Hope Bay Project
Doris North Waste Rock and Ore Management Plan

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1 Introduction

This Hope Bay Project *Doris North Waste Rock and Ore Management Plan* (the Plan) has been prepared by Hope Bay Mining Ltd. (HBML) in accordance with Type A Water Licence No. 2AM-DOH0713, (the Water Licence), and subsequent amendments to the Water Licence issued to HBML by the Nunavut Water Board (the Board).

The Plan is intended primarily for use by HBML and its contractors to ensure that best practices for minimizing potential environmental impacts and potential environmental liabilities are followed, and that the conditions of the Water Licence are met. The plan also addresses a requirement to file an updated waste rock management plan to the Board as specified in the Water Licence, Part G, Item 15.

This plan supersedes the 2007 Waste Rock Management Plan prepared by Miramar Hope Bay Ltd. (MHBL) in support of the application for the Water Licence (MHBL 2007a). Based on original estimates of waste rock to be generated in respect of the Doris North Project, the original management plan anticipated storage of a maximum of 200,000 tonnes of waste rock in a temporary surface stockpile, and then eventual use of this material as backfill in the underground mine. The possibility of using some of the underground rock for surface construction projects was also considered, with the recognition that additional confirmatory testing and authorization by the Board would be required.

The underground mining plan for Doris North is now expected to result in the production of approximately 510,000 tonnes of waste rock. There is also a need for some additional storage as a contingency for any potentially acid generating rock that is encountered during quarry development. Temporary storage of this rock will require additional space. HBML are proposing to eventually reorganize the existed permitted pads to provide adequate space for temporary storage of all waste rock, combining the original Temporary Waste Rock Pad with two adjacent pads that are also within the pollution containment system. These pads are within the original development area and have already been constructed. This will provide increased storage space while avoiding an expansion of the site footprint and any additional disturbance of un-developed land. HBML is requesting Board approval to place waste rock on these adjacent pads as temporary storage for waste rock in addition to the storage offered on the Temporary Waste Rock Pad.

It is anticipated that approximately 400,000 tonnes of the waste rock or quarry rock will be required for backfill in the underground mine. The remaining rock could eventually be used for backfill if the mine is expanded to include other deposits in the Doris area. However, with the ongoing infrastructure development, there are a number of approved construction activities that could make use of this rock, potentially offsetting the amount that would need to be extracted from surface quarries and decreasing overall disturbance arising from HBML's operations. Geochemical characterization programs have shown that the majority of the waste rock from the underground mine has a low potential for metal leaching and/or acid rock drainage (ML/ARD), with characteristics that are similar to that of the quarries used for the ongoing infrastructure development.

Pending approval by the Board, HMBL is proposing a management approach in which waste rock with a low sulphide content (and therefore low ML/ARD potential) would be segregated from the more mineralized waste rock, sampled and tested to confirm the geochemical characteristics, and then removed as required for use in construction once testing results are available to demonstrate that it is suitable for that purpose. Any subsurface rock used for surface construction would be subject to the monitoring plan in place for surface quarry rock used in construction. If either visual inspections indicate elevated amounts of sulphides, or testing shows that this material has potential for ML/ARD, it would remain on the Temporary Waste Rock Pad for eventual use as backfill in the underground mine. The segregation plan would also help to ensure that any waste rock left on the pad at the end of the mine life would be non-mineralized rock with minimal potential for long-term environmental impacts.

2 Background

2.1 Mine Development Plans

A schematic of the underground workings is shown in Figure 1. Access is provided via the Doris North Portal situated to the east of the mill area, and an approximately 1800 metre long decline tunnel, and then a series of tunnels, cross cuts and spiral ramps that are located in the immediate vicinity of the ore. The ore will be extracted by both long-hole and cut and fill methods from a series of stopes that follow the gold-bearing quartz veins.

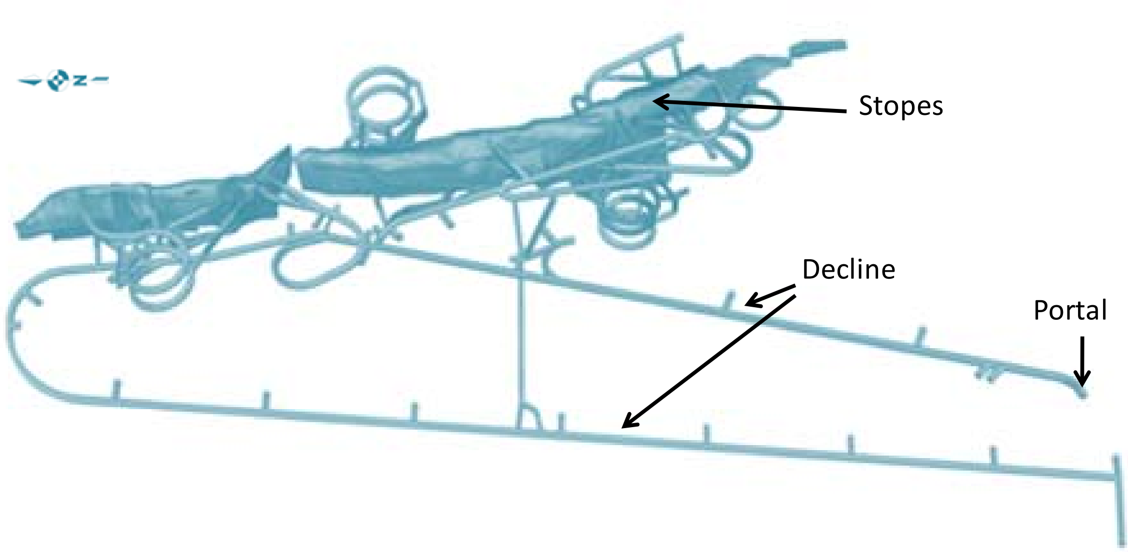

Figure 1: Schematic of Underground Mine Workings (looking east)

The current production schedule showing production rates for waste rock and ore, backfill rates for waste rock, and requirements for waste rock storage over time is provided in Table 1. As shown, the majority of the waste rock will be produced during the first two years of mining. Once the mill is operating, the rate of ore production and backfill rates will increase, and there will be relatively low volumes of new waste rock produced.

Prior to completion of the mill, approximately 25,000 to 30,000 tonnes of ore will be produced and stored in a temporary stockpile. Once ore processing starts, the ore stockpile will be maintained at this size to smooth out variations in production.

The total waste rock production from the underground mine is approximately 510,000 tonnes, most of which will need to be stored in a temporary pile. Approximately 400,000 tonnes of this rock will be required for backfill. However, due to the larger ratio of waste rock to ore in the current mine plan, there will be an excess of approximately 110,000 tonnes remaining at the end of the mine life.

As with any mine plan, these production volumes may change in response to changing conditions in the underground mine. There is also a need for some additional storage as a contingency for any potentially acid generating rock that is encountered during quarry development. Therefore, a contingency for an additional 10% or 50,000 tonnes of waste rock and potentially acid generating (PAG) quarry rock storage should be considered in the designs for the temporary waste rock storage area.

As indicated previously, under the previous mine plan submitted by MHBL, a total of 200,000 tonnes of waste rock would have been produced during mining, with peak storage requirements of approximately 150,000 tonnes. It was also anticipated that all of the waste rock would be required for backfill. Higher waste volumes in the current design can be attributed primarily to the increased size of the decline drift and other haulage drifts in the mine area, and improved access to the working areas, which allow for a greater degree of flexibility in mining equipment and methods, and improved safety.

Table 1: Production Schedule

Year	Quarter	Waste Rock		Ore		Backfill		Waste Rock Storage Requirement
		tonnes	cumulative tonnes	tones	cumulative tonnes	tonnes	cumulative tonnes	
2010	Q4	32,000	32,000					32,000
2011	Q1	79,000	110,000	520	520			110,000
	Q2	71,000	180,000	7,100	7,600			180,000
	Q3	69,000	250,000	6,400	14,000			250,000
	Q4	70,000	320,000	3,300	17,000			320,000
2012	Q1	81,000	400,000	4,500	22,000			400,000
	Q2	55,000	460,000	8,000	30,000			460,000
	Q3	33,000	490,000	14,000	43,000			490,000
	Q4	8,900	500,000	7,500	51,000			500,000*
2013	Q1	4,000	500,000	93,000	140,000	65,000	65,000	440,000*
	Q2	1,800	500,000	150,000	300,000	110,000	180,000	330,000*
	Q3		500,000	180,000	480,000	76,000	250,000	250,000*
	Q4	1,400	510,000	49,000	530,000	69,000	320,000	190,000*
2014	Q1		510,000	9,500	540,000	39,000	360,000	150,000*
	Q2		510,000	32,000	570,000	24,000	380,000	120,000*
	Q3		510,000	18,000	590,000	13,000	400,000	110,000*
	Q4		510,000	3,100	590,000	2,400	400,000	110,000*
Totals			510,000		590,000		400,000	110,000*,**

Notes: * a contingency of 50,000 tonnes waste rock should be added to this figure

** approximately 30,000 tonnes cyanide residues will need to be backfilled, which will displace some of the waste rock than can be used for backfill. Therefore, an additional 30,000 tonnes should be added to the total storage requirement.

2.2 Surface Facilities

A plan of the surface facilities in the camp and mill area is shown in Figure 2. The site is currently divided into a series of adjoining rock pads that provide a foundation for all of the facilities in this area. The pads on the eastern half of this area (Pads D, F, G, H/J, I, and Q) are located within the Pollution Containment System, which drains to a Pollution Collection Pond at the southern edge of the pad complex. Under current plans, water collected at this location will be discharged to the Tail Lake tailings management facility.

The mill will be located on Pad D. Consistent with previous plans, Pads Q and H/J will be used to stockpile ore prior to milling. In previous designs, Pad I was designated as the Temporary Waste Rock Pad, while Pads F and G were proposed as laydown areas. HBML is proposing to place rock on Pads I, F and G to provide storage capacity for the increased volumes of waste rock that are expected under the current mine plan. No changes to any waste management facilities are required. Further details on the design and sequencing of the Temporary Waste Rock Pad are provided in Section 3.

