Water License Application Support Document

Doris North Project
Nunavut, Canada

Submitted to:

The Nunavut Water Board

Submitted by:

Miramar Hope Bay Limited

October 2006

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF SUPPORTING DOCUMENTS

S1 Design of the Tailings Containment Area, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – SRK 2006a,

S2 Design of the Surface Infrastructure Components, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – SRK 2006b

S3 Technical Specification for Tailings Containment Area and Surface Infrastructure Components, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – SRK 2006c

S4 Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – 2006d

S5 Doris North Project Hydroclimatic Parameter Re-Evaluation 2006, prepared by Golder Associates, October 2006 – Golder 2006a

S6 Water Quality Model, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – SRK2006e

S7 Geochemical Characterization of Quarry Materials, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – SRK 2006f

S8 Geochemical Characterization of Portal Development Rock, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – SRK 2006g

S9 Miramar Hope Bay Ltd. Environmental, Health and Safety Management System Outline, Golder 2006b

S10 Environmental Protection Plan for Doris North Mine Construction and Operational Activities

- S10a Doris North Project Emergency Response and Contingency Plans, prepared by Miramar Hope Bay Limited, October 2006a
- S10b Air Quality Management Plan, prepared by Golder Associates Limited, October 2006 – Golder 2006c
- S10c Noise Abatement Plan, prepared by Golder Associates Limited, October 2006 – Golder 2006d
- S10d Interim Waste Rock Storage Plan, prepared by Miramar Hope Bay Limited, October 2006
- S10e Hazardous Materials Management Plan, prepared by Miramar Hope Bay Limited, October 2006
- S10f Explosives Management Plan, prepared by AMEC, October 2006 – AMEC 2006a
- S10g Landfill Design and Management Plan, prepared by AMEC, October 2006 – AMEC 2006b
- S10h Landfarm Design and Management Plan, prepared by AMEC, October 2006 – AMEC 2006c
- S10i Tailings Management Plan, prepared by Miramar Hope Bay Limited, October 2006
- S10j Water Management Plan, prepared by Miramar Hope Bay Limited, October 2006
- S10k Quality Assurance/Quality Control Plan, prepared by Miramar Hope Bay Limited, October 2006
- S10l Mine Closure and Reclamation Plan, prepared by Miramar Hope Bay Limited, October 2006
- S10m Monitoring and Follow-Up Plan, prepared by Golder Associates, October 2006 – Golder 2006e

S11 Report on Site-Specific Water Quality Objective for Copper for the Proposed Doris North Project, prepared by EVS Environment Consultants Limited (Golder), December 2004 – Golder 2004

S12 Final Report on Effluent and Aquatic Monitoring Study Design for Doris North Project, prepared by Golder Associates Limited, November 2003 – Golder 2003

EXECUTIVE SUMMARY
(English, Inuinnaqtun, and Inuktitut)

This document is being submitted to the Nunavut Water Board (NWB) by Miramar Hope Bay Limited (MHBL) in support of its application for a Water License (covering water use and waste disposal) for the proposed Doris North Project. MHBL intends to develop the Doris North Mine for the purpose of extracting gold for sale on global markets. The Doris North Project is located on the mainland in the West Kitikmeot region of Nunavut approximately 110 km southwest of Cambridge Bay and 75 km northeast of Umingmaktok. The Project is located on Inuit Owned Lands at 68 deg. 09 min. N x 106 deg. 40 min. W, 5 km south of Roberts Bay, an extension of Melville Sound which connects with Bathurst Inlet about 80 km west of the Project.

MHBL is proposing to construct, operate and reclaim a small underground gold mine (average throughput of 690 tonnes per day) that will have a two year life. According to current mine reserves the mine will produce approximately 311,000 ounces of gold from 460,000 tonnes of ore. Processing of the ore will occur on site with the gold being shipped off site by air in the form of dore bullion bars to a commercial refiner. The project will be self-sufficient and will have a footprint of approximately 54 hectares.

The site is remote and there are no permanent or winter roads that link it to any neighbouring communities or facilities. Currently, there is no infrastructure development on the site, with the exception of an exploration camp on the east shore of Windy Lake, located approximately 10 km southwest of the project site.

The primary access route to the project for fuel, equipment and supplies will be via the Arctic Ocean (sealift barges from Hay River) and by charter aircraft for employees, contractors and food. The proposed mill site is located approximately 5 km from Roberts Bay, which is accessible by ships and barges for a short ice-free shipping season each summer. A jetty will be constructed in Roberts Bay as a landing facility for the sealift barges. Equipment will be offloaded and stored in a lay down area close to the shore. Annual fuel supply will be trucked from the sealift vessels to a tank farm constructed at the plant site.

A 4.8 km all-weather road will link the Roberts Bay sealift landing site with the mill and camp location (plant site), allowing year-round haulage of supplies from the sealift landing site laydown area. The mill, crushing plant, fuel storage tank farm, camp, office complex, workshops, power generation plant, sewage treatment plant and all other operational mine infrastructure will be located in a central location adjacent to the underground mine adit.

An all-weather airstrip, suitable for small aircraft will be constructed along the alignment of the main road between the plant site and Roberts Bay. During summer months the site will also be serviced by float planes and for that purpose a dock will be constructed on the shore of Doris Lake. This dock will be linked to the mill site with an all-weather road. During winter months an airstrip capable of handling larger aircraft will be constructed on the ice on Doris Lake and the site serviced from this airstrip.

Tailings produced during the milling process will be deposited in Tail Lake about 5 km from the proposed mill location. Tailings deposition will be sub-aqueous, requiring the construction of 2 water retaining structures: the North and South Dams. The tailings will be

contained in Tail Lake by constructing a low permeability frozen core dam across the outlet of Tail Lake to the north and by a similar second dam constructed across a topographic low point at the south end of the lake. Mill tailings will be treated in a water treatment plant within the mill to destroy residual cyanide and precipitate heavy metals before the tailings are discharged into Tail Lake. The water quality eventually discharged from Tail Lake will meet discharge standards established by the NWB, which are set to meet water quality guidelines for the protection of freshwater aquatic life (fish and benthic invertebrates) in Doris Creek below the point of discharge.

MHBL is currently scheduling mobilization of construction material and supplies to Roberts Bay in the summer sealift in 2007. The material would be held in storage on the shore until early 2008, when the material would be moved across the ice of Roberts Bay to the Doris North site. Development of the underground mine, construction of the road, building pads, airstrip, fuel storage facilities and the tailings dam would commence in the 1st quarter of 2008. All of these earthworks would be constructed under winter conditions to protect the permafrost. The remaining milling equipment and operating supplies would arrive on the 2008 sealift.

Production mining (ore) would commence in the second half of 2008 and continue through the end of 2010 with milling starting in the second half of 2008. MHBL is continuing its exploration program in the region of the Doris North Project (the Hope Bay greenstone belt) to find other economic gold deposits, which could potentially extend the life of the Project or lead to development of other gold mines in this area.

A construction workforce peaking at 120 will be required to carry out construction and site development work from January through December 2008. During operations, milling and processing will need a total workforce of 24 from the 4th quarter of 2008 to the 1st quarter of 2011, underground mining will require a peak workforce of 60 from early 2008 through the end of 2010, while maintenance support, catering, supervision and administration will require a total workforce of 81. Of the total operating workforce it is expected that half would be on site at any given time.

The Project is predicted to result in an increase in direct employment in Nunavut by 371 person-years, with 159 person-years of this total predicted to go to Inuit People. The Project is predicted to increase total (direct plus indirect) Territorial employment by 443 person-years; 371 person-year increase in employment in the Goods Industries (the same as the direct effect), a 71 person-year increase in the Service Industries, and a 2 person-year increase in Public Administration. MHBL has completed an Inuit Impact Benefits Agreement (IIBA) with the Kitikmeot Inuit Association, which focuses on employment, training, and community wellness. A signing ceremony for the IIBA was held in Cambridge Bay in September of 2006.

The Doris North Project has completed the Environmental Assessment Process and the Nunavut Impact Review Board (NIRB) recommended (March 2006) to the Minister of Indian and Northern Affairs Canada (INAC) that the Project should proceed to the regulatory phase. In August 2006 the Minister for INAC approved the NIRB report and a Project Certificate was issued by the NIRB in September 2006. The NWB water license is one of the key permits required before construction can commence on the Doris North Project. MHBL is also working with the Kitikmeot Inuit Association to secure land leases, with INAC for a foreshore lease for the Roberts Bay jetty, with the Department of Fisheries and

Oceans Canada and Environment Canada for required authorizations under the Fisheries Act and for amendment of the Metal Mining Effluent Regulation to include Tail Lake on Schedule 2, with Natural Resources Canada for explosives storage and use permits and with Transport Canada on various project related permits and authorizations, and with Nunavut Tunngavik Incorporated to finalize a Production Lease Agreement.

The application for Doris North water license is based on Guidelines provided by the Nunavut Water Board that were developed in conjunction with other reviewers. This application support document outlines specific detail and plans regarding the water related components of the Doris North Project. MHBL has endeavoured to address all.

