHBL by AMEC Earth and Environmental, dated October 2005 (Supporting document B2 to the Final Environmental Impact Statement Technical Report submitted to NIRB in June 2005) – Section 2;

- Hope Bay Joint Venture Hope Bay Project Integrated ARD Characterization Report, prepared for MHBL by Knight Piesold, dated June 2002 (Supporting Document B4 to the Final Environmental Impact Statement Technical Report submitted to NIRB in June 2005) – Section 1 thru 3; and

- Geochemical Characterization of Portal Development Rock, Doris North Project, Hope Bay, Nunavut, Canada, prepared for MHBL by SRK Consulting Engineers and Scientists, dated March 2007 (Supporting Document S8 to the Revised Water License Application Support Document) – deals with additional characterization of drill holes along the upper portion of the underground decline.

Significant test work was completed to determine the acid rock generating and metal leaching potential of the rock to be disturbed by underground mining. Almost all of the rock outside the mineralized zones has low acid generating potential, and is not expected to be a source of acid rock drainage or other metal contaminants.

Acid rock drainage (ARD) can occur when sulphide minerals in rock are exposed to air and water. It can cause environmental degradation if allowed to enter natural water bodies. Metal leaching can also occur under near neutral conditions from rock containing soluble metals. A total of 163 samples of drill core from the Doris North deposit (Hinge Zone) were tested by acid base accounting analysis. This ABA database is presented in a summary table in Appendix A.

The following criteria was used to assess ARD potential:

AP – Acid Potential reported as kg of $CaCO_3$ equivalent per tonne of sample. AP is a measure of the maximum potential acidity that the sample can generate if all of the contained sulphide minerals oxidize and form acid. AP is a calculated value based on the total sulphur or total sulphide sulphur concentration within the sample. AP = wt% Sulphide Sulphur x 31.25. The Total Sulphur and the Sulphide Sulphur content in the sample are determined by analysis. The factor 31.25 is based on the acidity generated as derived from the general stoichiometry for the complete oxidation of pyrite and the subsequent hydrolysis of the Fe^{3+} generated. This factor therefore relates the total acidity produced with the equivalent alkalinity as $CaCO_3$ required for neutralization.

NP – Neutralization Potential reported as kg of $CaCO_3$ equivalent per tonne of sample. NP is a measure of the neutralizing potential of the sample. NP is a measured value determined by measuring the amount of acid that the sample can neutralize under standardized laboratory conditions.

NNP – Net Neutralization Potential reported as kg of $CaCO_3$ equivalent per tonne of sample. NNP = NP-AP. NNP is a measure of the balance between the acid generating and acid consuming potential of the sample. Typically if the NNP is greater than +20 kg $CaCO_3$ equivalent per tonne, then the sample is unlikely to be a net source of acid generation. Conversely, a NNP equal to zero or less, indicates that the sample is likely be a net source of acid generation. NNP values between 0 and +20 kg $CaCO_3$ equivalent per tonne of sample indicate uncertain acid generating potential, requiring better understanding of the proportion of the neutralizing minerals that are readily available to neutralize acidity and at what rate.

NPR – Neutralization Potential Ratio. NPR = NP/AP. NPR is the ratio of Neutralizing Potential to Acid Generating Potential for the sample. Under DIAND Guidelines[4], the following criteria are suggested for the screening of the ARD potential of a sample:

Potential for ARD	Initial Screening Criteria	Comments
Likely	NPR<1	Likely ARD generating unless sulphide minerals are non-reactive
Possibly	1<NPR<3	Possibly ARD generating if NP is insufficiently reactive or is depleted at a faster rate than sulphides
Low	NPR > 3	Not likely to be acid generating

In Summary:

- Four of the five samples from the Mg Tholeiite rock types (altered wall rock) were classified as non-acid generating (NPR >3), with one sample classified as having uncertain acid generating (NPR = 2.4);
- Twelve of thirteen samples of Gabbro (Fe Tholeiite group) were classified as being non-acid generating (NPR >3), with one sample classified as having uncertain acid generating (NPR = 1.3);
- All five samples of unaltered wall rock (Fe Tholeiite group) were classified as non acid generating (NPR> 3);
- Sixty four of seventy three samples (87%) of Mafic Volcanic rock (Fe Tholeiite group) were classified as being non-acid generating (NPR >3), with the other nine samples all being classified as having uncertain acid generating (1<NPR>3); and
- Twenty five of sixty five samples (39%) of mineralized or quartz vein material (Fe Tholeiite group) were classified as being non-acid generating (NPR >3), twenty one samples (32%) were classified as having uncertain acid generating

[4] Guidelines For Acid Rock Drainage in the North, Northern Mine Environmental Neutral Drainage Studies No. 1, prepared for the Department of Indian Affairs and Northern Development by Steffen, Robertson and Kirsten (B.C.) Inc. in association with B.C. Research and Development, dated September 1992.