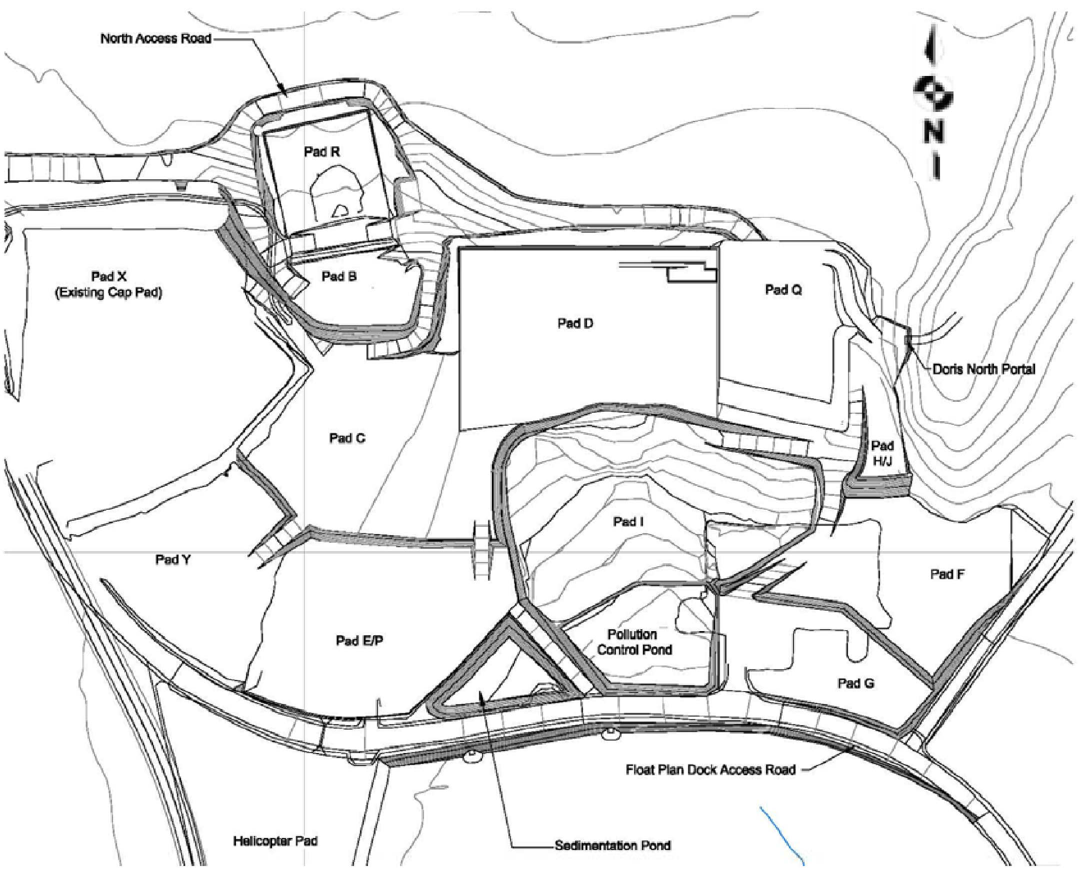

Figure 2: Plan of Surface Facilities

2.3 Ongoing Construction Requirements

There are a number of infrastructure construction projects that have been approved for the Doris North Area that could make use of clean waste rock from the underground mine workings in 2011 and 2012. These include construction of the secondary road from Doris Creek Bridge to South Dam (beside Tail Lake), and construction of the explosives facility.

Collectively, these projects could easily use all of the excess un-mineralized waste rock from the underground mine, offsetting the amount that would be required from surface quarries.

2.4 Water Licence Terms and Conditions

The Water Licence sets out a number of terms and conditions related to the management of waste rock at the Doris North mine, including:

- Part D Items 10, 24 and 28;
- Part G Items 15, 16, 17, 18, 12d and e;
- Part L, Items 3, 4j and k; and,
- Provisions in Schedule B and Schedule D.

All of these terms and conditions were considered in developing this Plan.

The condition under Part G, Item 17 indicating that "*all waste rock brought to surface from the underground shall be stored on the Temporary Waste Rock Pad and returned underground as backfill and is not to be used for any purpose unless otherwise approved by the Board*", and the related requirement under Part L, Item 4j that the closure plan would address this requirement, cannot not be met given the current projections of waste rock volumes and requirements for backfill. As outlined in this Plan, these increased projected volumes are not related to any expansion in production.

HBML plans to eventually consolidate the Temporary Waste Rock Pad (Pad I) with existing Pads F and G which are immediately adjacent to this area and within the existing permitted pollution containment system to form a new Temporary Waste Rock Pad. The revised pad area would provide sufficient storage capacity such that all of the waste rock could be accommodated within this area. HBML is requesting that the Board approve placement of waste rock on Pads F and G in addition to Pad I, pursuant to Part G, Item 17.

Additionally, HMBL is requesting that the Board approve placement of rock outside of the Temporary Waste Rock Pad pursuant to Part G, Item 17 to permit HBML to use un-mineralized waste rock that cannot be returned as backfill for construction of infrastructure. This approval would minimize the amount of rock that would need to be excavated in the future from quarries for construction purposes, as described in Section 2.3 of this Plan.

2.5 Management Issues

2.5.1 ML/ARD Potential

Geological Context

The Doris ore deposits consist of a series of gold-bearing quartz veins hosted by Archean age folded and metamorphosed mafic volcanic rocks. The main gold bearing veins form a tight anticline, with steeply dipping limbs that have a roughly north-south strike. The anticline plunges towards the north and south. At Doris North, the high-grade ore that is amenable to underground mining methods is located primarily in the hinge of the anticline. The quartz veins are surrounded by a narrow envelope of intense dolomite-sericite alteration.

The surrounding volcanic rocks have been broadly classified as iron- and magnesium-rich tholeiites. This suite of rocks includes basalt, gabbro, and mafic dykes with a range of textural and compositional variations. There is a large diabase intrusive located in the vicinity of the Doris deposits. This forms the prominent mesa above the camp, and then dips toward the east, crosscutting the deposit at a depth of approximately 150 metres. The diabase post-dates both the main phases of regional metamorphism and the mineralization associated with the gold deposits.

The Doris North Mine workings will access the deposit from a portal located to the southwest of the deposit. The portal is collared in the diabase, and the decline will tunnel through diabase and then metavolcanics to provide access to the ore (Figure 3).

Geochemical Characterization

There have been a number of studies characterizing the ML/ARD potential of rocks at Doris, including Rescan (1997), Rescan (2001), Knight Piesold (2001), Knight Piesold (2002), AMEC (2005), and SRK (2007). The findings of these studies were reported in the Environmental Impact Statement and in the Water Licence Application for the project submitted by MHBL. More recently, Newmont Metallurgical Services and SRK have completed additional static and kinetic testing to provide improved spatial geochemical coverage of the deposit area and to obtain additional information required to support future development plans in this area. The results of these programs have been used as a basis for developing this updated Waste Rock Management Plan, and are briefly summarized here.

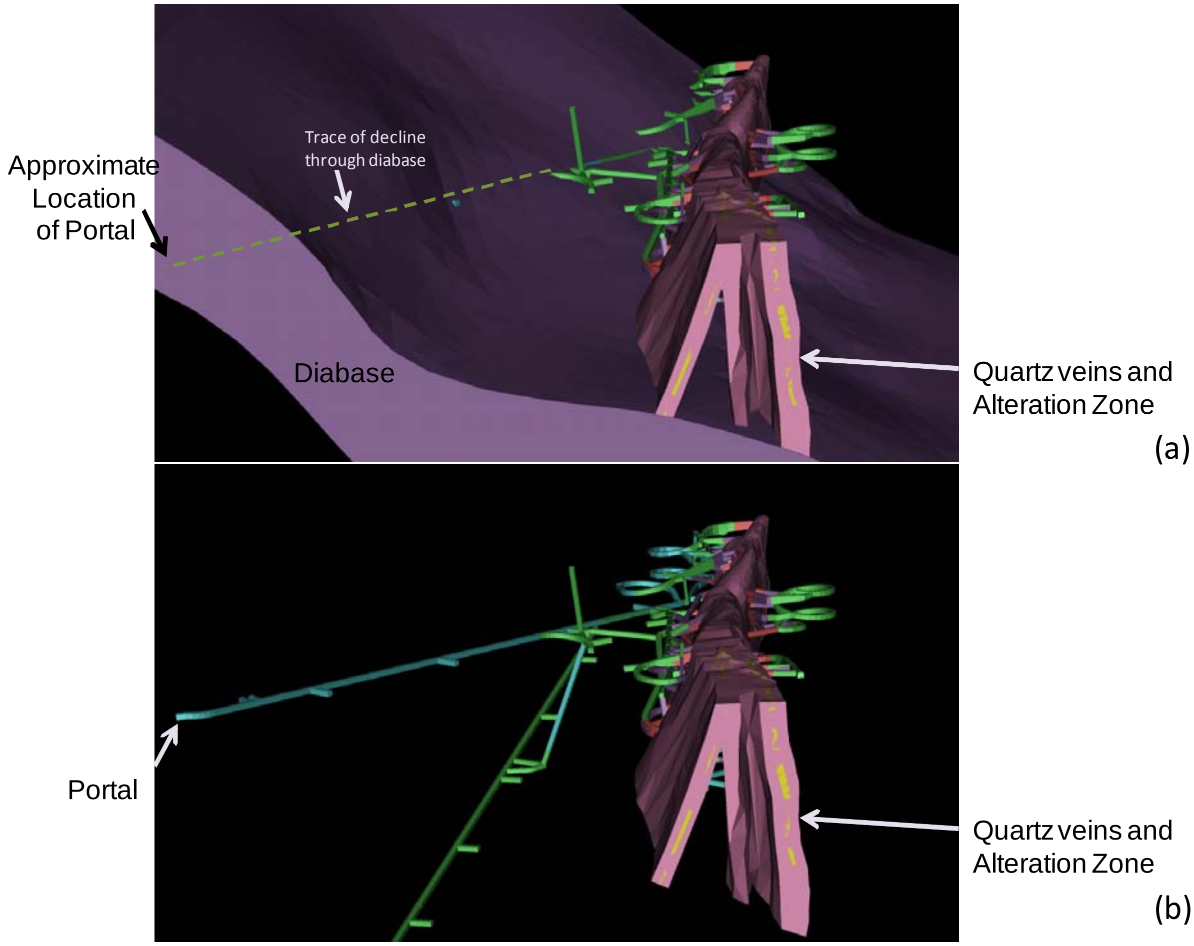

Figure 3: 3D View of Doris North Deposit and Mine Workings.

For clarity, the figure is shown a) with diabase solid, and b) without diabase solid (workings in diabase are shown in blue)

Static testing data representing the immediate area of the Doris North mine workings includes acid base accounting (ABA) or net carbonate value (NCV)[1] testing on 259 samples, elemental analyses on 202 samples, and semi-quantitative x-ray diffraction (XRD) analyses on 55 samples. The locations of these samples are shown in Figure 4. Historical kinetic tests results are available for 4 samples from the Doris area, and additional tests were initiated in February 2009 and January 2010, including 16 humidity cell tests, and two barrel tests representing rocks in the Doris area.

[1] NCV tests are a type of ABA tests used by Newmont Metallurgical Services. Acid potential is quantified on the basis of sulphide sulphur, and NP is quantified using TIC.