Havaakhat Naitoliogat

Hamna titigak toniyuk okononga Nunavutmi Emalikiyiinot (NWB) tabkonanit Miramar Hope Bay Limited (MHBL) ekayutaoyukhat apikhiyami Emaktutikhak Laisimot (emakmik atogiami ovalo emmakogakhanotlo) atoktakhat ovani Doris North gold-nik oyagakhiokvikhakmi. MHBL hanayumayut ovani Doris North Oyagakhiokvikhak algakniaktot gold-kaninik neovgotikhat manikaknit. Ona Doris North Oyagakhiokvihak nunamiitok ovani Oalikmi Kitikmeoni nunani Nunavutmi ongahiktigiok 110 km hivogaani Ikaluktutiap ovalo 75 km tonongani Umingmaktup. Ona Oyagakhiokvikhak nunamiitok Inuit Nunaotaini ovani 68 deg. 09 min. N x 106 deg. 40 min. W, 5 km hivogani Kapihiliktop, ona Melville Sound elaoyuk hivokamot Kengaokmot ovani 80 km oaliani Oyagakhiokvikhap.

MHBL oktogomayut nappaktigilotik, aolabkailotik ovalo algaklotik mikakmik nunap ataanot gold-nik algaklotik (algaktakha ona 690 Tonnes oblotoak) ema ona malgoknik okioni aolaniaktok oyagakhiokvik. Hajja hamani manikaknit oyakkat algakvioniaktot aktigiomik 311,000 ounces gold-nik ovanit 460,000 tonnes oyagak. Pilokyiligilotik oyagakmik tahamani amogainiaktot gold-nik oyagak aolaktitaovakloni tingmiakot ovani dore bullion kikagiktot aolaktitaoniaktot pinikhaktokhat. Ona oyagakhiokvik elikot aolaloni ovalo aktigiok oyagaktakviginiagat 54 hectares.

Ona oyagakhiokvik nunainakmiitok ovalo apkotikakngitok haniak naliak okiomilo apkotikangitok haniani inukaknini ovalo iglokpaitok. Hajja, tahamani iglokpakangitok oyagakhiokvikmi, kihime oyagakhioktit tupikakviit tahamaniitok kivataani tahikmi Ogholiotilikmi, ona nuna 10 km hivogani oyagakhiokviop.

Ona tikikataktat oyagakhiokvik apkohiokniagat oghoknik agyaktot, tamayanik ovalo nikinik okoatigot Taggiokot (umiat agyaktot Hay River-mit) okoalot tingmiat sataktaovaktot havaktinik agyaktaktot, kantolaktit okoalo nikkinik. Ona oyagakhiokvikhk ongahiktigiok 5 km Angingamit, ona umiat tolaktakvikhat aoyami hikkoititlogo. Ona umiakakvikhak hanayaoniaktok ovani Angingami. Tamayat oheeyaktaoniaktot umianit tutkomayukhat agyagiami taggiop hinaani. Okiok atogakhat oghokyoat agyaktaovakniaktot umiaktot kattakyukakvikmot talvani oyakikivikmi.

Ema 4.8 km okiok-aoyak atoktokhak apkot tigvamot taononga taggiomot umiakakvimot inniaktok oyagakhiokvikmot ovalo iglokpakakvikhak (pilokyiligivik), okiogaalok agyakviomiaktok tamayanik taggiomit umiakakvikmit tamayakakvikakniaktok. Ona pilokyiligivik, kattakyukakvik, iglokpakakvik, afisikakvik, aghalutikakvik, paowahaosikakvik, annakokvik okoa tamaita aolayutiginiagat oyakikiviop tahamani haniani anmokhakviop oyagaktakvikmot nunap ataanit.

Milviklo tingmianot tahamiiniaktok, mikkait tingmiat milvikhat hanayaoniaktok apkotip kitkani oyagakikiviimit omonga Agingamot. Aoyami oyakikivik agyakvioniaktok tingmianit ovalo tingmiat tulaktakvikhat hanayaoloni ovani Ogholiotilikmi. Ona tulaktakvik elaoniaktok oyakikivikmot pilokyiligivik. Okiomi tamna milvik hanayaoniaktok tahikmi tingmiat angiot milvikhat hikkomi Ogholiotilikmi ovalo atoktaoniaktok okiomi.

Emmakot emmat oyagalikotit kovviyaovakniaktot omong Emmakokvik Tahikmot 5 km ongahiktigiok pilokyiligivikmit. Emmakot kovviniaktot emmakmot, hanayaoniaktok 2 emmakokvikhak tatttik: Tonongani ovalo Hivoganik Emmakokvikhak. Tabkoa emmakot ahinot kovilaiyaktaoniaktok Emmakokvik kovvigakniaktot Emmakokvikmot tonongani ovalo

kovvilaiyakhimayuk Emmakokvik tononganot ovalo ajikotralo hanahimayuk emmakokvikhak oyakikiviop haniani hivogaani tattip. Pilokyiligiviop emmakoit halummaktikaklogit kovviniagait halummiatot tokonalgit cyanide-nik okoalo halvilgat kovvitinagit halummaktikniaktait Emmakokvikmot. Ona emmak kovviniaktok Emmakokvikmot halummakata nammakhiniaktot pitkoyait okoa NWB, emmat halummaitot nammakhitikakhogit kayagivloit emmakmiotanot pitailivagait (ikaluit okoalo omayut emmakni) ovani Ogholiotilikmi.

MHBL hajja kakogomot hanalikniaktot aolavikhanik iglokpakhaniko ovalo tamayanik Angingamot aoyami umiakot ovani 2007-mi. Okoa tamayat tutkomaniaktot taggiop hinaani Anginami 2008-mi, okoa tamayat agyaktaoniaktot hikkokot Angingamot agyaktokhat Ogholiotilikmot. Hananiaktat nunap ataanoktokhat oyagakhiokvik, hanalotik apkotikhamik, iglokpait tungavikhainik, milvikhak, kattakyukakvikhak ovalo emmakokvikhak ovani 1st quarter ovani 2008. Okoa havaakhat nunami hananiagait okiomi ema nunap ataa hikko halummaiktaililogo. Okoa tamayat pilokyiligivikmot ovalo tamayat tikinniaktot ovani 2008 umiakot.

Oyagaknik pilokyililikniaktot (manikakninik) ovani aipaani okiop kitkani 2008 ovalo hanahimmakniaktot nongolikat ona 2010 ona manikaknit amogaliklogit kitkani okiop 2008. MHBL hajja nalvaakhiokhimmaktot manikaninik tahamani nunami Ogholiotilikmi(ona Agingak oyagakhiokvikmi) ovalo allaniklo manikakninik gold-kaktonik kenikhiahimaktot, nalvaakata oyakikivik aolakhakniaktok naliak nutamik oyagakhiovinikloni.

Inuit havaktokhat havaktit amigaitniaktot 120 nappaktigiokhat apkohioktokhat ovalo hanayukhat havakniaktot ovanit Janualimit Desaipamot 2008-mi. Talvani oyagakhiokvik aolatitlogo, pilokyiligiot oyagaknik ovalo manikakninik amogaiyut inuit havaktokhat 24 ovani 4th quarter ovani 2008 avonga 1st quarter ovani 2011, nunap ataani algakniaktot havaktikhat amigaitigilotik 60 omanga atolihalikat 2008 avonga nongolikat 2010, havaktikhat havaktit amigaitiginiaktot 81. Ovani aolaniaktot havaktit inugiaklotik oyagakhiokvikmi.

Tamna Oyagakhiokvik ehomagiyat amigaigotiniaktok havaakhanik omonga Nunavutmot ovani 371 person-years, ema159 person-years tamait havaktit Inuinait havaviginiaktat. Ona Oyagakhiokvik inugiakhitiniaktok havaktikhanik (inuknik havaktogiakhiloni), ova 71 person-year amigaigotiloni ematot Havaktit Havaktoni, ovalo 2 inuit-okiomi amigaiklotik Inuit Havaktolikiokhat. MHBL enikhiot Inuit Ekayuhiagotikhainik Angigotinik (IIBA) pikatigiyait Kitikmeot Inuit Katiyamayiit, okoa havakvikhanik opalongaiyaktot, elihaivikhanik, ovalo inuit ehoakotikhainik. Ona sainikhiniaktot ominga IIBA-mi katimayutikakpaktot Ikaluktutiaki ovani Saptaipa 2006-mi.

Ona Ogholiotilikmi gold-nik oyagakhiokvikhak eniktok Nunalikotinik Ehivgiogotinik Havaktaktot ovalo Nunavutm8i Nunalikiot Katimayiit (NIRB) pitkoyait(Masi 2006) apigiot nammagivlogit oyagakhioktit angikoyait Ministamot Itkilinot Okioktaktolikiot Kanatami (INAC) ona Oyagakhiokvik angmaktokhat maligani nammagiyaolikmat. Ovani Agasimi 2006-mi ona Ministak okononga INAC angiktat okoa NIRB-kot onipkangita ovalo Oyagakhiogotikhat Naonaitktot toniyat okoat NIRB-kot ovani Saptaipa 2006. Okoa NWB emaknot laisikhak piyat emaktutikhat hanayami aolalikat ona Ogholiotilikmi Oyagakhiokvikhak. MHBL ovalo havaliktot ovani Kitikmeot Inuit Katimayiit nunanik atokvigilogit, okoa INAC atoktitiniaktot nunami ovani Agingamik umiat tulaktakvikhanik okoat Kavamatokat Ikalulikiot Taggiokmiotalikiot Kanatami ovalo Nunalikiot Kanatami angiktaoyukhat ovani Ikalulikotit Maligani ovalo allangoklogo okoa Havilganik Oyagakhioktit

Halumaigotivaktot Maligakaktokhat okoalo Emmakokgotinik ovani Schedule 2, okoalo Natural Resources Canada kaggaktitaoninik tutkomatjutikhainik ovalo laisikaktokhat, ovalo okoalo Nunavut Tunngavik Incorporated enikhiokhat ominga Oyagakhiogotit Atoktinik Angigotinik.