(NPR = 1.3) and nineteen samples (29%) were classified as likely to be acid generating (1<NPR).

At Doris North high or uncertain acid generating potential is associated with the mineralized quartz veining or mineralized material immediately adjacent to the quartz veining. This material is typical of ore grade and will end up being processed through the mill if mined. The surrounding country rock is typically non-acid generating with NPR values well in excess of 3.0. Consequently, bedrock material disturbed by development mining to reach the ore zones is likely to be non-acid generating. There is some mineralized material within the strong Dolomitic sericitic alteration zone surrounding the quartz veining that has low or uncertain acid generating potential.

Characterization of the portal development rock (rock to be encountered in developing the access ramp from surface to the orebody), based on an additional 125 samples taken from a geotechnical drilling program conducted in 2006, are presented in the SRK report "Geochemical Characterization of Portal Development Rock", dated March 2007[5] . This report concluded that the diabase and gabbro rock has low NP and low AP limiting the potential for acid production (total S generally less than 0.30 wt%)and the Basalt appears to be strongly net acid consuming. In general, rock excavated for the underground access ramp outside the mineralized zone will have low acid generating potential.

[5] Supporting Document S8 to the Revised Water License Application Support Document, April 2007.

7.0 USE OF NON-ACID GENERATING UNDERGROUND WASTE ROCK DURING MINE LIFE

In the event that during the mine life, MHBL wishes to use some of the underground waste rock for use on surface for some unspecified purpose such as cover material in the non-hazardous landfill area then the following procedures will be used to demonstrate that such rock is suitable for such use:

- Only waste rock that has been demonstrated through confirmatory test work to be non-acid generating and non-metal leaching will be allowed for use on surface. This will require the authorization of the Nunavut Water Board and will require that MHBL demonstrate through confirmatory testwork that the rock is non-acid generating;
- In such an event Acid Base Accounting test work will be used to demonstrate that underground waste rock is suitable for use on surface. Typically one ABA test for every 5,000 tonnes of rock to be used will be required to meet this requirement assuming that the 5,000 tonnes is all from one rock lithology and location; and
- The NPR value derived from the ABA test must exceed 3.0 to meet the threshold of being classified as non-acid generating for this purpose.

This report, "Waste Rock Management Plan, Doris North Project, Nunavut, April 2007", has been prepared by Miramar Hope Bay Ltd.