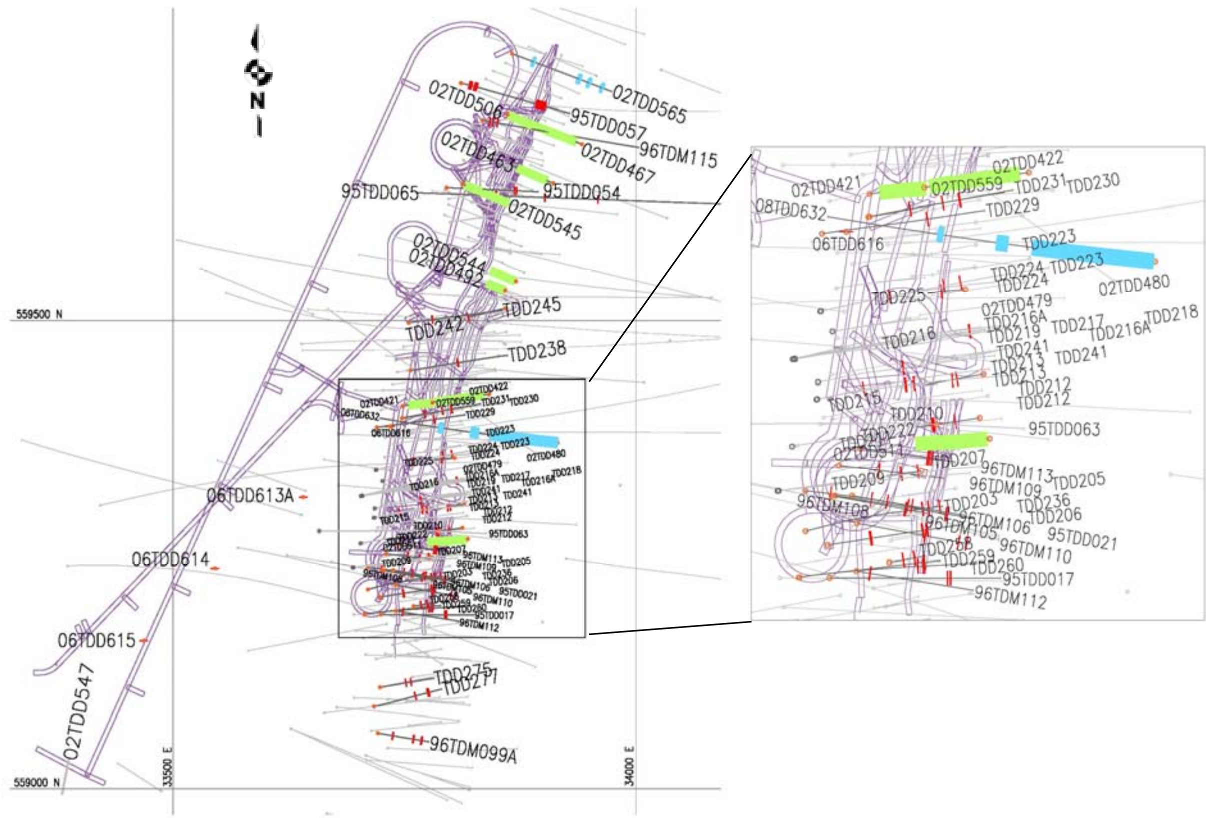

Figure 4: Plan View of the Doris North Deposits with Locations of Static Test Samples

Key findings of the testing programs completed to date are summarized as follows:

- The majority of the samples were classified as non-potentially acid generating (non-PAG) by both NP/AP and TIC/AP ratios[2]. Most of the samples classified as PAG or uncertain were classified as ore or as a mixture of ore and waste rock. Diabase and some of the gabbros had low sulphide, NP and TIC content, and were classified as PAG or uncertain on the basis of low NP/TIC ratios, but contained such low concentrations of sulphide that buffering by silicate minerals is likely to be sufficient to maintain neutral pH conditions in these rocks.

- Ferroan dolomite is the most abundant carbonate mineral, and is a major component of most of the basalt samples. In contrast, carbonate minerals were absent in the diabase and gabbro. Pyrite is the most abundant sulphide mineral, and is present in trace to minor amounts in most samples.

[2] NP = neutralization potential, AP = Acid Potential, TIC = total inorganic carbon, all expressed in units of $CaCO_3$ eq/tonne. These ratios are frequently used to classify the ARD potential of rock or tailings samples.

- The median concentrations of arsenic, cadmium, antimony, and selenium concentrations in the solids exceeded the average crustal abundance in most types of rock by a factor of more than five times, some potential for leaching of these elements under neutral pH conditions. Kinetic tests, currently underway, will provide a better indication of actual metal leaching potential.
- Preliminary results of the kinetic tests indicate neutral pH conditions in all of the Doris samples. Depletion calculations indicated that, with the exception of one of the quartz vein samples, it would be many decades to centuries before neutralization potential or sulphides would be depleted. All samples with NP/AP ratios above 3 were either predicted to remain neutral, or had extremely low sulphide oxidation rates.
- Comparison of loading rates for sulphate and arsenic from the most recent set of SRK/Newmont kinetic tests to the loading rates from tests that were used to predict water quality in the Miramar environmental assessment and water licence application indicated generally lower sulphate release rates in comparison to the earlier tests, but comparable arsenic loading rates. In general, both sulphate and arsenic loading rates were low in comparison to other sites in Canada and Internationally.

A geological block model was used to define and estimate quantities of proposed waste management units within the mine. These include basalt, diabase, a ten metre wide buffer zone around the alteration zone, the alteration zone, and the ore stopes. The basalt was further subdivided on the basis of geological logs into basalt and gabbro. The gabbro is considered to be a relatively minor unit within the metavolcanic suite of rocks, and has not been modelled separately. However, it has distinct geochemical features that should be considered in the management plans. Key features of the waste rock management units are summarized in Table 2. A series of box and whisker plots showing the distribution of key ABA parameters in each of the units is provided in Appendix 1.

The results show that the majority of the samples from all zones except the ore stopes can be classified as non-PAG on the basis of NP/AP ratios, but there is a slightly higher proportion of samples that could be classified as uncertain or PAG in the alteration zone. On the basis of TIC/AP ratios, the basalt, buffer zone and alteration zones showed similar high percentages of non-PAG material. However, the majority of the diabase and gabbro samples were classified as PAG or uncertain. In the case of diabase, the sulphide content was consistently below 0.1%, indicating that ARD is unlikely, and this material can be considered as having negligible risks from an ARD perspective. In the case of gabbro, there are enough samples with elevated sulphur that this material should be managed as mineralized waste.

The material from the stopes is classified as ore, and will be processed in the mill. This material tends to have a higher sulphide content and lower NP and TIC. A substantial proportion of the stope samples were classified as uncertain or PAG. However, there is sufficient NP present that the development of acidic conditions is unlikely to occur during the short time that this material will be stockpiled on surface.

Table 2: Geochemical Classification and Management Recommendations for Proposed Waste Management Units

Unit	Quantity (tonnes)	No. of Samples	Characteristics	Classification Based on NP/AP (% of samples)			Classification Based on TIC/AP (% of samples)			Notes	Management
				non-PAG	uncertain	PAG	non-PAG	uncertain	PAG		
Basalt	203,000	98	Sulphur content highly variable, with less than 0.5% in 95% of samples, and localized concentrations up to 6.8% (10 cm vein). NPs were greater than 30 kg $CaCO_3$ eq/tonne in 95% of the samples. TICs were typically elevated.	96%	2%	2%	91%	3%	6%	Descriptions for all uncertain and PAG samples noted elevated sulphides.	Low Risk: separate any high sulphide material.
Gabbro	a minor subunit within basalt*	41	Sulphur content low with values between 0.01 and 0.32% in 95% of samples, with a maximum value of 0.74%. NP and TIC were consistently low with median values of 17 and 0.5 kg $CaCO_3$ eq/tonne.	85%	10%	5%	8%	25%	67%	Data set is biased toward the spatially clustered samples from 06TDD614.	Moderate Risk due to low NP: store in mineralized pile.
Diabase	143,000	34	Sulphur content consistently low, with all values less than 0.1%. NP and TIC are also low, with median values of 12 and 1.5 kg $CaCO_3$ eq/tonne.	100%	0%	0%	62%	24%	15%	Given the consistently low AP, should be managed as non-PAG.	Low Risk: confirm lithology.
Buffer Zone	58,000	24	Sulphur content highly variable, with median values of 0.15%, 95th percentile values of 1.4%, and maximum values of 4.2%. NP and TIC were greater than 89 and 127 kg $CaCO_3$ eq/tonne in 95% of the samples.	96%	4%	0%	100%	0%	0%	Most PAG or uncertain samples contained sulphide or were logged as quartz veins.	Low Risk: separate any high sulphide material.
Alteration Zone	102,000	45	Sulphur content highly variable, with median values of 0.2%, 95th percentile values of 1.9%, and maximum values of 3.4%. NP and TIC were typically high, but larger number of samples had lower NP values than observed in the buffer zone or the basalt.	87%	11%	2%	93%	3%	3%	Most PAG or uncertain samples contained sulphide or were logged as quartz veins.	Moderate Risk: store in mineralized pile.
Stopes	n/a**	17	Sulphur content highly variable, with median values of 0.27%, 95th percentile values of 2.3%, and maximum values of 5.4%. NP and TIC were highly variable, ranging from negligible to as high as 400 kg $CaCO_3$ eq/tonne	41%	41%	18%	25%	38	38%	Most PAG or uncertain samples contained or were logged as quartz veins.	n/a: all material from the stopes will be processed.

Notes: * The gabbro is not defined in the geological model but is considered a minor component of the zone defined as basalt

** all of the rock in the stopes is ore and will be processed.

Overall, these results indicate that all of the diabase, and large proportion of the basalt and buffer zone material, is non-acid generating and is not expected to result in any long-term ARD management issues. As such, it could be used for construction material, or stored in surface stockpiles indefinitely without ML/ARD issues. Any underground waste used in surface construction would be subject to the same long-term monitoring required for rock quarried on the surface expressly for construction as per Part D, Items 9, 21 and 22, and Schedule D, Item 1f of the water licence. However, if the basalt and buffer material are to be used for construction, further confirmatory testing will be needed to ensure that the small amount of more mineralized material present can be effectively identified and segregated from the non-mineralized rock. Diabase requires minimal confirmation, but proper identification by a geologist is required, particularly in areas where the diabase solid in the block model is not well defined. Gabbro and alteration zone material should be managed as mineralized waste.

Detailed procedures for the classification, segregation and management of waste rock to prevent ML/ARD are provided in Sections 3.2, 3.3 and 3.4. Procedures for managing water associated with the waste rock and ore stockpiles are provided in Section 3.5.

2.5.2 Nutrient Release

The majority of the waste rock will be blasted using a bulk form of ammonium nitrate (AN) and fuel oil mixture to make the blasting product ANFO. Spills and/or incomplete detonation of the ANFO may result in residual ammonia, nitrate and nitrite in the blasted rock. Measures for minimizing the potential for nutrient release from blasting activities are discussed in Section 3.6.

The residual ammonia, nitrate and nitrite in the waste rock are highly soluble. Therefore, they will be flushed out of the rock during snowmelt and precipitation events, potentially resulting in short-term release of nutrients to water that is in contact with this material. All discharges associated with the waste rock must meet the licence discharge criteria for ammonia nitrogen (NH_4) of 2 or 4 mg/L (as N) (for average monthly and grab samples respectively).

The Water Management Plan (MHBL 2007b) provides details of the site-wide water management plan, including plans for collection of any non-compliant seepage and runoff from the Pollution Containment System and discharge to Tail Lake. Key information from this plan is summarized in Section 3.5.

2.5.3 Drill Brine

Water is used as a lubricant for drilling, as a means of cleaning off the face and walls for geological mapping, and for dust suppression in the underground mine. Calcium chloride salt is added to the make-up water to lower the freeze point and thereby keep the water supply lines from freezing. This water is called drill brine. Any excess drill brine that ends up at the mine face is pumped to a settling sump and is recycled for use at the face. However, some of the water is absorbed by the blasted rock which is hauled to the surface stockpiles; therefore, there is an ongoing requirement for additional make-up water in the mine.

Residual salts associated with the waste rock are highly soluble, and will be flushed out of the rock during snowmelt and precipitation events, potentially resulting in short term effects on the total dissolved solids (TDS) content and, therefore, electrical conductivity (EC) of the water. All discharges associated with the waste rock must meet the licence discharge criteria for EC of 500 µS/cm. As discussed previously, the Water Management Plan (MHBL 2007b) provides details on the collection and fate of seepage and runoff from this area. A summary of these plans is provided in Section 3.5.