Okoa apikotit omong Ogholiotilikmot emaktutikhat laisiat atogiakaktot Maligakhanik tonihimayait Nunavutmi Emalikiyiit Katimayiit hanahimayut ehomagivlogit okoa ehivgioktit. Ona apikot emaktutinot titigakh8imayut naonaitiakhogit emaktotikhat ovani Ogholiotiliikmi Oyagakhiokvikmi. MHBL okaotigiyait tamainot maliktakhat tonihimayit okoat NWB hamani titigami.

ᑐᓴᒐᒃᓴᑦ ᓇᐃᓈᖅᓯᒪᔪᑦ

ᐅᑯᐊ ᐊᓪᓚᒃᓯᒪᔪᑦ ᑐᓂᔭᐅᓂᐊᕐᒪᑕ ᓄᓇᕗᑦ ᐃᒪᓕᕆᔩᑦ ᑲᑎᒪᔨᖏᓐᓄᑦ ᐅᑯᐊ Miramar Hope Bay Limited-ᑯᑦ ᐃᑲᔪᕐᓂᖃᓂᐊᖅᑐᒥᒃ ᑐᒃᓯᖅᑐᑖᓄᑦ ᐃᒪᓕᕆᔾᔪᑎᒃᓴᒥᒃ ᓚᐃᓴᒥᒃ (ᐃᒥᓕᕈᑕᐅᑐᓂ ᐊᑑᑕᐅᓂᐊᖅᑐᒥᒃ ᐊᒻᒪᓗ ᐊᒃᑕᑯᓄᑦ) ᐃᑯᕐᒐᕐᒐᔪᒧᑦ ᑐᒃᓯᕋᒧᑦ Doris North-ᒥ ᒎᓗᓂᒃ ᐅᔭᕋᓐᓂᐊᖅᐸᖕᒥ ᐱᓕᕆᕙᐅᓪᓗᓂ. ᐅᑯᐊ ᒥᐊᕋᒫᒃᑯᑦ ᐱᕙᓪᓕᐊᑎᑦᓯᓃᕐᒪᑕ ᐅᔭᕋᓐᓂᐊᖅᐸᒃᓴᒥᒃ ᐅᕙᓂ Doris North-ᒥ ᒪᑯᐊ ᐱᔾᔪᑕᐅᓛᖅᑐᑦ ᐹᔭᐃᓗᑎᒃ ᒎᓗᓂᒃ ᓂᐅᕿᑎᒃᓴᓂᒃ ᓯᓚᕐᔪᐊᓗᒃᑖᒥᐅᑦ ᒎᓗᓂᒃ ᓂᐅᕿᑎᓕᕆᔾᔪᑎᓄᑦ. ᐅᑯᐊ Doris North-ᒥ ᐱᓕᕆᕙᒃᓴᖅ ᐃᑲᓃᑦᑐᖅ ᐅᐊᓕᓂᐊᓂ ᕿᑎᕐᒥᐅᑦ ᓄᓇᕗᑦᒥ ᒥᒃᓴᐅᓴᒃᑐᖅ ᐅᖓᓯᖕᓂᖓ 110 km ᑲᓛᕕᑕᓂᒃ ᐅᐊᖕᓇᖕᒐᑕ ᑕᓕᖅᐱᐊᓂ ᐃᖃᓗᒃᑑᑦᑎᐊᐸ ᐊᒻᒪᓗ ᐃᒫᒃ 75 km ᑲᓛᕕᑕᓂᒃ ᑲᓇᖕᓇᖕᒐᑕ ᓴᐅᒥᐊᓂ ᐅᒥᖕᒪᒃᑑᐸ. ᐱᓕᕆᕙᒃᓴᖅ ᐃᓄᐃᑦ ᓄᓇᖁᑖᓃᑦᑐᖅ ᓄᓇᙱᐊᑎᒍᑦ ᑕᑯᓗᕆᑦ ᐅᕙᓂ 68 deg. 09 min. N x 106 deg. 40 min. W, 5 km ᑲᓛᕕᑕ ᐅᐊᖕᓇᖕᒐᓂ ᑲᐱᕼᓕᖅᑑᐸ ᐃᒪᖕᒐᓂ, ᐃᑯᖕᒐᖕᒐᔪᖅ ᑰᓄᒃᔪᐊᖅ ᐃᒪᖕᒐᓂ Melville Sound-ᒥ ᓄᓇᖕᒐᓄᑦ ᐊᒃᑐᐊᔪᖅ ᕿᖕᒐᐅᑦ ᒥᒃᓴᐅᓴᒃᑐᒥᒃ ᐅᖕᒐᓯᖕᓂᖕᒐ 80 km ᑲᓛᒥᑕ ᐅᐊᓕᓂᐊᓂ ᐱᓕᕆᕙᒃᓴᐅᐸ.

ᐅᑯᐊ ᒥᐊᕋᒫᒃᑯᑦ ᑐᒃᓯᕋᓪᒪᑕ ᓴᓇᔪᒪᓪᓗᑎᒃ, ᐊᐅᓚᑦᓯᒍᒪᓪᓗᑎᒡᓗ ᐊᒻᒪᓗ ᓄᓇ ᐅᑎᖅᑎᒐᔭᖅᓯᒍ ᐱᐅᓯᖕᒐᓄᑦ ᓱᕋᒃᓯᒪᔭᖅ ᒥᑭᓈᖅᓯᒪᔪᖅ ᓄᓇᐅᐸ ᐃᓗᐊᓂ ᒎᓗᒥᒃ ᕿᓂᖅᕙᐅᓂᐊᖅᑐᖅ (ᒥᒃᓴᐅᓴᒃᑐᒥᒃ ᐃᒃᑕᓇᓂᖕᒐ ᐃᒫᒃ 690 Tonnes ᐅᐸᓗᖅ ᐊᑕᐅᓯᖅ ᐱᔭᐅᕙᒡᓗᑎᒃ) ᐱᓕᕆᐊᖑᓂᐊᖅᑐᖅ ᐊᕐᕌᒎᒃ ᒪᕐᕈᒃ. ᐱᔾᔪᑕᐅᔪᑦ ᒪᓕᒃᓱᕆᑦ ᒫᓇ ᐅᔭᕋᒃᓴᖅᓯᐅᖅᑲᒃᓴᑦ ᓇᓗᓇᐃᖅᑕᐅᓯᒪᔪᑦ ᓴᕿᒐᔭᖅᑐᑦ ᒥᒃᓴᐅᓴᒃᑐᓂᒃ ᐃᒫᒃ 311,000 ounces-ᓂᒃ ᐃᒃᑕᓇᓂᓕᖕᓂᒃ ᒎᓗᓂᒃ ᐋᔭᖅᑕᐅᓂᑯᓂᒃ ᐃᒪᐃᓪᓗᐊᖅᑐᒥᒃ 460,000 tonnes ᐃᒃᑕᓇᓂᖕᒐ ᐅᔭᕐᑲᑦ ᐋᔭᖅᑕᑦ. ᓯᕐᑲᓪᓕᔭᐅᕐᑲᑦᑕᓕᖅᐸᑕ ᐅᔭᕐᑲᑦ ᐱᓕᕆᕙᖕᒥ ᐱᓕᕆᐊᖑᓗᑎᒃ ᑕᐃᑲᓂ ᓄᓇᒥ ᒎᓗᐃᑦ ᐊᐅᓪᓚᖅᑎᑕᐅᕐᑲᑦᑕᕐᓗᑎᒃ ᐅᓯᔭᐅᓗᑎᒃ ᖃᖕᒐᑕᔫᒃᑯᑦ ᐃᓗᐃᒃᑲᐅᑎᓪᓗᕆᑦ ᓂᐊᕐᑰᔭᖅᑎᑐᑦ ᓂᐅᕿᑎᒃᓴᓕᐊᖑᓗᑎᒃ ᒎᓗᐃᑦ ᐊᐅᒃᑎᑕᐅᒃᑲᓂᕐᓗᑎᒃ ᐊᐅᕿᕙᖕᓂ. ᐱᓕᕆᕙᐅᓂᐊᖅᑐᖅ ᐃᖕᒥᓐᓂᒃ ᒪᑭᒪᑦᓯᐊᕈᓐᓇᕐᓂᐊᖅᑐᑦ ᐊᒻᒪᓗ ᐱᓯᒪᓂᐊᖅᑐᑦ ᓄᓇᒥᒃ ᐃᒫᒃ ᒥᒃᓴᐅᓴᒃᑐᒥᒃ 54 hectares.