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APPENDIX A

Summary of Waste Rock ABA Database

Appendix A: Doris North Waste Rock Acid Base Accounting Data Base

Rock Type	Sample ID	Drill Hole #	Section	Zone	Rock Unit	Hole From (m)	Interval To (m)	Source	Paste pH	CO2 Inorg. (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 Neutraliztion Potential (kg CaCO3/Tonne)	NPR NP/MPA
Basalt - Unaltered					Fe Tholeiites			2	8.7	5.08	115.3	0.11	**0.01**	0.11	3.4	162.9	159.5	47.4
Gabbro - M		95TDD65	15620-5350	Hinge	Fe Tholeiites	398.75	399.23	3	9.3			0.07			2.2	60.0	57.8	27.4
Gabbro - M		95TDD65	15620-5350	Hinge	Fe Tholeiites	405.62	406.22	3	9.4			0.03			0.9	31.0	30.1	33.1
Gabbro - M		96TDM115	15360	Hinge	Fe Tholeiites	17.64	17.97	3	9.8			0.10			3.1	68.0	64.9	21.8
Gabbro - M		96TDM115	15360	Hinge	Fe Tholeiites	24.97	25.28	3	9.7			0.10			3.1	51.0	47.9	16.3
Gabbro - M		96TDM115	15360	Hinge	Fe Tholeiites	25.28	25.55	3	9.8			0.15			4.7	108.0	103.3	23.0
Gabbro - M		96TDM98	15300	Hinge	Fe Tholeiites	77.26	77.53	3	9.4			0.09			2.8	322.0	319.2	114.5
Gabbro - Underground					Fe Tholeiites			2	9.0	3.53	80.1	0.06	**0.01**	0.06	1.9	117.8	115.9	62.8
Gabbro - Underground					Fe Tholeiites			2	9.3	11.12	252.4	0.11	**0.01**	0.11	3.4	225.6	222.2	65.6
Gabbro - Underground					Fe Tholeiites			2	9.1	0.79	17.9	0.03	**0.01**	0.03	0.9	26.7	25.8	28.5
Gabbro - Underground					Fe Tholeiites			2	9.1	1.35	30.6	0.08	**0.01**	0.08	2.5	42.1	39.6	16.8
Gabbro - Underground					Fe Tholeiites			2	8.3	5.71	129.6	1.85	**0.01**	1.85	57.8	77.8	20.0	1.3
Gabbro - Underground					Fe Tholeiites			2	9.0	1.58	35.9	0.10	**0.01**	0.10	3.1	45.9	42.8	14.7
Gabbro - Underground					Fe Tholeiites			2	9.0	2.67	59.2	0.11	**0.01**	0.11	3.4	68.1	64.7	19.8
Mafic Volcanic - D1		96TDM104	15270	Hinge	Fe Tholeiites	23.87	24.39	3	9.5			0.36			11.3	347.0	335.8	30.8
Mafic Volcanic - D1		96TDM106	15350	Hinge	Fe Tholeiites	54.62	54.90	3	9.4			0.13			4.1	247.0	242.9	60.8
Mafic Volcanic - D1		96TDM106	15350	Hinge	Fe Tholeiites	81.28	81.65	3	9.4			0.11			3.4	317.0	313.6	92.2
Mafic Volcanic - D1		96TDM108	15390	Hinge	Fe Tholeiites	49.68	49.95	3	9.5			0.10			3.1	346.0	342.9	110.7
Mafic Volcanic - D1		96TDM110	15490	Hinge	Fe Tholeiites	59.63	57.50	3	9.6			0.15			4.7	296.0	291.3	63.1
Mafic Volcanic - D1		96TDM97	15290	Hinge	Fe Tholeiites	30.07	30.67	3	9.6			0.15			4.7	323.0	318.3	68.9
Mafic Volcanic - D2		96TDM102	15260	Hinge	Fe Tholeiites	13.56	14.09	3	9.2			2.61			81.6	308.0	226.4	3.8
Mafic Volcanic - D2		96TDM105	15310	Hinge	Fe Tholeiites	63.91	64.40	3	8.7			2.47			77.2	253.0	175.8	3.3
Mafic Volcanic - D2		96TDM105	15310	Hinge	Fe Tholeiites	64.49	65.10	3	8.9			3.43			107.2	311.0	203.8	2.9
Mafic Volcanic - D2		96TDM112	15590	Hinge	Fe Tholeiites	11.00	11.56	3	8.9			4.20			131.3	310.0	178.8	2.4
Mafic Volcanic - D2		96TDM98	15300	Hinge	Fe Tholeiites	94.08	94.70	3	8.8			3.36			105.0	289.0	184.0	2.8