2.5.4 Fuel and Lubricants

Any fuel or lubricants spills, including leaks from mobile equipment, have the potential to become mixed with the waste rock, and therefore any water that is in contact with the waste rock once it has been placed in its ultimate storage location. Any discharges associated with the waste rock must meet the licence discharge criteria for oil and grease concentrations of 5 or 10 mg/L (for average monthly and grab samples, respectively), and "no visible sheen". Therefore, prevention and management of spills is particularly important for ensuring that the waste rock can be used for construction activities outside of the pollution containment system.

The Spill Contingency Plan (SRK 2010) provides detailed procedures for the prevention and clean-up of spills. These plans encompass all of the activities in the underground mine. A summary of the spill contingency plans is provided in Section 3.7.

2.5.5 Dust

Fugitive dust is a concern from all disturbed areas on the site due to the potential for effects on human and ecological health, plant growth, and water quality (total suspended solids). Dust control from quarry rock and waste rock is particularly important given the potential for fibrous forms of actinolite, which have been found at a few locations in the Doris area.

The Air Quality Management Plan (Golder 2006) provides details on dust control and monitoring procedures for the site. An updated Air Quality Management Plan is in preparation and will be issued to the NWB by April 2011. Air quality monitoring is reported semi-annually in an Air Quality Compliance Report (i.e., Rescan 2010). A summary of management procedures that are relevant to the waste rock is provided in Section 3.8.

2.5.6 Management of Additional Materials

As specified in Part D Item 10 of Water Licence, "*the Licensee shall tag any potentially acid generating rock identified through the Quarry Rock Construction Monitoring program for removal to the Temporary Waste Rock Pile, for ultimate disposal underground*". Therefore, the Temporary Waste Rock Pad must also have sufficient capacity to accommodate any PAG rock from these areas.

To date, none of the quarry monitoring programs or characterization data from the quarry sites has identified PAG rock. The contingency for storage of an extra 10% of the total volume expected from the underground mine should be adequate to handle future requirements from these areas.

The milling operations are expected to produce approximately 30,000 tonnes of cyanide residues. As per Part G Item 27g of the Water Licence, this material will be used as backfill in the underground mine. Some of the space in the mine that is allocated for backfill must be reserved for the cyanide residues; therefore the quantity of waste rock that can be used as backfill needs to be reduced accordingly.

Overall, the Temporary Waste Rock Pile should be designed for a maximum capacity of 560,000 t of waste rock, and approximately 190,000 tonnes could remain on the waste rock pad at the end of the Doris North operations.

2.5.7 Geotechnical Stability

The stability of the Temporary Waste Rock Pile is an important consideration for safety of traffic in this area, and for containment of the waste rock. An evaluation of stability is provided in Section 3.2.

3 Waste Rock Management

3.1 Interim Management

During the first few months of operations, the majority of the waste rock will be comprised of diabase. As discussed previously, it has already been established that this material has very uniform geochemical conditions, and has a low potential for ML/ARD related issues. Therefore, HBML is planning to use 40,000 tonnes of this material to raise the elevation of Pad Q (Figure 1), which is an existing pad within the pollution containment system that was designated and approved for the temporary storage of ore stockpiles. In the unlikely event that confirmation testing indicates any ML/ARD concerns with respect to this material, it could be removed and relocated to the underground workings at closure.

All other rock will be placed within the Temporary Waste Rock Pad, until approvals to place waste rock on adjacent pads and other locations as outlined in Section 2.4 are received from the Board. Mineralized and non-mineralized rock will be segregated according to the procedures described in Section 3.3, and placed on opposite ends of the pad such that it would be possible to remove the non-mineralized rock for use in construction once approvals are in place for that activity. The boundary between mineralized and non-mineralized rock will be surveyed to ensure that these materials could be separated if required for construction or backfilling applications.

There is sufficient capacity (276,000 tonnes) in the Temporary Waste Rock Pad to operate under these interim plans until the end of September 2011. However, if approvals can be obtained by the end of March 2011 for placement of non-mineralized rock in the adjacent pads, or for use of the non-mineralized rock in construction, it would be possible to reserve 207,000 tonnes of capacity in this area for the more mineralized rock, ensuring that all of the more mineralized material (conservatively estimated to be 150,000 to 200,000 tonnes), could be placed on the Temporary Waste Rock Storage Pad.

3.2 Stockpile Configuration and Construction Sequence

Figure 5 shows the proposed layout of the temporary waste rock storage facilities at various stages of the mine development.

The waste rock pile has been designed such that the foundation pad extends 2.5 to 3 metres beyond the toe of the pile. The outer edge of the pads also has a safety berm that will prevent any large boulders from rolling off of the pad during construction. The pile has been designed with slopes of 2:1, and will be constructed in lifts, which will result in a configuration that provides a high degree of geotechnical stability. Stability calculations show that the pile would have a safety factor of 1.6 at the point when it reaches the maximum size (Figure 5c).

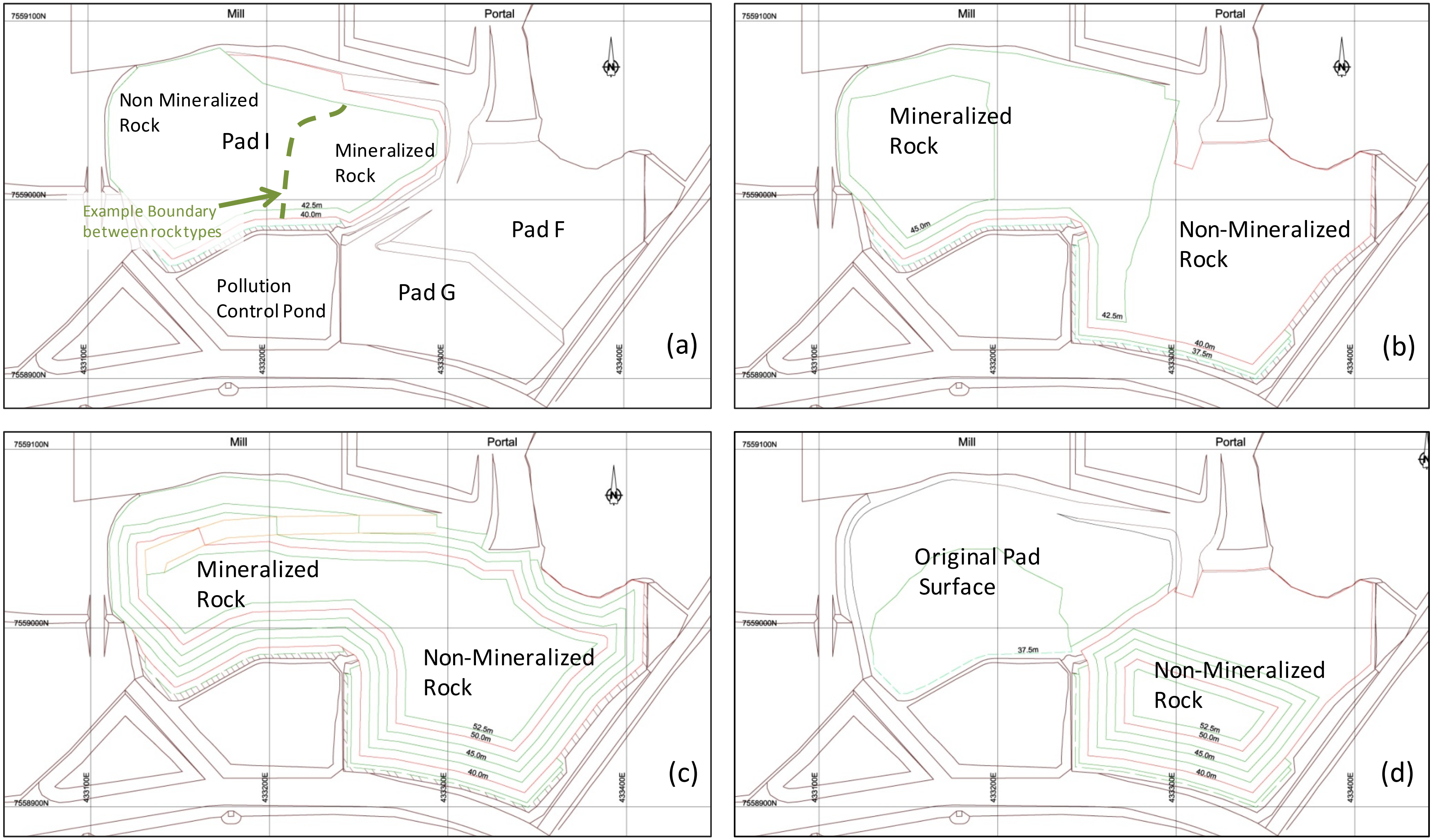

Figure 5: Stockpile Configuration Over Time a) March 2011, b) October 2011, c) Maximum Size, d) After Backfilling.

All of the waste rock will be directed to the original Temporary Waste Rock Pile (Pad I) until approvals are in place to use Pads F and G for storage. The rock will be placed by dumping on the pad with the underground trucks, and the individual truck piles will be flattened once the pad level is full. A dozer will be used periodically to shape the pile to maintain stable angles, reduce overhangs and over steepened slopes, and maintain a safe truck access ramp. During this period, mineralized rock will be placed on the eastern end of the pad, while non-mineralized rock will be placed on the western end. The procedures for classifying and segregating these materials are described in Sections 3.3 and 3.4. The spatial boundary between these materials will vary depending on the relative amounts of mineralized and non-mineralized rock. Where there is sufficient space, inter-layering of mineralized rock with non-mineralized rock will be avoided by building up mineralized rock within the established mineralized area rather than advancing over the non-mineralized rock (or vice-versa). The boundary between non-mineralized and mineralized rock will be surveyed after each lift has been completed. The layout at the end of Q1 2011 is shown in Figure 5a. At this stage of development, the pile will contain 110,000 tonnes of rock, and will be 5 metres above the original pad elevation. Approximately half of the rock excavated up to this point will be diabase, which is expected to be non-mineralized. The remaining half is basalt and gabbro which may include small amounts of mineralized material. Therefore, the majority of the rock on the pile at this stage will be non-mineralized.

When approvals are in place to use Pads F and G for storage, the non-mineralized waste rock will be directed to those areas. Mineralized rock would continue to be placed on the eastern half of Pad I, advancing towards the west until this pad reaches its ultimate capacity. Assuming approvals are in place by the end of March 2011, most of the waste placement between April 2011 and September 2011 would be on Pads F and G, and the layout as of the end of September 2011 would be as shown in Figure 5b. If use of non-mineralized rock for construction is also approved, it would be possible to remove some of the non-mineralized rock from the western half of Pad I, or from Pads F and G for this purpose. However, results of confirmatory testing to demonstrate that the rock meets the required criteria, as described in Section 3.3 of this plan would need to be completed before the rock is released for construction.

As mining progresses, both areas of the pile would continue to grow, with mineralized rock going to Pad I, and non-mineralized rock going to Pads F/G. Depending on the quantities of mineralized rock, it may be necessary to place some mineralized rock in the northern part of Pad F. The combined pile on Pads I, F and G would reach a maximum size of approximately 500,000 tonnes by the end of 2012. Allowing contingency for storage of an additional 50,000 tonnes of rock, the configuration at this stage would be as shown in Figure 5c. If use of non-mineralized rock for construction is approved, it would be possible to remove non-mineralized rock from Pads F and G, but as Pad I grows, removal of non-mineralized rock in that location would no longer be practical. Removal of non-mineralized rock would result in a somewhat smaller pile in the Pad F/G area.