ᓄᓇ ᐅᖕᒐᓯᒃᑐᕌᑦᑐᖅ ᐊᒻᒪᓗ ᐊᑯᖕᒐᒍᑦ ᐊᕐᑯᑎᑦᕐᑲᖕᕆᑦᑐᖅ ᐅᕝᕙᓗᑭᐊᖅ ᐅᑭᐅᒥ ᐊᕐᑯᑎᑦᕐᑲᖕᕆᑦᑐᖅ ᑦᑦᕗᖕᒐᖕᒐᔪᒧᑦ ᓄᓇᒧᑦ ᓇᒧᓕᒫᑦᓯᐊᖅ ᓄᓇᓕᖕᓅᒐᓗᐊᖅ ᖃᓂᕆᔭᖕᒐᓂ ᐅᕝᕙᓗᑭᐊᖅ ᓇᒧᑐᐃᓐᓇᖅ ᐱᓕᕆᕝᕕᒃᑕᓕᖕᒧᑦ ᐊᕐᑯᑎᑦᕐᑲᖕᕆᑦᑐᖅ. ᒫᓐᓇᓕ, ᓴᓇᔭᐅᓯᒪᔪᖅᑲᖕᕆᑦᑐᖅ ᐋᕿᒃᓯᒪᔪᓂᒃ ᑕᒫᓂ ᓄᓇᒥ, ᑭᓯᐊᓂ ᐊᓯᓂ ᓄᓇᓕᕆᔭᐅᑲᐃᓐᓇᖅᑐᒥᒃ ᕿᓂᖅᑎᓄᑦ ᐅᖁᐊᓂ ᑕᓯᖕᒐᑕ ᓯᓈᓂ ᐆᒪ Windy Lake, ᒥᒃᓴᐅᓴᒃᑐᖅ ᐃᒫᒃ 10 km ᑲᓚᕖᑕ ᐅᐊᖕᓇᖕᒐᑕ ᑕᓕᖅᐱᐊᓂ ᐱᓕᕆᕙᒃᓴᖅ ᓄᓇ.

ᓯᕗᓪᓕᖅᐹᒥ ᐊᕐᑯᑕᐅᓂᐊᖅᑐᖅ ᐱᓕᕆᕙᖕᒥ ᐅᖅᓯᐊᓗᐃᑦ, ᓴᓇᕈᑎᑦ, ᓱᓇᒃᑯᑖᑦ ᐅᓯᔭᐅᕐᑲᑦᑕᓚᖅᑐᑦ ᐅᑭᐅᖅᑕᖅᑐᒥ ᐃᒪᕙᒃᑯᑦ (ᐅᓯᔩᓄᑦ ᐅᒥᐊᕐᔪᐊᒃᑯᑦ ᐃᑲᖖᒫᖅᑐᓂᒃ Hay River-ᒥᒃ) ᖃᖕᒐᑕᔫᒃᑯᓪᓗ ᓵᑕᖅᑕᓄᑦ ᓴᓇᔩᑦ ᐱᓕᕆᔪᑦ, ᑲᓐᑐᕋᒃᑏᑦ, ᓂᕿᓪᓗ ᐅᓯᔭᐅᕙᒡᓗᑎᒃ. ᐅᔭᕋᒃᓴᓕᕆᕝᕙᒃᓴᖅ ᓄᓇ ᒥᒃᓴᐅᓴᒃᑐᖅ ᐃᒫᒃ 5 km ᑲᓛᕕᑕ ᐃᑯᖕᒐ ᑲᐱᕼᓕᖅᑑᐸ ᐃᒪᖕᒐᓄᑦ, ᑎᑭᕝᕕᐅᔪᓇᖅᑐᖅ ᐅᒥᐊᕐᔪᐊᓄᑦ ᐊᒻᒪᓗ ᐅᓯᔩᓄᑦ ᕿᓚᒥᒃᑯᑦ ᓯᑯᓚᐅᖕᕆᓐᓂᖕᒐᓂ ᐅᓯᔩᑦ ᐊᐅᔭᐅᓕᕋᐃᐸᐸᑦ ᐅᓯᕐᑲᑦᑕᓚᕐᒪᑕ. ᓂᐅᕋᐃᕝᕙᒃᓴᖅ ᓄᕗᓕᐊᖑᓚᖅᑐᖅ ᓴᓇᔭᐅᓗᓂ ᑲᐱᕼᓕᖅᑑᐸ ᐃᒪᖕᒐᓂ ᑐᓚᒃᕝᕙᐅᕐᑲᑦᑕᓚᕐᒪᑦ ᐃᒫᒍᑦ ᐅᓯᔩᓄᑦ. ᓴᓇᕈᑎᑦ ᓂᐅᔭᐅᕐᑲᑦᑕᕐᓗᑎᒃ ᐊᒻᒪᓗ ᓯᕐᓗᐊᖠᖅᑕᐅᕙᒡᓗᑎᒃ ᒪᓂᕋᓪᒧᑦ ᐃᒪᐅᐸ ᓯᓈᖕᒐᓃᑦᑐᒧᑦ. ᐊᕐᕌᒍᓕᒫᖅᓯᐅᑎᒃᓴᑦ ᐅᖅᓯᐊᓗᐃᑦ ᐅᓯᔭᐅᕐᑲᑦᑕᓚᖅᑐᑦ ᐅᒥᐊᕐᔪᐊᒃᑯᑦ ᐅᖅᓯᐊᓗᖅᑲᐅᑎᖕᒐᓐᓄᑦ ᓴᓇᔭᐅᓯᒪᔪᑦ ᐱᓕᕆᕙᖕᒥ.

ᐃᒪᐃᓪᓗᐊᖅᑐᖅ ᑕᑭᓂᖕᒐ 4.8 km ᑲᓛᕕᑕ ᖃᖕᒐᓕᒫᖅ ᐊᕐᑯᑕᐅᕐᑲᑦᑕᓚᖅᑐᖅ ᐃᑯᖕᒐᖕᒐᔪᖅ ᐊᐱᕼᓕᖅᑑᐸ ᐃᒪᖕᒐᓄᑦ ᐅᒥᐊᕐᔪᐊᒃᑯᑦ ᐅᓯᔩᓄᑦ ᑎᑭᑕᐅᕐᑲᑦᑕᓚᖅᑐᒧᑦ, ᐅᔭᕋᒃᓴᓕᕆᕝᕕᒃ ᐊᒻᒪᓗ ᓄᓇᓕᕆᔭᖅ (ᐱᓕᕆᕝᕕᖕᒥ), ᖃᖕᒐᓕᒫᖅ ᐊᕐᑯᑕᐅᕐᑲᑦᑕᓚᕐᒪᑦ ᐅᓯᔪᓄᑦ ᑦᑦᕗᖕᒐᖕᒐᔪᓄᑦ ᐱᔪᓂᒃ ᐅᓯᔭᒥᓃᑦ ᐅᒥᐊᕐᔪᐊᒃᑯᑦ ᓂᐅᕋᐃᕝᕙᖕᒐᓐᓄᑦ ᐃᓂᖅᑲᓪᓗᑎᒃ. ᐱᓕᕆᕝᕕᒃ, ᓯᕐᑲᓪᓖᕝᕕᒃ, ᐅᖅᓯᐊᓗᖅᑲᐅᑎᒃᑯᕝᕕᒃ, ᓄᓇᓕᕆᔭᖅ ᐱᓕᕆᔪᓄᑦ, ᐊᓪᓚᒃᕝᕕᒃᑕᓕᒃ ᐃᒡᓗᖅᔪᐊᒥᒃ, ᓴᓈᕝᕕᑦ, ᐊᐅᓚᐅᑎᖅᑲᖅᕝᕕᒃ ᐃᑯᒪᖅᑲᐅᑦ, ᖁᖅᑕᑯᓂᒃ ᓴᓗᒻᒪᖅᓴᐃᕝᕕᒃ, ᐊᓯᖕᕆᓪᓗ ᐊᐅᓚᑦᓯᒍᑎᑦ ᐅᔭᕋᓐᓂᐊᖅᐸᖕᒥ ᐋᕿᒃᓯᒪᔭᑦ ᑕᒪᕐᒥᒃ ᑕᐃᑲᓂᓛᖅᑐᑦ ᐱᓕᕆᕝᕕᐅᐸ ᓴᓂᐊᓂ ᓄᓇᐅᐸ ᐃᓗᐊᓄᑦ ᑲᑕᒃᓕᖕᒥ.