Mafic Volcanic - D2		96TDM99A	15290	Hinge	Fe Tholeiites	55.62	56.08	3	9.3			3.16			98.8	327.0	228.3	3.3
Mafic Volcanic - F		95TDD17	15240	Hinge	Fe Tholeiites	105.22	105.68	3	8.8			0.21			6.6	41.0	34.4	6.2
Mafic Volcanic - F		95TDD17	15240	Hinge	Fe Tholeiites	107.65	108.51	3	8.8			0.06			1.9	87.0	85.1	46.4
Mafic Volcanic - F		95TDD21	15280	Hinge	Fe Tholeiites	90.09	91.36	3	8.7			0.09			2.8	123.0	120.2	43.7
Mafic Volcanic - F		95TDD21	15280	Hinge	Fe Tholeiites	92.47	92.81	3	8.8			0.07			2.2	91.0	88.8	41.6
Mafic Volcanic - F		95TDD65	15620	Hinge	Fe Tholeiites	231.02	231.50	3	8.7			0.02			0.6	40.0	39.4	64.0
Mafic Volcanic - F		96TDM100	15310	Hinge	Fe Tholeiites	26.87	27.16	3	8.8			0.16			5.0	86.0	81.0	17.2
Mafic Volcanic - F		96TDM102	15260	Hinge	Fe Tholeiites	82.00	82.26	3	8.8			0.07			2.2	54.0	51.8	24.7
Mafic Volcanic - F		96TDM106	15350	Hinge	Fe Tholeiites	21.05	21.29	3	8.8			0.02			0.6	66.0	65.4	105.6
Mafic Volcanic - F		96TDM109	15440	Hinge	Fe Tholeiites	33.16	33.47	3	8.8			0.13			4.1	108.0	103.9	26.6
Mafic Volcanic - F		96TDM115	15360	Hinge	Fe Tholeiites	11.96	12.20	3	8.9			0.14			4.4	74.0	69.6	16.9
Mafic Volcanic - F		96TDM99A	15290	Hinge	Fe Tholeiites	69.19	69.50	3	8.7			0.04			1.3	100.0	98.8	80.0
Mafic Volcanic - H		95TDD65	15620	Hinge	Fe Tholeiites	318.57	319.02	3	8.9			0.01			0.3	35.0	34.7	112.0
Mafic Volcanic - L		95TDD54	15690	Hinge	Fe Tholeiites	101.20	101.60	3	8.5			0.11			3.4	233.0	229.6	67.8
Mafic Volcanic - L		95TDD54	15690	Hinge	Fe Tholeiites	104.28	104.57	3	8.5			0.11			3.4	175.0	171.6	50.9
Mafic Volcanic - L		95TDD57	15800	Hinge	Fe Tholeiites	113.47	117.82A	3	8.5			0.05			1.6	179.0	177.4	114.6
Mafic Volcanic - L		95TDD57	15800	Hinge	Fe Tholeiites	122.13	127.20	3	8.5			0.10			3.1	131.0	127.9	41.9
Mafic Volcanic - L		95TDD57	15800	Hinge	Fe Tholeiites	113.47	117.82B	3	8.5			0.12			3.8	184.0	180.3	49.1
Mafic Volcanic - L		96TDM110	15490	Hinge	Fe Tholeiites	90.00	90.30	3	8.6			0.15			4.7	208.0	203.3	44.4
Mafic Volcanic - L		96TDM110	15490	Hinge	Fe Tholeiites	90.30	90.53	3	8.7			0.12			3.8	158.0	154.3	42.1
Mafic Volcanic - L		96TDM97	15290	Hinge	Fe Tholeiites	83.63	83.93	3	8.8			0.04			1.3	144.0	142.8	115.2
Mafic Volcanic - L		96TDM97	15290	Hinge	Fe Tholeiites	83.93	84.20	3	9.0			0.05			1.6	153.0	151.4	97.9
Mafic Volcanic - L		96TDM99A	15290	Hinge	Fe Tholeiites	68.26	68.59	3	8.5			0.04			1.3	143.0	141.8	114.4
Mafic Volcanic - L		96TDM99A	15290	Hinge	Fe Tholeiites	68.59	68.85	3	8.9			0.03			0.9	124.0	123.1	132.3
Mafic Volcanic - Open Pit					Fe Tholeiites			2	8.7	3.76	85.4	0.21	**0.01**	0.21	6.6	137.8	131.2	21.0
Mafic Volcanic - Open Pit					Fe Tholeiites			2	8.9	6.10	138.5	0.02	**0.01**	**0.02**	0.6	172.9	172.3	276.6
Mafic Volcanic - Open Pit					Fe Tholeiites			2	9.3	14.68	333.2	0.80	**0.01**	0.80	25.0	280.7	255.7	11.2
Mafic Volcanic - Open Pit					Fe Tholeiites			2	9.1	14.95	339.4	1.35	**0.01**	1.35	42.2	308.3	266.1	7.3