Once backfilling begins (currently scheduled starting in January 2013), very little, if any new waste would be brought to surface. If mineralized rock is placed on Pad F, this will be the first material to be backfilled. After that, mineralized rock on Pad I would be removed, followed by non-mineralized rock on Pads F and G. Throughout this period, cyanide residues from the mill would also be backfilled in the mine. Design of underground placement of cyanide tailing is in process at this time. The cyanide residues will occupy some of the available backfill space, displacing some of the waste rock that would otherwise be used as backfill. A total of 370,000 tonnes of waste rock and 30,000 tonnes of cyanide residues are expected to be backfilled in the mine, leaving 140,000 tonnes of excess waste rock (190,000 tonnes if the contingency for 50,000 tonnes of rock is included). If this material has not been used for construction, it will remain in the waste pile. The final surface would be contoured and reclaimed in place, effectively creating a thicker pad at closure. The final configuration would be as shown in Figure 5d.

Expansion of underground mining activities to Doris Lower, Connector or Central could eventually create additional opportunities for use of this material as backfill.

3.3 Waste Classification and Segregation

3.3.1 Overview

The waste rock will be classified as “mineralized” or “non-mineralized” based on a combination of information from the geological block models and mine planning software, and geological inspections. These materials will then be segregated during mining, and directed to separate locations on the waste rock pile as described in Section 3.2. Confirmatory testing will be used to verify the accuracy of the classification and segregation methods, and pending the results of this testing, non-mineralized rock may be classified as suitable for use in construction. The exploration department will be responsible for the classification and segregation of the rock, and the confirmatory sampling program.

3.3.2 Classification Procedures

As discussed in Section 2.5.1, rock within the alteration zone surrounding the ore deposit, and gabbro have a somewhat increased potential for ML/ARD, and will be managed as mineralized waste. The basalt and buffer zone material may contain small amounts of more mineralized waste, which will need to be identified and segregated from non-mineralized basalt during mining. Diabase is expected to be uniform, with low sulphides, and will be managed as non-mineralized waste.

With the exception of gabbro, each of these management units has been represented in the geological block model of the deposit area. The gabbro is considered to be relatively uncommon, and does not have sufficient continuity to be included in the model. However, it can be easily identified by the site geologists. Using the block models and information obtained during inspection and mapping of the workings, the mine geologists will work with the mine planners to prepare mine plans that show the rock types likely to be encountered during each mining shift. They will also inspect the working face or muck pile to confirm the lithology and to identify mineralized zones within the basalt and buffer zone. The frequency of inspection will be at least once per day in the diabase, and will increase to at least once per shift when the mining is in basalt, gabbro, or the buffer zone.

Geological inspections are likely to be even more frequent when mining in the alteration zone. However, since this material will be managed as mineralized rock, daily inspections are considered sufficient for the purposes of this management plan.

The geological inspections will include a detailed examination of the working face or muck pile to identify the rock type, the quantity of sulphide minerals, quartz veining, carbonate mineralization, and the presence of fibrous minerals. If the visual inspections indicate that there is more than trace amounts (>0.5%) disseminated sulphides or any sulphide veining, waste rock would be designated as mineralized, and would be directed to the appropriate location on the waste rock pad. If the rock does not contain an appreciable quantity of sulphides (i.e. more than trace amounts), it would be classified as non-mineralized and would be directed to the appropriate storage location as described in Section 3.2. The geologists will be instructed to classify the materials conservatively. If there are any doubts as the amount of sulphide mineralization, the rock will be designated as mineralized. The results of the geological inspections will be recorded in a daily log. This information will also be used to update the geological models.

In the unlikely event that fibrous minerals are identified, the rock would be flagged for special handling within the mineralized storage area. This material would be placed in a location where there is minimal traffic, and where the rock would not be exposed on the outer face of the pile. Dust suppressants would be used as an extra control for dust emissions, and the location would be surveyed such that it can be handled appropriately when it is excavated for backfill. Again, dust suppressants would be used as required to minimize any dust emissions.

The mine geologist will be responsible for tagging all waste rock with the intended waste designation. The mucking crew will be instructed not to remove any waste that has not been clearly tagged. The mucking crew will be responsible for placing the waste rock in the intended location on the Temporary Waste Rock Pad, as described in Section 3.2. The mine engineer will record the number of truckloads of material sent to each of the waste stockpiles and will record this information in the daily record as per Part J Item 12d and e of the Water Licence.

3.3.3 Confirmatory Sampling and Testing

Confirmatory samples will be collected from the blasted rock, either from within the mine, or immediately following placement in the waste rock pile. Both location of origin and the location where the material is placed in the dump will be established and recorded. The samples will be submitted to a commercial testing laboratory for full ABA (including total sulphur, sulphur speciation, inorganic carbon, and modified Sobek NP), or total sulphur and TIC only.

The confirmatory sampling will focus on the rock that is located in zones that have a low potential for ML/ARD. However, the mineralized units will also be sampled to determine the actual range of geochemical characteristics that will be present in the mineralized part of the waste pile. The sampling and testing frequency will be as follows:

- In the diabase, one sample for every 60 metres of mining (approximately 5,000 tonnes of rock) will be collected and submitted for full ABA tests.

- In the basalt and buffer zone, samples will be collected at intervals of approximately one sample per 12 metres of mining (approximately 1000 tonnes of rock). A minimum of one in five samples will be submitted for full ABA tests. The other four samples will be submitted for total sulphur and TIC analyses only. Starting in about November 2012, an on-site testing laboratory will be in operation, and will be used to complete the total sulphur and TIC analyses on these extra samples.

- Where encountered, gabbro will be sampled and submitted for full ABA tests at least once per 5,000 tonnes of rock. However, since this unit is not expected to be spatially extensive, the frequency of sampling may be increased to capture spatially distinct occurrences of the gabbro until its characteristics are more completely understood. These samples would be submitted for total sulphur and TIC analyses.

- In the alteration zone, there are relatively few long sections of tunnel; therefore, samples will be collected at intervals of approximately one sample per 5,000 tonnes of rock. Efforts will be made to ensure that these are spatially distributed throughout the alteration area.

The samples will represent a random composite of material from the individual blast. Samples will be approximately 1 to 2 kg in size. The following information will be recorded at the time of sampling:

- Description of the sample location (underground muck pile, mineralized or non-mineralized area of the waste rock pile);
- Location where the associated waste rock originated (location in mine);
- Approximate location of where the associated waste rock was deposited (location in the pile);
- The name of the person who collected the sample;
- Date and time of sampling;
- Geological description, including rock type, estimated sulphide and carbonate content; and
- Sample classification (mineralized or non-mineralized).

Data from confirmatory testing and geological inspections would be used to update the geological models and improve the predictive value of those models in defining ML/ARD potential in other nearby working areas.

After sufficient data has been collected to evaluate the effectiveness of the geological inspections in identifying rock that has an increased potential for ML/ARD potential, the frequency of sampling and testing will be re-evaluated. If any changes in the sampling frequency are warranted, justification for the change will be presented to the Board for consideration at least sixty days prior to implementation.

Three samples from the first six months of mining (i.e. up to the end of March 2011), and then one in ten samples from the confirmatory testing (representing one sample per 50,000 tonnes of rock will be subjected to a shake flask extraction test to assess the amount of soluble salt, nutrients and metals present in the rock.

3.3.4 Data Management and Evaluation

The results of the confirmatory testing program will be checked to ensure that they meet data quality objectives, and will be maintained in an on-site database. The geologists completing the inspection will review the results on a regular basis to help calibrate their abilities to estimate sulphide content. The results will be reviewed on an annual basis by a geochemical specialist and will be included in the annual Waste Rock and Quarry Monitoring Report.

If any of the non-mineralized rock is used for construction, results representing accessible areas of non-mineralized rock will be reviewed on a more regular basis and used to delineate areas where the rock can be released for use in construction. A geochemical specialist will provide training and guidance during the initial assessments to ensure that the data is used in an appropriate manner.

3.4 Procedures for Using Non-Mineralized Rock for Construction

Assuming that use of non-mineralized rock for construction is approved, data from the confirmatory sampling would be used to assess whether accessible areas of non-mineralized rock meet the criteria for use in construction. These criteria are outlined as follows:

- Non-mineralized diabase would need to have sulphur contents of less than 0.2%;
- Non-mineralized basalt would need to have sulphur contents of less than 0.5% and TIC/AP and NP/AP ratios greater than 3.

The site geologist would be responsible for delineating areas of the pile that have been adequately characterized and confirm that these criteria are met. Further deposition of waste rock will cease until results are available for all of the samples within the designated area, and, provided the criteria are met, the geologist will designate the rock as suitable for construction. The construction contractor will then be allowed to load and move the material to areas that have been approved for construction. Engineering Procurement and Construction Management (EPCM) will be responsible for ensuring that the contractor stays within the bounds of the non-mineralized waste rock pile area designated for construction.

3.5 Water Management

All seepage and runoff from the waste rock pile areas will be directed to the Pollution Control Pond and managed according to the protocols outlined in the Water Management Plan (MHBL 2007b). The Water Management Plan is being updated and will be submitted to the Board for review prior to the end of January 2011. The updated plan will address the temporary management of water during construction and fish-out of the Tail Lake tailings facility.

The Temporary Waste Rock Pile Pollution Control Pond is designed to contain all surface runoff and melt water from the temporary waste rock pile. The pond is designed for full containment of the 1:100 year storm event of 24-hour duration, plus an additional freeboard of 0.3 m. Containment is provided, at least to the full supply level of 35.7 m by an HDPE liner sandwiched between two geotextiles. A protective cover layer is placed over the liner. An emergency spillway not is provided, since it is intended that pumping out of this facility be initiated whenever there is at least one hour of pumping capacity in the pond. The pond pumps are designed to completely empty the pond within six hours. 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 would be discharged onto the surrounding tundra without the authorization of the Board.

3.6 Management of Residual Explosives

The majority of the waste rock fill will be blasted using a bulk form of ANFO. From a blasting perspective, ANFO is only ideally suited for dry hole application. In the event that ANFO is inadvertently loaded into a wet blast hole, an incomplete detonation of the product may occur. In such instances, residual ANFO in the waste rock would potentially be a source of soluble ammonia, nitrate and nitrite that could be released to the environment.

The potential for wet holes in the mine is considered to be low due to the land-based nature of the underground workings and the presence of permafrost. Though the underground is assumed to be dry, a contingency plan is available. Any wet holes will be evident at the time of drilling and during the cleaning of each blast hole. The blaster, being responsible for the loading and firing of the holes, begins the loading process by checking the actual depth of each hole and will record unusual conditions, such as water in the blast-holes.

The presence of water in a blast hole requires one of several charging methods to ensure complete detonation of the explosives. One method is to dewater the hole using compressed air. This is common on the bottom (lifter) holes in underground mining. If the hole cannot be dewatered, or if it is seeping water, the hole will be loaded with an alternative explosive that is effective under wet conditions.

When using ANFO, the hole is loaded with a pneumatic loading device. A detonator is placed at the end of the hole, then the loader hose is pushed to the end of the hole and is slowly withdrawn as the ANFO is blown into the hole, thereby filling the hole. Once the end of the loading hose is near the top (collar) of the hole, the loader is stopped to prevent spillage of ANFO.