ᖃᓐᓚᑕᕐᕕᓂᑦ ᖃᓐᓚᓕᒫᖅ ᒥᖒᐸᒃᑕᓛᖅᑐᖅ, ᓈᒻᒪᒡᒍᓂ ᒥᑭᕐᕕᑎᓄᑦ ᖃᓐᓚᑕᕐᕕᓄᑦ ᒥᖒᒃ ᓴᓇᔭᐅᓛᖅᑐᖅ ᓴᓂᐊᓂ ᐊᑯᑎᓪᓚᕆᐅᖅᑕᓛᖅᑑᑉ ᐊᑯᖕᒐᓂ ᐅᔾᔨᕆᓂᐊᖅᐸᐅᑉ ᐊᒻᒪᓗ ᑲᐱᕼᓕᖅᑑᑉ ᐃᒪᓐᓇ. ᐊᐅᔭᐅᑎᓪᓗᒍ ᑖᓐᓇ ᓄᓇᒥ ᑎᑭᖅᑕᓛᕆᕙᑦ ᐃᒫᓄᑦ ᒥᓱᑦ ᖃᓐᓚᕐᕖᑦ ᐊᒻᒪᓗ ᓂᐅᕋᐃᕕᒃ ᑕᒪᒃᑯᓄᓐᓇ ᐊᑑᑕᐅᕝᓛᕆᒻᒪᑦ ᓴᓇᔭᐅᓯᒪᓗᓂ ᑕᓯᓐᓇ ᑭᒡᓕᓐᓇᓂ Doris Lake-ᒥ. ᓂᐅᕋᐃᕕᒃ ᑎᑭᐅᑎᓯᒪᓛᖅᑐᖅ ᐊᑯᑖ ᓯᖅᑲᓖᕕᖑᑦ ᖃᓐᓚᓕᒫᖅ ᐊᑯᑕᐅᕗᓐᓇᕐᓗᓂ. ᐅᑭᐅᒃᑯᑦ ᒥᖒᒃ ᖃᓐᓚᑕᕐᕕᓄᑦ ᒥᖒᐸᐅᕗᓐᓇᓛᖅᑐᖅ ᐊᖏᓂᖅᓴᓄᑦ ᖃᓐᓚᑕᕐᕕᓄᑦ ᓯᑯᒧᑦ ᒥᒍᓐᓇᕐᓗᑎᒃ ᑕᓯᖓᓂ ᐆᒪ Doris Lake ᑕᒡᕙᖓᖓᕗᒧᑦ ᐊᑯᑎᑕᖅᑲᓗᓂ ᒥᖒᖑᒧᑦ.

ᐊᒃᑕᑯᑦ ᐅᔾᔪᕆᓇᒍᑎᒥᓃᑦ ᓯᖃᓕᔭᐅᓂᒃᑯᑦ ᐊᒃᑕᖅᑕᐅᖃᑕᓛᖅᑐᑦ ᑕᓯᖓᓄᑦ ᐆᒪ Tail Lake-ᒧᑦ ᒥᒃᓴᐅᓴᒃᑐᖅ ᑕᑭᓂᖓ 5 km ᑲᓚᒦᑕ ᑐᒃᓯᕖᖑᓯᒪᕗᒥᒃ ᐅᔾᔪᕐᓂᐊᕕᒃᓴᒧᑦ. ᐊᒃᑕᑯᑦ ᐊᒃᑕᖅᑕᐅᕝᕕᒡᒍᑎᒃ ᑕᓯᖓᓄᑦ ᐃᓂᒃᓵᒥᖓᓄᑦ ᓴᓇᔭᐅᕆᐊᓖᒃ ᒪᕐᕈᒃ 2 ᐃᒪᖃᓛᖅᑑᒃ ᐃᓂᕆᔭᐅᓛᖅᑑᒃ: ᖄᒥᕖᒃᑯᑎᖃᑦᑐᑎᒃ ᑲᓐᓇᖕᓇᖓᓂ ᐊᒻᒪᓗ ᐅᐊᖕᓇᖕᓇᓂ ᓯᒦᖕᓂᒃ. ᐅᔾᔪᕆᓇᒍᑎᒥᓃᑦ ᐊᒃᑕᑯᑦ ᐃᑲᓂ ᐃᓂᖃᓛᖅᑐᑦ Tail Lake-ᒥ ᓴᓇᔭᐅᓛᖅᑐᖅ ᐊᒃᐸᓯᖕᓂᓕᖕᒥᒃ ᓯᑦᓯᐅᑎᒍᓐᓇᖅᑐᒥᒃ ᓄᓇᐅᑉ ᐃᑭᐊᖓᒍᑦ ᖁᐊᖑᐃᓐᓇᖅᑑᑉ ᖄᒥᕖᒃᑯᑎᒃᓴᖅ ᐋᕿᒃᓯᒪᓗᓂ ᐃᑯᖓᖓᕗᒧᑦ Tail Lake-ᒧᑦ ᑲᓇᖕᓇᖓᓄᑦ ᐊᒻᒪᓗ ᐊᐃᑉᐹ ᐊᔾᔨᐸᓗᑦᓴᐃᓐᓇᖓ ᑯᕖᒃᑯᑦ ᓴᓇᔭᐅᓯᒪᓛᖅᑐᖅ ᐊᑯᖕᒐᓂ ᓄᓇᐅᑉ ᖄᖓᓅᖓᕗᖅ ᐊᒃᐸᓯᒃᑐᖅ ᐅᐊᖕᓇᖓᑕ ᐃᓯᐊᓂ ᑕᓯᐅᑉ. ᐊᒃᑕᑯᑦ ᓯᖃᓕᔭᐅᓂᑯᑦ ᓴᒧᒪᖅᓴᖅᓯᒪᖅᑲᑦᑕᓛᖅᑐᑦ ᐃᒥᕐᒧᑦ ᓴᒧᒪᖅᓴᐃᒻᒧᑦ ᓴᒧᒪᖅᓴᐃᕙᖕᒥ ᓯᖃᓖᕙᐅᑉ ᓴᓂᐊᓂ ᓱᐳᖅᑎᖅᑕᐅᖅᑲᑦᑕᓛᖅᑐᑦ ᒎᒍᓂᒃ ᐃᖕᒥᒃᑯᐊᓕᖅᑎᑦᓯᒍᑎᒥᓃᑦ ᓴᐃᓇᐃᓐᒥᒃ ᑕᐃᔭᑦ ᕿᒻᒪᑯᑦ ᐊᒻᒪᓗ ᓄᖑᑎᑕᐅᖅᑲᑦᑲᖅᑐᑎᒃ ᐃᒃᑕᕆᒃᑐᖅᑕᓚᑦ ᓴᕕᕋᔭᒃᓴᓂᒃ ᐃᒪᖓᓅᖅᑕᐅᓚᐅᖕᖏᓐᓂᖕᖏᓐᓂ ᐊᒃᑕᑯᑦ ᐆᒪ ᑕᓯᖓᓄᑦ Tail Lake-ᒧᑦ. ᐃᒪᖓ ᐊᒃᑕᑯᖅᑲᐅᒻᒥᖕᒌᖅᑐᖅ ᖃᓐᓚᐅᓕᖅᐸᑦ ᐊᓯᐊᓅᕈᓐᓇᓛᖅᑐᖅ ᐱᕗᖅ ᐃᑲᖕᖓᑦ Tail Lake-ᒥᒃ ᒪᓕᑦᓯᐊᓂᐊᕐᒪᑕᒍ ᑕᒡᕗᖕᖒᖕᖓᕗᑦ ᐊᓯᐊᓅᕈᓐᓇᖅᓯᒃᐸᑕ ᑭᓯᐊᓂ ᐊᑑᑎᑎᑕᐅᕆᐊᖅᒻᒪᑕ ᐊᑑᑎᖓᕝᒃᑐᑎᒍᑦ ᒪᓕᒡᒍᑎᒃ ᐋᕿᒃᓯᒪᔭᕆᓐᓂᒃ ᓄᓇᕗᑦᒥ ᐃᒪᓕᕆᔾᔪᑦ ᑲᑎᒪᔨᖕᕆᑦᑕ, ᑕᒪᒃᑯᐊ ᒪᓕᖕᒪᑕ ᐋᕿᒃᓯᒪᓂᖕᕆᑦ ᐃᒪᓕᕆᕝᕕᑎᓂᒃ ᐊᑑᑕᐅᖅᑯᔭᖅᓂᒃ ᒪᓕᒃᑕᐅᒍᑎᒃ ᓴᐳᔾᔨᒍᑏᑦ ᐃᒥᑦᓯᐊᕝᕕᒥ ᐃᒪᕐᒥᐅᑕᓂᒃ ᐆᒪᕗᓂᒃ (ᐃᖃᓗᖕᓂᒃ ᐊᒻᒪᓗ ᐆᒪᕗᐳᓗᖕᓂᒃ ᐱᐅᓯᖅᓱᖅᑐᓂᒃ ᐃᒥᕐᒦᑦᑐᓂᒃ) ᐆᒪ ᑰᖓᑕ Doris Creek ᐊᑖᓃᑦᑐᖅ ᑰᒃᕕᐅᖅᑕᓛᖅᑐᖅ.