Mafic Volcanic - Open Pit					Fe Tholeiites			2	9.4	16.99	385.7	1.68	**0.01**	1.68	52.5	337.1	284.6	6.4
Mafic Volcanic - Open Pit					Fe Tholeiites			2	9.0	6.96	158.0	0.09	**0.01**	0.09	2.8	195.5	192.7	69.5
Mafic Volcanic - Open Pit					Fe Tholeiites			2	9.0	16.37	371.6	0.78	**0.01**	0.78	24.4	307.0	282.6	12.6
Mafic Volcanic - Open Pit					Fe Tholeiites			2	9.3	13.60	308.7	1.17	**0.01**	1.17	36.6	358.4	321.8	9.8
Mafic Volcanic - Open Pit					Fe Tholeiites			2	9.4	18.02	409.1	0.33	**0.01**	0.33	10.3	364.7	354.4	35.4
Mafic Volcanic - Open Pit					Fe Tholeiites			2	9.1	6.17	140.1	0.13	**0.01**	0.13	4.1	171.7	167.6	42.3
Mafic Volcanic - P		96TDM104	15270	Hinge	Fe Tholeiites	55.98	56.26	3	8.4			0.11			3.4	242.0	238.6	70.4
Mafic Volcanic - P		96TDM104	15270	Hinge	Fe Tholeiites	58.02	58.27	3	8.6			0.12			3.8	194.0	190.3	51.7
Mafic Volcanic - P		96TDM108	15390	Hinge	Fe Tholeiites	29.55	29.74	3	8.5			0.34			10.6	149.0	138.4	14.0
Mafic Volcanic - P		96TDM110	15490	Hinge	Fe Tholeiites	83.93	84.24	3	8.8			0.13			4.1	164.0	159.9	40.4
Mafic Volcanic - P		96TDM113	15230	Hinge	Fe Tholeiites	59.10	59.70	3	9.2			0.08			2.5	319.0	316.5	127.6
Mafic Volcanic - P		96TDM98	15300	Hinge	Fe Tholeiites	23.00	23.26	3	8.5			0.37			11.6	166.0	154.4	14.4
Mafic Volcanic - Underground					Fe Tholeiites			2	9.4	14.49	328.9	0.16	**0.01**	0.16	5.0	266.9	261.9	53.4
Mafic Volcanic - Underground					Fe Tholeiites			2	9.2	12.18	276.5	1.69	**0.01**	1.69	52.8	243.1	190.3	4.6
Mafic Volcanic - Underground					Fe Tholeiites			2	8.9	11.62	263.8	6.57	**0.01**	6.54	205.3	229.3	24.0	1.1
Mafic Volcanic - Underground					Fe Tholeiites			2	9.1	0.86	19.5	0.17	**0.01**	0.17	5.3	28.2	22.9	5.3
Mafic Volcanic - Underground					Fe Tholeiites			2	8.7	15.31	347.5	0.23	**0.01**	0.23	7.2	297.0	289.8	41.3
Mafic Volcanic - Underground					Fe Tholeiites			2	8.9	14.07	319.4	6.09	**0.01**	6.09	190.3	249.4	59.1	1.3
Mafic Volcanic - Underground					Fe Tholeiites			2	9.2	15.65	355.3	0.14	**0.01**	0.14	4.4	273.2	268.8	62.4
Mafic Volcanic - Underground					Fe Tholeiites			2	9.4	16.23	368.4	0.04	**0.01**	0.04	1.3	264.4	263.2	211.5
Mafic Volcanic - Underground					Fe Tholeiites			2	9.2	15.95	362.1	1.05	**0.01**	1.05	32.8	278.2	245.4	8.5
Mafic Volcanic - Underground					Fe Tholeiites			2	9.3	16.33	370.7	0.20	**0.01**	0.20	6.3	238.1	231.9	38.1
Mafic Volcanic - Underground					Fe Tholeiites			2	9.2	14.91	338.5	0.09	**0.01**	0.09	2.8	234.3	231.5	83.3
Mafic Volcanic - Underground					Fe Tholeiites			2	8.9	16.63	377.5	1.64	**0.01**	1.64	51.3	280.7	229.5	5.5
Mafic Volcanic - Underground					Fe Tholeiites			2	8.9	14.40	362.9	0.35	**0.01**	0.35	10.9	213.0	202.1	19.5
Mafic Volcanic - Underground					Fe Tholeiites			2	8.7	12.31	279.4	0.08	**0.01**	0.08	2.5	242.5	240.0	97.0
Mafic Volcanic - Underground					Fe Tholeiites			2	8.6	12.62	286.5	4.50	**0.01**	4.50	140.6	243.8	103.2	1.7