After blasting, the blaster is required by regulations to inspect the blasted area, make note of blast holes that may have experienced incomplete detonation, and mark those locations with paint. The work procedure for this operation is in SOP - KCMD UG-SOP-003 - Misshole Identification and Management.

Information from the blaster's inspection will be noted in the daily operations shift log and will be communicated to all underground supervision personnel.

Contingency - Identification of Un-detonated or High ANFO Residue Areas

Material considered un-detonated or high in ANFO residue, which will contain potentially elevated level of nutrients (primarily ammonia) will be hauled to the mineralized area of the waste rock pile, and will eventually be used as backfill in the mine.

Contingency - Spill of ANFO

In the unlikely event that a spill of ANFO occurs during charging of the blast holes, the ANFO will be cleaned-up immediately upon the completion of all loading operations. This material will be hauled to the mineralized area of the waste rock pile, and will eventually be used as backfill in the mine.

3.7 Spill Prevention

In the event that re-fuelling of mobile equipment is required in the mining or waste deposition areas, it will be conducted at a location and time that will ensure that any spill of fuel or lubricants will be effectively contained and clean-up can be easily accomplished. In accordance with the Spill Contingency Plan (SRK 2010), all employees are trained as first responders to spills. During re-fuelling, all employees will have access to a Spill Kit suitable for the materials being handled. In addition, each vehicle is equipped with a 20 pound, fully charged, ABC fire extinguisher, as set out in the Hope Bay Health Safety and Loss Prevention Management system.

Every operator is required to inspect their light or heavy equipment at the beginning of every shift. This inspection is designed to uncover potential safety concerns as well as potential environmental risks such as oil, fuel and hydraulic fluid leaks. In the event that leaks are detected, the vehicle will be taken out of service and must be repaired prior to resuming use.

Contingency – Spill During Refuelling or Equipment Malfunction

In the unlikely event that a spill occurs during re-fuelling activities, clean-up of the spilled material will be initiated immediately and all activities within the immediate area will be suspended until the clean-up is complete and the material is disposed of in an appropriate manner, as per the requirements specified in the Spill Contingency Plan (SRK 2010). Waste rock that has been contaminated with hydrocarbons will be placed in the area designated for storage of mineralized waste rock where it will be eventually used as backfill in the mine.

3.8 Dust Management

Procedures for managing fugitive dust are documented in the Air Quality Management Plan (MHBL 2006). This plan is currently under revision and will be submitted to the NWB in April 2011. Management procedures that will be used to control dust from the temporary waste rock and ore stockpiles include watering of traffic surfaces, control of vehicle speeds, and if necessary, application of dust suppressants, such as EK35 or DL10 to high traffic areas.

4 Management of Ore Stockpiles

All of the ore extracted from the underground mine will be placed in a Temporary Ore Stockpile located on Pad Q. The ore stockpile will have a live storage capacity of approximately 25,000 tonnes. The maximum configuration of this stockpile is shown in Figure 6.

All of the ore will be processed in the mill. Therefore, geochemical monitoring is not required. If any waste rock is inadvertently placed in the ore stockpile, it must be directed to the mineralized area of the waste rock storage area.

The ore stockpiles are located within the Pollution Containment System. Therefore, the water management procedures described in Section 3.5 will also address management of runoff from the ore stockpiles.

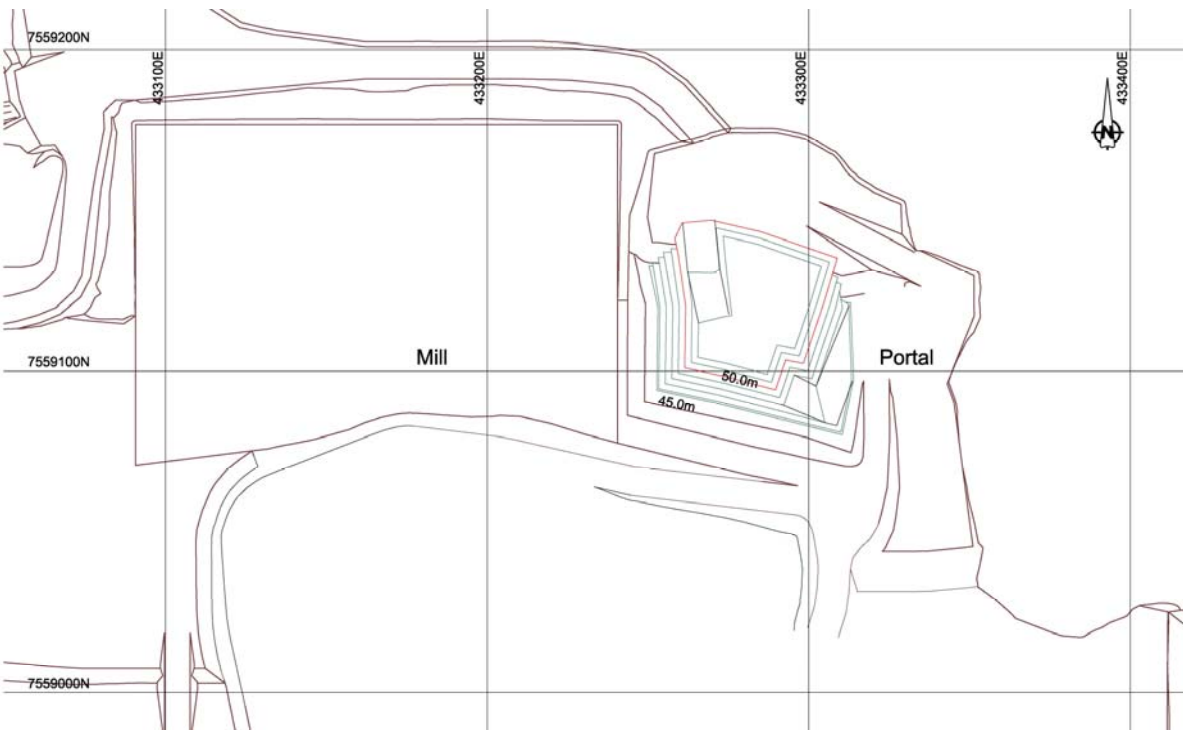

Figure 6: Ore Stockpile Configuration

5 Inspections and Monitoring

5.1 Waste Rock Pile

5.1.1 Period of Waste Rock Deposition and Backfilling (Operations)

The operational monitoring program will include routine the visual inspections and sampling used to classify and segregate rock (Section 3.3), annual inspection of material in the waste rock piles and review of the routine monitoring program by a qualified geochemist, spring seep surveys, and routine monitoring of water quality in the Pollution Control Pond, described as follows:

Annual Inspections and Review

Material in the waste rock piles will be inspected by a qualified geochemist on an annual basis. The geochemist will establish a transect that crosses through an inactive area of the non-mineralized part of the pile. They will walk along this transect, examining the rock for rock types and rock with elevated sulphides that should not have been placed in this area of the pile, and noting the relative abundance of such material. The mineralized pile will also be examined for signs of sulphide oxidation and weathering. The results of this inspection will be discussed with the mine geologist to ensure there is clarity on the classification and segregation procedures. Additionally, if there are any areas deemed unacceptable for use in construction, these will be surveyed to ensure that they can be avoided during excavation. Results of the inspections will be provided in an annual waste rock and quarry monitoring report as per Schedule B, Item 3 of the Water Licence.

The geochemist will also review the results of the ongoing monitoring program described in Section 3.3 to evaluate the success of the segregation program for ensuring material in the non-mineralized pile is consistently meeting the target criteria for potential use in construction and to determine whether the sampling frequency is appropriate. The geochemist will provide feedback to the mine geologist on any aspects that could be improved.

Seep Surveys

Starting in 2011, spring seep surveys will be completed along all safely accessible areas along the down-gradient toe of the waste rock pile and below the Pollution Control Pond and access road. The surveys will be completed during the latter part of the spring freshet, and will be completed at the same time using the same general methods that have been established for the seep surveys completed in other infrastructure areas at the site. The objective of this program is to confirm that an environmentally-significant level of metal leaching is not occurring from the rock. The seep surveys will be completed annually during freshet during and for at least 2 years following the period of waste rock deposition and backfilling activities.

Seeps will be identified by walking along the down-gradient toe of the facility looking and listening for signs of flowing water. A survey stake will be installed to mark the location of each seep sampled and the following information will be recorded:

- Description of the seep location;
- GPS location of the seep;
- A photographic record of the seep;
- A description of the flow pattern and magnitude of flow; and
- Field pH, EC, ORP[3] and temperature readings.

Field pH, EC, ORP and temperature measurements will also be established at reference sites located in a similar geological, and physiographic setting, but away from the influence of the rock or other mine related activities. These reference stations will also be shared with the quarry monitoring program.

In the immediate area of the waste rock pile, water samples will be collected from all distinct seepage locations. Where there are clusters of seeps within 50 metres of each other, the one with the dominant flow will be sampled, appropriately preserved, labelled, and submitted to an accredited laboratory for analysis. The following information will be recorded:

- The name of the person who collected the sample;
- Date and time of sampling;
- Date of analysis;
- Name of person who completed the analysis;
- Analytical methods or techniques used;
- Results of the analyses, including pH, TDS, acidity and/or alkalinity, sulphate, total ammonia, nitrate, and a full suite of metals by ICP-MS[4]; and
- The results of the seep survey will be reported in an annual seepage and waste rock monitoring reporting submitted by March 31 of the year following the seep survey, as per Part D Item 22, and Schedule B Item 3 of the Water Licence.

Routine Water Quality Monitoring

A surveillance monitoring station ST-2 has been established to monitor discharges from the Pollution Control Pond. Water that accumulates within the pond will be sampled at a depth of approximately 0.25 metres on a monthly basis during periods of open water and will be sent for analyses of pH, TSS, total ammonia, total sulphate, total CN, total oil and grease, alkalinity, chloride, aluminum, arsenic, copper, iron, lead, nickel and zinc. The results will be reported to the Board under the Surveillance Network Program (SNP) contained within the Water Licence. HBML Environmental

[3] ORP = oxidation reduction potential, a measure of the redox of the water

[4] ICP-MS = inductively coupled plasma - mass spectrometry, a laboratory method used to measure low-level concentrations of elements in water.

and Social Responsibility (ESR) staff will use this data to calibrate and update the Tail Lake water quality model.

5.1.2 Period Following Backfilling

Once backfilling is complete and the pile has reached its final configuration, there will be one final inspection of the pad area to ensure that all of the mineralized waste has been removed.

The spring seep surveys and routine monitoring of water quality in the Pollution Control Pond will continue for a minimum of two years following backfilling of the waste rock, following the methods established during operations.

5.2 Ore Stockpile

There are no specific monitoring requirements for the ore stockpile. The seepage and routine monitoring programs also address the monitoring of seepage and runoff from this area.

5.3 Infrastructure Areas

5.3.1 Construction

If any of the non-mineralized waste rock is used for construction, additional inspection and sampling will be completed in the areas where this rock is placed. The procedures will be the same as those established for infrastructure areas that have been constructed using quarry rock, and will include visual inspections, confirmatory sampling, and seep surveys.

During construction, the EPCM manager will be responsible for ensuring that any waste rock that has been removed from the non-mineralized area of the waste rock pile has been released for construction by the mine geologist prior to use. The EPCM manger will also be responsible for tracking the amount of waste rock that is extracted for use in construction, and the specific destination of that rock so that it can be tracked and monitored as part of the Quarry Management Plans in the Monitoring and Follow-up Plan (MHBL 2007).