ᒥᐊᕋᒫᒃᑯᑦ ᓛᓐᓇ ᐋᕿᒃᓱᐃᒻᒪᑕ ᐱᕆᐊᕈᑕᐅᓛᖅᑐᓂᒃ ᐊᐅᓚᑦᓯᒍᑎᒃᓴᓂᒃ ᓴᓇᕗᓄᑦ ᐃᒡᒍᓚᐅᖅᑐᓄᑦ ᐊᒻᒪᓗ ᓱᓇᒃᑯᑖᒃᓴᑦ ᐱᓕᕆᕗᓄᑦ ᐃᑯᖓᖅᑕᐅᒍᑎᒃ ᑲᐱᕼᓕᖅᑑᒧᑦ ᐊᐅᔭᒃᑯᑦ ᐅᓯᑲᒃᑯᑦ ᐅᒥᐊᕐᕗᐊᒃᑯᑦ 2007-ᒥ. ᑕᐃᑯᖕᒫᔭᑦ ᑭᓱᑐᐃᓐᓇᐃᑦ ᐃᓚᐅᖃᖅᑕᐅᓛᕐᒪᑕ ᓯᕐᓗᐊᕐᒧᑦ ᓄᓇᐅᑉ ᑭᒡᓕᖕᓃᑦᑐᒧᑦ ᐱᓕᕆᔾᔪᑎᒃᓴᑦ ᓄᑖᖑᑎᓪᓗᒍ 2008, ᑕᐃᑯᖕᒫᖅᑕᑦᑕᒥᓃᑦ ᐅᓯᔭᐅᒍᓐᓇᖅᓯᒃᐸᑕ ᐃᑳᕈᔾᔭᐅᓗᑎᒃ ᓱᑯᖓᒍᑦ ᐃᒪᖕᒪᑕ ᑲᐱᕼᓕᖅᑑᑉ ᐅᓯᔭᐅᓗᑎᒃ ᐃᑯᖓ Doris North ᓄᓇᖕᓂᑦ. ᐱᕙᑦᓚᐊᔭᐅᓕᖅᐸᑦ ᓄᓇᐅᑉ ᐃᓗᐊᓂ ᐅᔾᔪᕐᓂᐊᖅᕕᒃᓴᒥᒃ, ᓴᓇᓚᖅᑐᑦ ᐊᑯᑎᒃᓴᒥᒃ, ᐃᒡᒍᓚᐅᖅᕕᒃᓴᓂᒃ, ᒥᖒᒃᓴᒥᒃ, ᐅᖅᓯᐊᓗᒃᑯᕕᒃᓴᒥᒃ ᐊᒻᒪᓗ ᐅᔾᔭᒃᓴᓚᕆᔾᔪᑎᓂᕐᓄᑦ ᐊᒃᑕᑯᖃᐅᑎᒃᓴᒥᒃ ᑯᕖᒃᑯᑎᓚᐅᕐᓗᑎᒃ ᐊᕝᕙᓗᓕᖕᓂᒃ ᐱᕆᐊᕐᓗᑎᒃ ᓄᑖᖑᑎᓪᓗᒍ 2008-ᒥ. ᑕᒪᕐᒥᒃ ᑕᒪᒃᑯᓐᓇᖓᕗᑦ ᓄᓇᓕᕆᔾᔪᑎᒃᓴᑦ ᓴᓇᔭᐅᓛᖅᑐᑦ ᐅᑭᐅᕐᒥ ᐱᓕᕆᐊᖑᓂᐊᖅᑐᑦ ᐅᔾᔨᕆᔭᐅᑦᓯᐊᕆᐊᖅᑲᒻᒪᑦ ᓴᐳᔾᔭᐅᒍᓂ ᖁᐊᖑᐃᓐᓇᖅᑑᖓᕗᖅ. ᐊᒥᐊᒃᑯᐃᑦ ᐱᓕᕆᕕᖕᒥ ᓴᓇᕿᑎᑦ ᐊᒻᒪᓗ ᐊᐅᓚᑦᓯᔾᔪᑎᓄᑦ ᓴᓇᕿᑎᑦ ᑎᑭᓛᖅᑐᑦ ᑕᒡᕙᖓ 2008 ᐅᓯᔾᔭᒃᑯᑦ ᐃᒫᒍᑦ.

ᐅᔾᔪᕐᓂᐊᖅᑕᑦ ᓴᕿᐊᓂᐊᖅᑐᑦ (ᐊᑐᑎᕗᒃᓴᖅᑕᓕᖕᓂᒃ) ᐱᕆᐊᕐᓂᐊᖅᑐᑦ ᕿᑎᖕᓚᓅᓕᖅᐸᑦ ᐊᕐᕌᒍᖓ 2008 ᐊᒻᒪᓗ ᑲᕗᓯᓗᑎᒃ ᐱᓕᕆᕗᑦ ᓄᙳᐊᓄᓄᑦ 2010 ᐅᔾᔪᕆᓇᕕᖕᒥ ᓯᖃᓖᕕᖕᒥ ᐱᕆᐊᓛᖅᑐᑦ ᕿᑎᖕᓚᓅᓕᖅᐸᑦ 2008. ᒥᐊᕋᒫᒃᑯᑦ ᑲᕗᓯᓂᖅᑲᓂᐊᖅᑐᑦ ᐱᓕᕆᔾᔪᑎᒥᒍᑦ ᕿᓂᖅᑕᑦᑕᕐᓗᑎᒃ ᑖᓐᓇ ᕿᑎᕐᒥᐅᓂ ᐅᑯᐊ Doris North-ᒥᒃ ᐱᓕᕆᐊᒃᓴᓕᕆᔾᔪᑦ (ᐃᑯᖓᖓᕗᑦ Hope Bay-ᒧᑦ ᑎᒍᒥᐊᖅᑕᒧᑦ ᕿᓂᖅᕕᐅᓂᐊᖅᑐᒧᑦ) ᕿᓂᖅᑕᑦᑕᓛᕐᒪᑕ ᐊᓯᖏᓐᓂᒃ ᐊᑑᑎᓂᖅᑲᕈᓐᓇᖅᑐᖅᑕᓕᖕᓂᒃ, ᐊᑯᓂᐅᓂᖅᓴᖅ ᓴᕿᐅᒪᑐᐃᓐᓇᓇᐊᓚᒃ ᑕᒡᕙᖓ ᐱᓕᕆᕕᒃᓴᒎᖓᕗᖅ ᐱᕙᑦᓚᐊᑎᑦᓯᒍᑎᒃᓴᑲᓐᓂᕐᓂᕈᓐᓃᑦ ᑖᓐᓇ ᐊᓯᖏᓐᓂᒃ ᒎᒍᑕᓕᖕᓂᒃ ᓄᓇᒥ.

ᓴᓇᕋᒃᑐᓄᑦ ᐱᓕᕆᔾᔪᑕᐅᕋᒃᑐᑦ ᖁᑦᓯᖕᓂᖃᒻᒪᑦ ᑎᑭᐅᑎᓯᒪᔪᒥᒃ ᓇᓗᓇᐃᔭᐃᒍᑎᒃᑯᑦ ᐅᕝᕙ 120-ᒧᑦ ᑲᔪᓯᓂᐊᖅᑐᑦ ᐱᓕᕆᔪᑦ ᓴᓇᔪᑦ ᐊᒻᒪᓗ ᑕᒫᓂ ᐱᕋᓪᓚᐊᑎᑦᓯᔪᑦ ᐱᒋᐊᕐᓗᑎᒃ January-ᒥ ᑎᑭᓪᓗᒍ December 2008-ᒧᑦ. ᐊᐅᓚᑦᓯᓕᖅᐸᑕ, ᓯᖃᓪᓖᕙᖕᒥ ᐊᒻᒪᓗ ᓵᕿᐊᑎᕆᕙᖕᒥ ᑲᑎᖅᑐᖅᓯᒪᓕᖅᐸᑕ ᐱᓕᕆᔾᔪᑎᓅᖕᒐᔪᑦ ᐱᕋᓪᓚᐊᓂᖕᒋᑦᑎᒍᑦ 24-ᒥᒃ, ᓯᑕᒪᖕᒐᓅᖕᒐᔪᑦ ᐱᒋᐊᓚᐅᖅᑎᓪᓗᒋᑦ ᐅᔾᔨᖅᑑᑎᑦ ᐊᕿᒍᓕᒫᖅ 2008-ᒥ ᑎᑭᓪᓗᒍ ᐱᒋᐊᓕᓵᕐᓂᖅ ᓯᕗᓪᓕᖅᓯᐅᒧᑦ ᐊᕿᒎᖕᒐᓂ 2011, ᓄᓇᐅᑉ ᐃᓗᐊᓂ ᐱᓕᕆᔪᑦ ᐅᔭᕋᒃᓴᖅᓯᐅᖅᑏᑦ ᐱᓕᕆᕗᖕᒋᑦ ᑎᑭᐅᑎᓯᒪᔫᖅᑐᑦ 60-ᓄᑦ ᓄᑖᙱᑎᓪᓗᒍ 2008-ᒥ ᑲᔪᓯᓗᑎᒃ ᓄᙳᐊᓄᑦ ᐊᕿᒍᖕᒐᑕ 2010, ᐱᓕᕆᔪᑦ ᓴᐳᔾᔭᐅᒍᑎᖕᒋᑦ ᒪᑭᒪᔾᔪᑎᖕᒋᓐᓅᖕᒐᔪᓄᑦ ᐃᑲᔪᖅᑐᕈᑎᑦ, ᒪᑯᐊ ᓂᕿᓕᕆᓃᑦ, ᐊᖕᒐᔪᖃᑦ ᐱᓕᕆᕙᖕᓂ ᐊᒻᒪᓗ ᑎᑎᕋᖅᕙᖕᒥ ᑲᑎᓪᓗᑎᒃ ᐱᓕᕆᔪᑦ ᐅᓄᕐᓂᖕᒋᑦ 81. ᑲᑎᓪᓗᑎᒃ ᐊᐅᓚᑦᓯᕙᖕᒦᑦᑐᑦ ᐱᓕᕆᕙᖕᒥ ᓂᕆᐅᒋᔭᑦ ᐊᖕᕋᖕᒋᑦ ᓴᓇᕗᔭᕐᒪᑕ ᐱᓕᕆᕙᖕᒥ ᖃᖕᒐᓕᒫᖅ.