Appendix A: Doris North Waste Rock Acid Base Accounting Data Base

Rock Type	Sample ID	Drill Hole #	Section	Zone	Rock Unit	Hole From (m)	Interval To (m)	Source	Paste pH	CO2 Inorg. (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 Neutraliztion Potential (kg CaCO3/Tonne)	NPR NP/MPA
Mafic Volcanic - Underground					Fe Tholeiites			2	9.2	1.01	22.9	0.13	**0.01**	0.13	4.1	76.3	72.2	18.8
Mafic Volcanic - Underground					Fe Tholeiites			2	8.9	16.02	363.7	0.06	**0.01**	0.06	1.9	293.8	291.9	156.7
Mafic Volcanic - Underground					Fe Tholeiites			2	8.7	15.82	359.1	2.20	**0.01**	2.20	68.8	256.3	187.6	3.7
Mafic Volcanic - Underground					Fe Tholeiites			2	8.8	15.55	353.0	3.79	**0.01**	3.79	118.4	223.8	105.4	1.9
Mafic Volcanic - Underground					Fe Tholeiites			2	8.6	13.05	296.2	3.35	**0.01**	3.35	104.7	241.3	136.6	2.3
Mafic Volcanic - Underground					Fe Tholeiites			2	8.8	15.21	345.3	0.20	**0.01**	0.20	6.3	230.0	223.8	36.8
Mafic Volcanic - Underground					Fe Tholeiites			2	8.9	12.38	281.0	2.75	**0.01**	2.75	85.9	211.3	125.4	2.5
Mineralization	27	TDD212	15340	Hinge	Fe Tholeiites	72.24	73.24	1	8.6	6.65	151.0	1.50	**0.01**	1.50	46.9	133.1	86.2	2.8
Mineralization	34	TDD216A	15280	Hinge	Fe Tholeiites	165.53	166.53	1	8.1	1.21	27.5	1.18	**0.01**	1.18	36.9	33.6	-3.3	0.9
Mineralization	25	TDD225	15400	Hinge	Fe Tholeiites	48.77	49.80	1	8.6	1.00	22.7	0.27	**0.01**	0.27	8.4	27.4	19.0	3.2
Mineralization	24	TDD230	15450	Hinge	Fe Tholeiites	73.74	74.74	1	8.7	2.58	58.6	0.75	**0.01**	0.75	23.4	58.5	35.1	2.5
Mineralization	5	TDD238			Fe Tholeiites	73.00	74.00	1	8.5	12.26	278.3	0.16	**0.01**	0.16	5.0	260.7	255.7	52.1
Quartz - Open Pit					Fe Tholeiites			2	8.3	23.00	5.2	**0.02**	**0.01**	**0.02**	0.6	6.0	5.4	9.6
Quartz - Open Pit					Fe Tholeiites			2	8.3	1.32	30.0	1.40	**0.01**	1.40	43.8	22.3	-21.5	0.5
Quartz - Open Pit					Fe Tholeiites			2	8.3	0.42	9.5	0.09	**0.01**	0.09	2.8	8.0	5.2	2.8
Quartz - Open Pit					Fe Tholeiites			2	8.0	0.66	15.0	**0.02**	**0.01**	0.02	0.6	12.5	11.9	20.0
Quartz - Open Pit					Fe Tholeiites			2	8.4	**0.05**	1.1	**0.02**	**0.01**	0.02	0.6	2.7	2.1	4.3
Quartz - Open Pit					Fe Tholeiites			2	8.3	0.42	9.5	0.43	**0.01**	0.43	13.4	12.3	-1.1	0.9
Quartz - Open Pit					Fe Tholeiites			2	8.5	0.89	20.2	0.08	**0.01**	0.08	2.5	18.0	15.5	7.2
Quartz - Open Pit					Fe Tholeiites			2	8.4	0.24	5.4	0.07	**0.01**	0.07	2.2	5.0	2.8	2.3
Quartz - Open Pit					Fe Tholeiites			2	8.0	**0.05**	1.1	**0.02**	**0.01**	0.02	0.6	1.3	0.7	2.1
Quartz - Open Pit					Fe Tholeiites			2	8.7	1.32	30.0	0.63	**0.01**	0.63	19.7	24.1	4.4	1.2
Quartz - Open Pit					Fe Tholeiites			2	8.4	0.10	2.3	0.08	**0.01**	0.08	2.5	2.5	0.0	1.0
Quartz - Open Pit					Fe Tholeiites			2	8.3	0.52	11.8	0.02	**0.01**	0.02	0.6	12.3	11.7	19.7
Quartz - Open Pit					Fe Tholeiites			2	8.1	0.66	15.0	2.38	**0.01**	2.38	74.4	14.5	-59.9	0.2
Quartz - Open Pit					Fe Tholeiites			2	8.3	1.81	41.1	2.98	0.01	2.97	93.1	36.3	-56.8	0.4
Quartz - Open Pit					Fe Tholeiites			2	8.2	0.31	7.0	0.38	**0.01**	0.38	11.9	5.0	-6.9	0.4
Quartz - Open Pit					Fe Tholeiites			2	8.1	0.17	3.9	**0.02**	**0.01**	0.02	0.6	4.3	3.7	6.9
Quartz - Underground					Fe Tholeiites			2	8.8	4.08	92.6	1.87	**0.01**	1.87	58.4	68.3	9.9	1.2
Quartz - Underground					Fe Tholeiites			2	8.6	0.67	15.2	0.12	**0.01**	0.12	3.8	13.0	9.3	3.5
Quartz - Underground					Fe Tholeiites			2	8.2	0.21	362.1	0.03	**0.01**	0.03	0.9	3.5	2.6	3.7
Quartz - Underground					Fe Tholeiites			2	7.9	0.10	2.3	0.02	**0.01**	0.02	0.6	3.5	2.9	5.6
Quartz - Underground					Fe Tholeiites			2	8.5	9.54	338.5	4.54	0.01	4.53	141.9	199.2	57.3	1.4
Quartz - Underground					Fe Tholeiites			2	8.5	0.10	2.3	0.02	**0.01**	**0.02**	0.6	2.2	1.6	3.5
Quartz - Underground					Fe Tholeiites			2	8.5	3.24	326.9	1.60	**0.01**	1.60	50.0	62.7	12.7	1.3
Quartz - Underground					Fe Tholeiites			2	8.7	4.62	104.9	2.28	**0.01**	2.28	71.3	84.0	12.8	1.2
Quartz - Underground					Fe Tholeiites			2	8.2	0.24	286.5	0.04	**0.01**	0.04	1.3	4.8	3.6	3.8