5.3.2 Post-construction

Once construction is complete, and the infrastructure areas can be safely accessed, an inspection of any newly constructed areas will be conducted by a qualified geochemist to check the geochemical characteristics of the rock used in construction. The inspection will include collection of one sample per 10,000 tonnes of rock. The samples will be collected from pre-determined locations that reflect the progression of construction over time. Where sufficient fines are present, the samples will consist of a whole sample (a randomly selected composite of rock particles from the local sample area), and a sample sieved to pass a 2 mm (10 mesh) screen. Where no fines are present, the samples will consist of a whole sample.

All of the samples will be submitted to an accredited external laboratory for total sulphur analysis. In the event that the sulphur concentration is greater than 0.1 %, the samples will be submitted for ABA analysis. Analyses will be completed on both the fines and the whole sample. Shake flask extraction tests will be completed on a representative subset of samples, at a frequency of one sample per 50,000 tonnes of rock.

The following information will be recorded for each sample collected:

- Description of the sample point;
- GPS Coordinates of sample point;
- The source of the rock fill (i.e. the non-mineralized area of the pile or the quarry that the rock came from);
- The name of the person who collected the sample;
- Date and time of sampling;
- Date of analysis;
- Name of person who completed the analysis;
- Analytical methods or techniques used; and
- Results of analysis.

The results will be reported in the annual waste rock and quarry monitoring report.

Contingency - Inappropriate Construction Material Identified

In the unlikely event that the results of the seep monitoring program or the confirmatory sampling program indicate the presence of material with an elevated potential for ML/ARD, further investigations will be undertaken to define the extent and assess the potential impacts of the material. If warranted, and after discussion with the appropriate regulatory agencies, the material will be excavated and hauled to the waste rock pile for eventual disposal underground.

Table 3: Hope Bay Doris Waste Rock Monitoring Summary

Aspect	Monitoring Activity	Monitoring Type	Data Management & Reporting
Mining Operations, including Waste Rock Deposition and Backfill	Pre-blast inspection	Identify “wet holes” and clean spilled ANFO.	Maintain field notes.
	Post-blast inspection	Confirm there were no misfires.	Maintain field notes.
	Daily visual inspection of face and muck pile by field geologist	Confirm rock types, and mineralogical characteristics, classify the rock as mineralized or non-mineralized and tag for deposition as appropriate.	Maintain field notes. Report results in annual Waste Rock and Quarry Monitoring Report.
	Sampling of underground waste rock	ABA on a minimum of one sample per 5,000 tonnes of rock, additional analysis of total sulphur and TIC in some rock units as per Section 3.3, shake flask extraction tests on one sample per 50,000 tonnes of rock.	Maintain field notes. Manage data. Assess material for suitability in construction. Report findings in the Annual Waste Rock and Quarry Monitoring Report.
	Amount of material mined and placed in mineralized and non-mineralized areas of the pile, amount of material used for construction, and amount of material used for backfill	Material quantities (cubic metres and tonnes).	Maintain record for annual reporting to the Board.
	Annual inspections and review of regular monitoring program	Visual inspections.	Maintain field notes. Discuss findings with site geologists. Report findings in Annual Waste Rock and Quarry Monitoring Report.
	Annual seep survey	Water samples submitted for pH, total sulphate, total ammonia, nitrate, alkalinity, and metals by ICP-MS.	Maintain field notes. Report findings in Annual Waste Rock and Quarry Monitoring Report.
	Monthly SNP monitoring of ST-2	Water samples submitted for pH, TSS, total ammonia, total sulphate, total CN, total oil and grease, alkalinity, chloride, aluminum, arsenic, copper, iron, lead, nickel and zinc.	Maintain field notes. Report findings in Annual Waste Rock and Quarry Monitoring Report.
Infrastructure Construction and Post-Construction	Amount of non-mineralized rock used for construction, and location of placement	Material quantities (tonnes).	Maintain records for annual reporting to NWB.
	Geochemical inspections and sampling of infrastructure areas constructed using waste rock.	Sulphur analysis on a minimum of one sample per 10,000 t of non-mineralized rock. Full ABA tests on all samples with >0.1% sulphur. Shake flask extraction tests on one sample per 50,000 t of rock.	Maintain field notes. Report findings in Annual Waste Rock and Quarry Monitoring Report.
	Annual seep survey	Water samples submitted for pH, total sulphate, total ammonia, nitrate, alkalinity, and metals by ICP-MS.	Maintain field notes. Report findings in Annual Waste Rock and Quarry Monitoring Report.

6 Reporting

As per the requirement specified in Schedule B Part 3c of the Water License, annual reporting of the tonnages of waste rock placed on the Temporary Waste Rock Pile by classification of mineralized and un-mineralized rock must be included in an annual Geochemical Monitoring and Waste Rock Storage Assessment.

HBML are proposing to combine all other results from the inspections and monitoring programs related to waste rock and quarry rock in an annual "Waste Rock and Quarry Monitoring Report". The monitoring report would be prepared and submitted no later than March 31 of the year following the monitoring activities, and would include all data collected prior to December 31 of the preceding year (i.e. within six months of the collection of samples, as prescribed in the Water License).

The report will address all the commitments made with respect to waste rock and quarry rock in the Water License Application, and all requirements specified in the Water License and Quarry Permit Agreement KT307Q010. The report will include, but not necessarily be limited to:

- A summary of the geochemical inspections;
- Results of the seep surveys;
- Results of geochemical sampling and analysis; and
- A summary of all mitigation activities undertaken as a result of monitoring.

7 Concordance with Water Licence

Table 4 provides a concordance table to demonstrate where the applicable conditions of the Water Licence been incorporated into this management plan.

Table 4: Concordance Table

Licence Condition	Document Reference
Part D, Items 9, 21, 22	Section 5.3 addresses the rock and seepage monitoring that would be completed if the waste rock was used in construction.
Part D, Item 10	Section 2.5.6 addresses the requirement to provide contingency for storage of PAG rock from the quarries.
Part D, Items 23, 24	Sections 3.3 and 3.4 provide information on how waste rock would be segregated and tested to confirm that non-mineralized rock from the underground mine would be non-PAG and therefore suitable for construction. It is recognized that further approval by the NWB would be required before this rock could be used for construction.
Part D, Item 28	Section 3.5 addresses management of water from the waste rock storage areas.
Part G, Item 15	This report addresses the requirement for an updated plan.
Part G, Item 16	Section 3.1 presents interim management plans for placement of waste rock within the original Temporary Waste Rock Storage Pad.
Part G, Item 18	Section 3.3 addresses how mineralized and non-mineralized waste rock will be segregated, while Sections 3.1 and 3.2 addresses separate storage of these materials.
Part J, Items 12d and e	Section 3.3.2 addresses the requirement to record quantities of mineralized and non-mineralized waste rock deposited in the piles, and quantities of backfill returned to the mine.
Part K, Item 6	Section 5.1.1 addresses the requirement to monitor for seepage below the Pollution Control Pond.
Schedule B, Item 3c	Section 3.3.2 addresses the requirement to record quantities of mineralized and non-mineralized waste rock deposited in the piles, and quantities of backfill returned to the mine.
Schedule D, Items 1f, 1k and 1n	Sections 5.3 and 6 address the requirements to report the results of geochemical and seepage monitoring in an annual report.

8 Document Control Record

This, the *Hope Bay Project Waste Rock Management Plan* dated December 2010, has been reviewed and is approved by:

Document Approval

Position	Name	Signature	Date
Environmental Compliance Manager			
Environmental Affairs Manager			
Environmental & Social Responsibility Director			
Operations Manager			
Mining Manager			
Manager Exploration			

The re-issuance of this document have been reviewed and approved by the Quality Assurance and Management and are authorized for use within Hope Bay Mining Ltd.

Document Control Revision History

Document Control Revision History					
Rev. No.	Page No.	Details of Revision	Name	Initial	Date

Document Distribution

Date	Copy #	Name	Department/Location	File Type
	1			
	2			
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This report, "**Doris North Waste Rock and Ore Management Plan**", has been prepared by SRK (Consulting) Canada Inc.

Prepared by

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Principal Environmental Geochemist