ᐱᓕᕆᕝᕕᒃᓴᖅ ᓯᕗᕐᖓᒍᑦ ᖃᐅᔨᒪᔭᑦ ᐱᓕᕆᑎᑕᐅᓛᖅᑐᑦ ᐊᒥᓱᓂᖅᓴᐅᓛᖅᑐᑦ ᐱᓕᕇᑦ ᐱᔪᑦ ᓄᓇᕗᑦᒥᒃ ᐃᒫᑎᒋ 371 ᐃᖃᓇᐃᔭᖅᑎᑦᓯᒍᑎᒃᑯᑦ ᐊᑑᑎᔪᑦ ᐊᕿᒍᓐᓂ, ᐃᓚᖃᓪᓗᑎᒃ 159 ᐱᓕᕇᒋᔭᑦ ᐊᕿᒍᐃᑦ ᑲᑎᖅᑐᖅᓯᒪᔪᑦ ᓯᕗᕐᖓᒍᑦ ᖃᐅᔨᒪᔭᐅᔪᑦ ᐃᓄᖕᓅᖃᑦᑕᓛᖅᑐᑦ ᐱᓕᕆᐊᒃᓴᑦ. ᐱᓕᕆᕝᕕᒃᓴᒨᖕᒐᔪᑦ ᓯᕗᕐᖓᒍᑦ ᖃᐅᔨᒪᔾᔪᑎᑎᒍᑦ ᐊᖕᒋᓂᖅᓴᐅᓛᖅᑐᑦ ᑲᑎᖅᑐᖅᓯᒪᓗᑎᒃ (ᑐᕌᖅᑕᐅᓪᓚᓇᓪᓗᑎᒃ, ᑐᕌᖅᑕᐅᓪᓚᓇᖕᒋᓪᓗᑎᒡᓗ) ᓄᓇᕗᒻᒥ ᐱᓕᕆᐊᒃᓴᖃᕈᑏᑦ 443 ᐱᓕᕇᒋᔭᑦ-ᐊᕿᒍᐃᑦ; 371 ᐱᓕᕇᒋᔭᑦ-ᐊᕿᒍᓕᒫᖅ ᐃᓚᓗᑎᒃ ᐃᖃᓇᐃᔭᖅᑐᓕᕆᔾᔪᑎᒃᑯᑦ ᓴᓐᓇᕙᓕᕆᔾᔪᑎᓅᖕᒐᔪᓂᒃ ᐱᕋᓪᓚᐊᔪᑎᒍᑦ ᐅᔾᔨᑐᖅᑕᑦ (ᐊᔾᔨᓴᐃᓐᓇᖕᒋᑦ ᑐᕌᖅᕙᐅᓪᓚᓇᓐᓂᕐᒧᑦ ᐊᑑᑎᔪᑦ), 71 ᐱᓕᕇᑦ-ᐊᕿᒍᓕᒫᖅ ᐃᓚᓗᑎᒃ ᐱᔨᑦᓯᕈᑎᓅᖕᒐᔪᓂᒃ ᐱᓕᕆᕙᖕᓂ ᓴᓐᓇᕙᖕᓂ, ᐊᒻᒪᓗ ᒪᕐᕉᒃ ᐱᓕᕇᑦ-ᐊᕿᒍᓕᒫᖅ ᐃᓚᕆᓕᐅᔾᔭᕐᓗᑎᒃ ᑎᑎᕋᖅᕙᖕᒥ. ᒥᐊᕿᒪᒃᑯᑦ ᐱᔭᕇᖅᓯᒪᓕᖅᑐᑦ ᐅᑯᓄᖕᒐᖕᒐᔪᓄᑦ ᐃᓄᐃᑦ ᐊᒃᑐᖅᑲᓂᖅᑲᖁᕙᖕᒋᓐᓄᑦ ᓄᓇᑖᖅᑲᑕᐅᓯᒪᔪᑦ ᐊᖕᒋᕈᑎᖕᒋᓐᓂᒃ ᐅᔾᔨᖅᑐᖃᑎᖃᖅᓱᑎᒃ ᕿᑎᕐᒥᐅᑦ ᐃᓄᐃᑦ ᑲᑐᔾᔨᖃᑎᒌᓐᓂᒃ, ᐱᔾᔪᑎᓕᖕᓂᒃ ᐃᖃᓇᐃᔭᖅᑐᓕᕆᓂᕐᒧᑦ, ᓴᓇᒋᐅᖅᓴᐅᑎᓄᑦ, ᓄᓇᓖᓪᓗ ᖃᓄᐃᖕᒋᑦᓯᐊᕈᑎᒃᓴᖕᒋᓐᓂᒃ ᒪᑭᒪᑦᓯᐊᕐᓗᑎᒃ. ᐊᑎᓕᐅᕈᑏᑦ ᐊᑑᑕᐅᑎᓪᓗᒋᑦ ᖁᕕᐅᓯᒍᑎᖃᔪᔪᑦ ᐅᑯᓄᖕᒐᖕᒐᔪᓄᑦ ᐃᓄᐃᑦ ᐊᒃᑐᖅᑲᓂᖅᑲᖁᕙᖕᒋᓐᓄᑦ ᓄᓇᑖᖅᑲᑕᐅᓯᒪᔪᑦ ᐊᖕᒋᕈᑎᓂᒃ ᐃᑲᓂ ᐃᖃᓗᒃᑑᑦᑎᒥ ᐅᕙᓂ September 2006-ᒥ.