Quartz - Underground					Fe Tholeiites			2	8.3	0.30	6.8	0.07	**0.01**	0.07	2.2	6.0	3.8	2.7
Quartz - Underground					Fe Tholeiites			2	8.3	2.16	136.7	2.20	0.01	2.19	68.8	42.6	-26.2	0.6
Quartz - Underground					Fe Tholeiites			2	8.2	0.07	359.1	0.02	**0.01**	**0.02**	0.6	2.5	1.9	4.0
Quartz - Underground					Fe Tholeiites			2	8.4	5.12	353.0	1.14	**0.01**	1.14	35.6	102.8	67.2	2.9
Quartz - Underground					Fe Tholeiites			2	8.3	1.05	23.8	0.95	**0.01**	0.95	29.7	21.2	-8.5	0.7
Quartz - Underground					Fe Tholeiites			2	8.3	0.88	20.0	0.08	**0.01**	0.08	2.5	16.7	14.2	6.7
Quartz - Underground					Fe Tholeiites			2	8.7	3.34	281.0	2.35	**0.01**	2.35	73.4	61.4	-12.0	0.8
Quartz - Underground					Fe Tholeiites			2	8.4	0.52	377.5	0.16	**0.01**	0.16	5.0	8.8	3.8	1.8
Quartz - Underground					Fe Tholeiites			2	8.0	4.25	19.5	6.02	0.03	5.99	188.1	89.0	-99.1	0.5
Quartz - Underground					Fe Tholeiites			2	8.4	0.17	301.9	0.03	**0.01**	0.03	0.9	4.3	3.4	4.6
Quartz - Underground					Fe Tholeiites			2	8.4	0.56	97.3	0.14	**0.01**	0.14	4.4	10.3	5.9	2.4
Quartz Veins Q1		96TDM101	15240	Hinge	Fe Tholeiites	33.73	34.35	3	8.5			0.51			15.9	13.0	-2.9	0.8
Quartz Veins Q1		96TDM101	15240	Hinge	Fe Tholeiites	43.57	44.17	3	8.8			0.75			23.4	76.0	52.6	3.2
Quartz Veins Q1		96TDM113	15230	Hinge	Fe Tholeiites	57.10	57.65	3	8.6			1.86			58.1	65.0	6.9	1.1
Quartz Veins Q1		96TDM97	15290	Hinge	Fe Tholeiites	74.55	75.00	3	8.0			1.14			35.6	8.0	-27.6	0.2
Quartz Veins Q1		96TDM97	15290	Hinge	Fe Tholeiites	75.70	76.38	3	8.2			0.31			9.7	7.0	-2.7	0.7
Quartz Veins Q1		96TDM97	15290	Hinge	Fe Tholeiites	77.23	77.91	3	8.5			1.57			49.1	47.0	-2.1	1.0
Quartz Veins Q2		96TDM100	15310	Hinge	Fe Tholeiites	76.97	77.57	3	8.0			0.34			10.6	6.0	-4.6	0.6
Quartz Veins Q2		96TDM102	15260	Hinge	Fe Tholeiites	46.93	47.40	3	7.4			0.36			11.3	1.0	-10.3	0.1
Quartz Veins Q2		96TDM113	15230	Hinge	Fe Tholeiites	55.50	56.07	3	8.5			0.08			2.5	7.0	4.5	2.8
Quartz Veins Q2		96TDM97	15290	Hinge	Fe Tholeiites	74.00	74.60	3	8.6			0.05			1.6	20.0	18.4	12.8
Quartz Veins Q2		96TDM98	15300	Hinge	Fe Tholeiites	98.38	99.00	3	8.1			0.16			5.0	6.0	1.0	1.2
Quartz Veins Q2		96TDM99A	15290	Hinge	Fe Tholeiites	56.08	58.65	3	8.8			1.22			38.1	63.0	24.9	1.7
Quartz Veins Q3		96TDM104	15270	Hinge	Fe Tholeiites	20.20	20.72	3	8.4			0.06			1.9	14.0	12.1	7.5
Quartz Veins Q3		96TDM104	15270	Hinge	Fe Tholeiites	21.36	22.06	3	8.5			0.06			1.9	13.0	11.1	6.9
Quartz Veins Q3		96TDM97	15290	Hinge	Fe Tholeiites	33.21	33.95	3	8.7			0.17			5.3	49.0	43.7	9.2
Quartz Veins Q3		96TDM98	15300	Hinge	Fe Tholeiites	54.94	52.47	3	8.7			0.46			14.4	55.0	40.6	3.8
Quartz Veins Q3		96TDM99	15290	Hinge	Fe Tholeiites	26.75	27.55	3	8.5			0.31			9.7	37.0	27.3	3.8
Quartz Veins Q3		96TDM99A	15290	Hinge	Fe Tholeiites	23.47	23.97	3	8.8			0.48			15.0	47.0	32.0	3.1
Quartz Veins Q4		96TDM100	15310	Hinge	Fe Tholeiites	44.63	45.20	3	8.3			0.19			5.9	1.0	-4.9	0.2
Quartz Veins Q4		96TDM102	15260	Hinge	Fe Tholeiites	17.59	18.37	3	8.9			0.62			19.4	108.0	88.6	5.6
Quartz Veins Q4		96TDM102	15260	Hinge	Fe Tholeiites	18.45	19.03	3	8.7			0.40			12.5	35.0	22.5	2.8
Quartz Veins Q4		96TDM99	15290	Hinge	Fe Tholeiites	32.20	32.70	3	8.4			4.08			127.5	92.0	-35.5	0.7
Quartz Veins Q4		96TDM99	15290	Hinge	Fe Tholeiites	47.55	48.11	3	8.3			1.25			39.1	15.0	-24.1	0.4
Quartz Veins Q4		96TDM99	15290	Hinge	Fe Tholeiites	48.84	49.50	3	8.2			1.03			32.2	6.0	-26.2	0.2
Wall Rock - Unaltered	4	TDD209	15300	Hinge	Fe Tholeiites	5.18	5.70	1	8.6	5.74	130.3	0.15	**0.01**	0.15	4.7	169.2	164.5	36.1
Wall Rock - Unaltered	35	TDD215	15360	Hinge	Fe Tholeiites	1.67	41.35	1	8.7	11.07	251.3	0.08	**0.01**	0.08	2.5	196.5	194.0	78.6
Wall Rock - Unaltered	33	TDD222	15320	Hinge	Fe Tholeiites	28.60	28.95	1	8.3	7.37	167.3	0.07	**0.01**	0.07	2.2	179.1	176.9	81.9
Wall Rock - Unaltered	32	TDD224	15400	Hinge	Fe Tholeiites	71.65	72.15	1	8.9	11.10	252.0	1.46	**0.01**	1.46	45.6	227.6	182.0	5.0
Wall Rock - Unaltered	30	TDD242	15450	Hinge	Fe Tholeiites	79.25	79.75	1	8.9	8.95	203.2	0.12	**0.01**	0.12	3.8	223.9	220.2	59.7