Reviewed by

Stephen Day, P.Geo.
Principal Geochemist

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

Disclaimer

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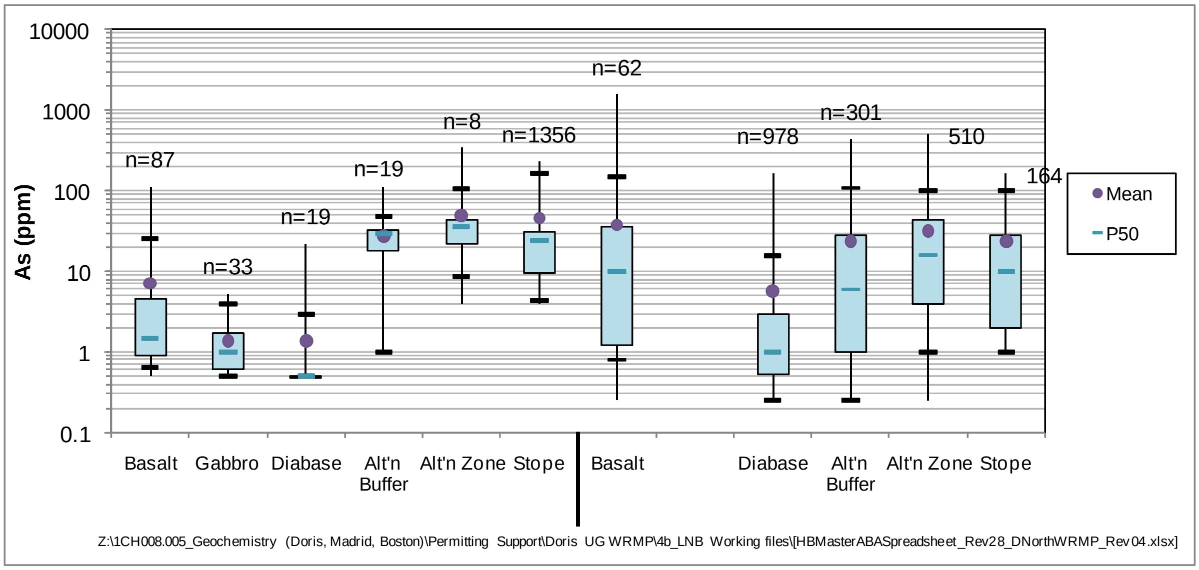
Appendix 1
Summary of Static Testing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Gabbro
Diabase
Alt'n Buffer
Alt'n Zone
Stope
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Diabase
Alt'n Buffer
Alt'n Zone
Stope
Mean
P50
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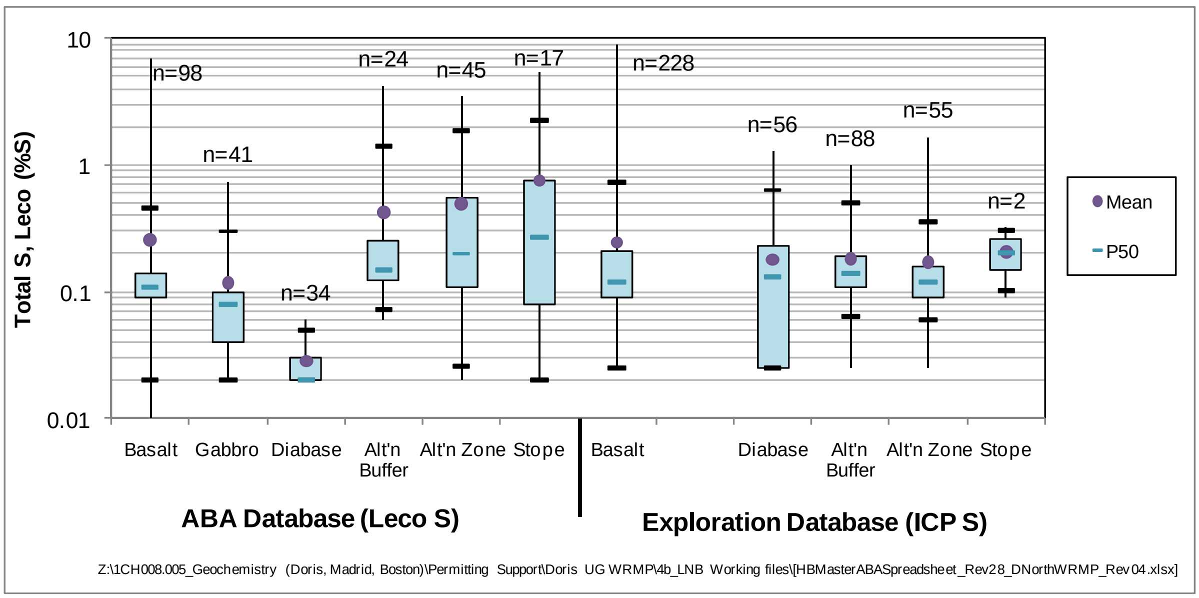
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Basalt
Gabbro
Diabase
Alt'n Buffer
Alt'n Zone
Stope
Basalt
Diabase
Alt'n Buffer
Alt'n Zone
Stope
ABA Database (Leco S)
Exploration Database (ICP S)
Mean
P50
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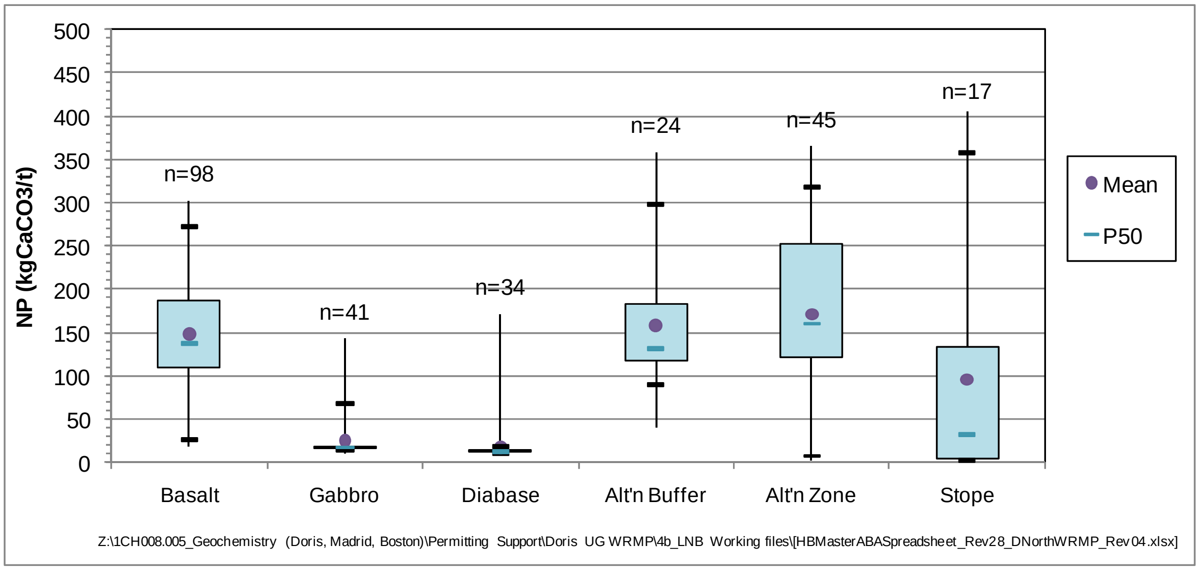
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Gabbro
Diabase
Alt'n Buffer
Alt'n Zone
Stope
Mean
P50
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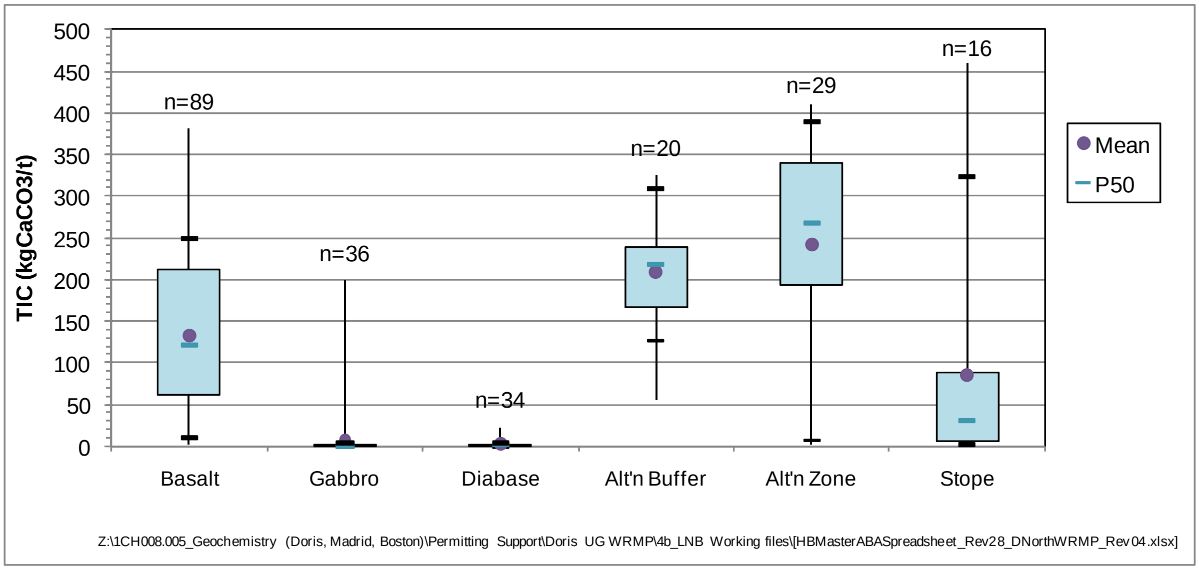
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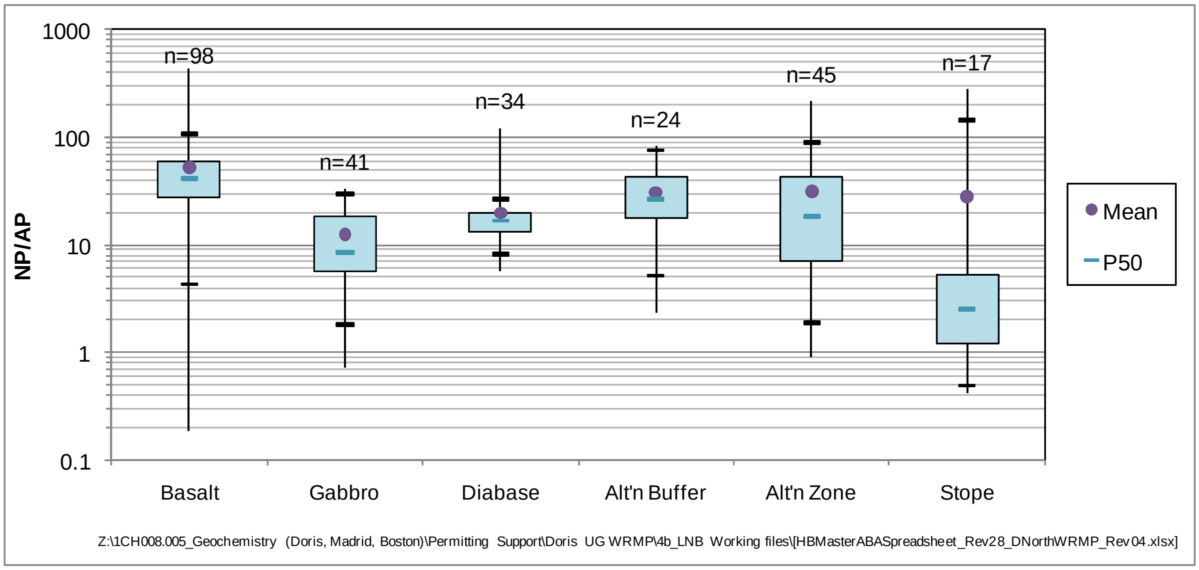
n=16
Basalt
Gabbro
Diabase
Alt'n Buffer
Alt'n Zone
Stope
Mean
P50
Z:\1CH008.005_Geochemistry (Doris, Madrid, Boston)\Permitting Support\Doris UG WRMP\4b_LNB Working files\[HBMasterABASpreadsheet_Rev28_DNorthWRMP_Rev04.xlsx]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Gabbro
Diabase
Alt'n Buffer
Alt'n Zone
Stope
Mean
P50
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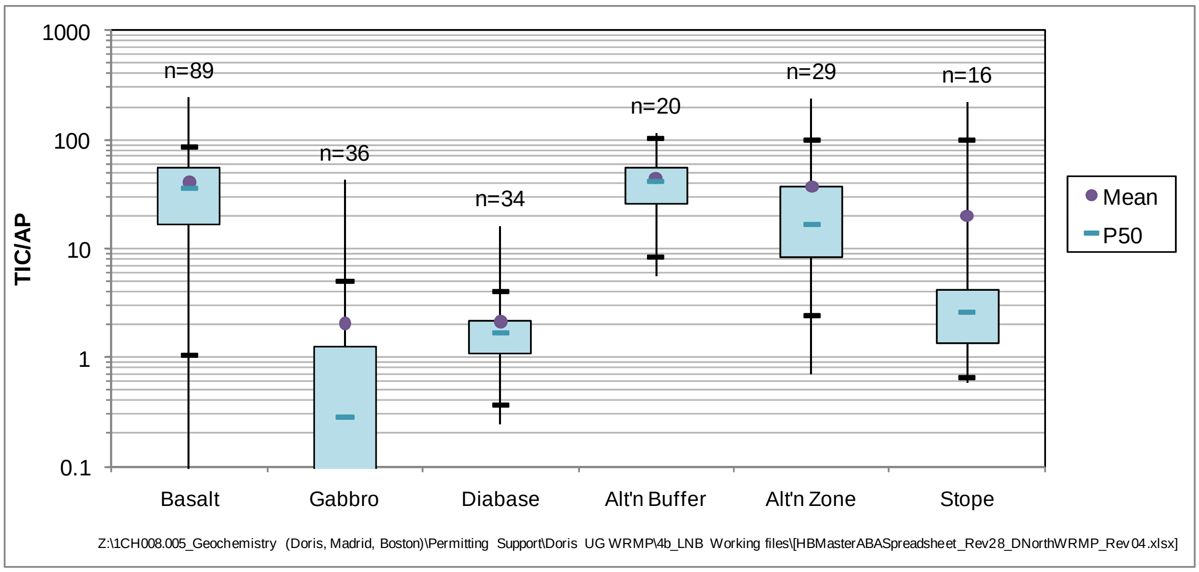
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Diabase
Alt'n Buffer
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