Appendix A: Doris North Waste Rock Acid Base Accounting Data Base

Rock Type	Sample ID	Drill Hole #	Section	Zone	Rock Unit	Hole From (m)	Interval To (m)	Source	Paste pH	CO2 Inorg. (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 Neutraliztion Potential (kg CaCO3/Tonne)	NPR NP/MPA
Diabase Dyke - Doris North Portal		02TDD547		Portal	Franklin Diabase			4	8.1	0.06	1.4	0.03	**0.01**	0.03	0.9	16.5	15.6	17.6
Wall Rock - Altered	26	TDD223	15400	Hinge	Mg Tholeiites	118.50	119.00	1	9.3	14.16	321.4	0.11	**0.01**	0.11	3.4	272.4	269.0	79.2
Wall Rock - Altered	29	TDD231	15450	Hinge	Mg Tholeiites	75.29	75.72	1	9.4	16.46	373.6	0.05	**0.01**	0.05	1.6	335.8	334.2	214.9
Wall Rock - Altered	31	TDD236	15260	Hinge	Mg Tholeiites	37.47	38.47	1	9.0	8.13	184.6	0.33	**0.01**	0.33	10.3	264.9	254.6	25.7
Wall Rock - Altered	28	TDD241	15360	Hinge	Mg Tholeiites	77.00	77.85	1	8.8	20.20	458.5	5.37	**0.01**	5.37	167.8	405.5	237.7	2.4
Wall Rock - Altered	23	TDD245	15450	Hinge	Mg Tholeiites	40.05	40.50	1	9.3	16.78	380.9	0.17	**0.01**	0.17	5.3	285.7	280.4	53.8
Average									8.7	7.2	185.30	0.80	0.01	0.96	24.9	133.0	108.1	30.6
Minimum Value									7.4	0.1	1.1	0.01	0.01	0.02	0.3	1.0	-99.1	0.1
Maximum Value									9.8	23.0	458.5	6.57	0.03	6.54	205.3	405.5	354.4	276.6
Standard Deviation									0.43	6.62	149.30	1.32	0.00	1.50	41.2	114.3	110.6	44.6
Count									163	92	92	163	92	92	163	163	163	163

Notes:

1: Source Code 1 = Preliminary ARD and Metal Leaching Assement for the Doris and Naartok Mineralized zones, knight Piesold Ltd., Nov. 2001.
2: Source Code 2 = 2000 Supplemental Environmental Baseline Data Report Hope Bay Belt Project, Rexcan Environmental Services Ltd., March 2001.
3: Source Code 3 = 1996 Environmental Baseline Report, Rescan Environmental Services Ltd., 1997.
4: Source Code 4 = Sample tested in May 2002, not previously reported.
5: Numbers in bold represent values that were below the analytical detection limit. For the purposes of calculating statistics, the detection limit was used as the value.
6: Sulphide sulphur is calculated as the difference between total sulfphur and sulphate sulphur.
7: MPA = sulphide sulphur x 31.25.
8: NNP = NP=MPA.
9: NPR = NP/MPA.

Likely Non Acid Generating	NPR>3
Potentially Acid Generating	1<NPR<3
Likely Acid Generating	NPR<1