ᐅᑯᐊ Doris North-ᑯᑦ ᒨᒐᓂᒃ ᐱᓕᕆᕝᕕᒃᓴᖕᒐᓅᖕᒐᔪᑦ ᐱᔭᕇᖅᓯᒪᓕᖅᑐᑦ ᐊᕋᑎᓕᕆᔾᔪᑎᓂᒃ ᕿᒥᕐᕈᒍᑎᑦ ᐱᕋᓪᓚᐊᔭᓂᒃ ᐊᒻᒪᓗ ᓄᓇᕗᒻᒥ ᐊᕋᑎᓕᕆᔨᒃᑯᑦ ᑲᑎᒪᔨᖕᒋᑦᑕ ᐊᑑᑕᐅᖁᔭᔾᔭᖕᒋᑦ ᐱᖁᔨᕗᖕᒫᕈᑎᒃᑯᑦ ᐅᕙᓂ (March 2006) ᑐᕌᖅᑐᑦ ᒥᓂᔅᑕᖕᒐᓐᓄᑦ ᐃᓄᓕᕆᔩᑐᖃᒃᑯᑦ ᐱᓕᕆᕝᕕᒃᓴᖅ ᑲᔪᓯᓂᐊᕐᒪᑦ ᒪᓕᒡᓗᑎᒃ ᐱᖁᔭᓕᕆᔾᔪᑎᓄᖕᒐᔪᓂᒃ. ᐅᕙᓂ August 2006-ᒥ ᒥᓂᔅᑕ ᐃᓄᓕᕆᔩᑐᖃᒃᑯᓐᓄᑦ ᐊᖕᒋᔪᔪᖅ ᓄᓇᕗᑦ ᐊᕋᑎᓕᕇᑦ ᑲᑎᒪᔨᖕᒋᑦᑕ ᑐᓴᒃᓴᓕᐊᖕᒐᓂᒃ ᐊᒻᒪᓗ ᐱᓕᕆᒍᑎᒃᓴᒥᒃ ᓇᓗᓇᐃᒃᑯᑕᕐᒥᒃ ᑐᓂᓯᓪᓗᑎᒃ ᓄᓇᕗᑦ ᐊᕋᑎᓕᕇᑦ ᑲᑎᒪᔨᖕᒋᑦ ᐅᕙᓂ September 2006-ᒥ. ᓄᓇᕗᑦ ᐃᒪᓕᕇᑦ ᑲᑎᒪᔨᖕᒋᑦᑕ ᐃᒪᓕᕆᔾᔪᑎᒃᓴᐅᑎᓖᑦ ᓚᐃᓴᑦ ᐃᓚᒋᔭᐅᒪᑦ ᐱᔪᓐᓇᕈᑎᓪᓚᕆᐅᓪᓗᓂ ᐊᑑᑕᐅᔭᕆᐊᓕᒃ ᓯᕗᕐᖓᒍᑦ ᓴᓇᔪᖃᓚᐅᖕᒋᓐᓂᖕᒐᓂ ᐱᒋᐊᓛᖅᑐᑦ ᐅᕝᕙᖕᒐᔪᒧᑦ Doris North-ᒥ ᐱᓕᕆᕝᕕᒃᓴᒥᒃ. ᒥᐊᕿᒪᒃᑯᑦ ᐱᓕᕆᖃᑎᖃᖃᑦᑕᕐᒥᔪᑦ ᕿᑎᕐᒥᐅᑦ ᐃᓄᐃᑦ ᑲᑐᔾᔨᖃᑎᒌᖕᒋᓐᓂᒃ ᐃᓱᒫᓗᒐᐃᔭᖃᑎᖃᖅᓱᑎᒃ ᓄᓇᒥᒃ ᐊᑭᓕᖅᑐᒐᖃᕈᑎᒃᓴᓂᒃ, ᐃᓄᓕᕆᔩᑐᖃᒃᑯᑦ ᓄᓇᐅᑉ ᑭᓪᓕᖕᒐᓅᖕᒐᔪᒥᒃ ᐊᑭᓕᖅᑐᒐᖃᐅᒻᒥᒃ ᐅᕝᕙᖕᒐᖕᒐᔪᒥᒃ ᑲᐱᕼᓕᖅᑑᑉ ᐃᒪᖕᒐᓅᔪᒥᒃ ᓂᐅᕋᐃᕝᕕᒃᓴᒥᒃ, ᐊᖁᑕᐅᓪᓗᑎᒃ ᐃᖃᓗᓕᕆᔨᒃᑯᑦ ᐃᒪᕐᒥᐅᑕᓕᕆᔨᒃᑯᑦ ᐊᒻᒪᓗ ᑲᓇᑕᒥ ᐊᕋᑎᓕᕆᔨᒃᑯᑦ ᐊᖁᑕᐅᒪᑕ ᐊᑑᑕᐅᔭᕆᐊᓕᖕᓄᑦ ᐅᑯᑎᒎᓇ ᐃᖃᓗᓕᕆᔾᔪᑎᑦ ᒪᓕᒐᖅᑎᒍᑦ ᐊᒻᒪᓗ ᐋᕿᒋᐊᕈᑎᒃᓴᑦ ᓴᕙᕋᔭᒃᓴᓕᕆᕙᖕᓂ ᐅᔭᕋᓐᓂᐊᖅᕙᖕᓂ ᖃᒥᓐᓂᐅᓴᔪᖅᑕᓕᖕᓂ ᐱᖁᔭᓕᕆᔾᔪᑎᑦ ᐃᓚᖃᒻᒪᑕ ᐅᕝᕙᖕᒐᖕᒐᔪᒥᒃ Tail Lake-ᒧᑦ ᑐᑭᖕᒋᑦ ᐅᕙᓃᑦᑐᑦ Schedule 2-ᒥ, ᓄᓇᒥᐅᑕᓕᕆᔨᒃᑯᑦ ᑲᓇᑕᒥ ᐱᔾᔪᑎᓕᖕᓂᒃ ᖃᖅᑎᑦᓯᒍᑎᒃᓴᑦ ᐃᓂᖕᒐᓂᒃ ᓯᖁᐊᒥᒃ ᐊᒻᒪᓗ ᐱᔪᓐᓇᕈᑎᓂᒃ ᐊᒻᒪᓗ ᑲᓇᑕᒥ ᐃᖕᒋᕐᕋᔪᓕᕆᔨᒃᑯᑦ ᖃᓄᑐᐃᓐᓇᖅ ᐱᓕᕆᐊᒃᓴᓂᒃ ᐊᒃᑐᐊᓂᓕᖕᓂᒃ ᐱᔪᓐᓇᕈᑕᐅᔪᓂᒃ, ᐊᑑᑎᑎᑦᓯᔨᐅᓪᓗᑎᒃ ᑲᔪᓯᑎᑦᓯᔩᑦ, ᐊᒻᒪᓗ ᓄᓇᕗᑦ ᑑᙵᕕᒃᑯᑦ ᑮᓪᓕᖅᐹᓂᒃ ᓵᕿᐊᑎᑕᓂᒃ ᐊᑭᓕᖅᑐᒐᓐᓂᕐᒧᑦ ᐊᖕᒋᕈᑎᓂᒃ.

ᑐᒃᓯᕋᐅᑦ ᐅᑯᓄᖕᒐᖕᒐᔪᖅ Doris North-ᒧᑦ ᐃᒪᓕᕆᔾᔪᑎᒃᓴᖅ ᓚᐃᓴ ᐱᔾᔪᑎᓖᑦ ᐊᑑᑕᐅᒋᐊᓕᖕᓂᒃ ᒪᓕᒃᑕᐅᓗᑎᒃ ᐊᑐᐃᓐᓇᐅᑎᑕᖕᒋᑦ ᓄᓇᕗᑦ ᐃᒪᓕᕇᑦ ᑲᑎᒪᔨᖕᒋᑦᑕ ᐋᕿᒃᓱᖅᑕᐅᔪᑦ ᑕᒪᒃᑯᓄᖕᒐᖕᒐᔪᑦ ᐊᓯᖕᒋᓐᓄᑦ ᕿᒥᕐᕈᔨᓄᑦ. ᐅᑯᐊ ᑐᒃᓯᕋᐅᑎᑦ ᐃᑲᔪᖅᑐᕐᒪᑕ ᐊᓪᓚᒃᓯᒪᔪᑎᒍᑦ ᓇᓗᓇᐃᔭᖅᓯᒪᔪᑦ ᐃᑐᓕᖕᒋᓐᓂᒃ

ᐊᒻᒪᓗ ᐸᕐᓇᑕᐅᔪᓂᒃ ᐱᔾᔪᑎᓕᖕᓂᒃ ᐃᒪᓕᕆᔾᔪᑎᒃᓴᓅᖕᒍᔪᓂᒃ Doris North-ᒨᖕᒍᔪᒧᑦ ᐱᓕᕆᕕᒃᓴᒧᑦ. ᒥᐊᕋᒫᒃᑯᑦ ᐊᔪᐃᓐᓈᕐᑲᕐᑲᑦᑕᕐᒪᑕ ᐱᓕᕆᐊᕆᑦᓯᐊᕋᓱᐊᖅᓱᒋᑦ ᕐᑲᓄᑐᐃᓐᓇᖅ ᐅᔾᔮᖅᑐᕆᐊᓕᓂ ᐊᑑᑕᐅᕐᑯᔭᑦ ᒪᓕᒃᑕᐅᒥᐊᓖᑦ ᐊᑐᐃᓐᓇᐅᑎᑦᓯᕕᒥᒐᓱᐊᖅᓱᒋᑦ ᓄᓇᕗᑦ ᐃᒪᓕᕆᔩᑦ ᑲᑎᒪᔨᖕᒥᑦ ᐅᑯᓂᖕᒐ ᐊᓪᓚᒃᓯᒪᔪᓂᒃ.

1.0 INTRODUCTION
Oingaiknik
ᖃᓄᐃᑦᑐᓂᒃ ᐱᔾᔪᑎᓛᑦ

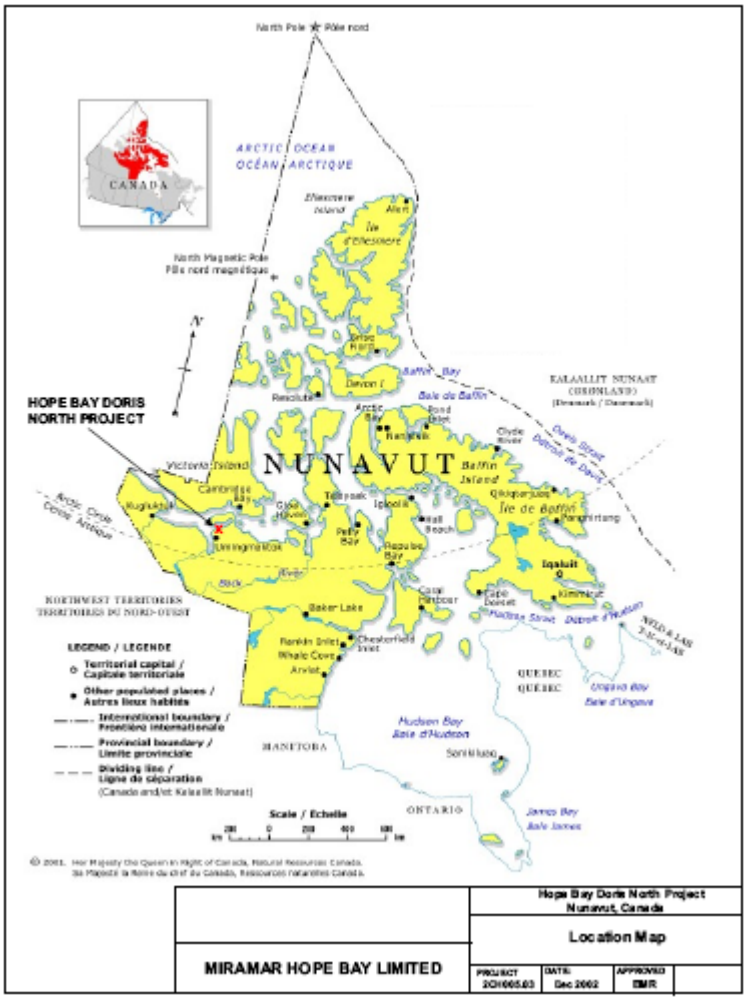
1.1 Project Introduction and Location

This document is being submitted to the Nunavut Water Board (NWB) by Miramar Hope Bay Limited (MHBL) in support of its application for a water license (covering water use and waste disposal) for the proposed Doris North Project (the Project). The application for this water license was initially submitted to the Nunavut Water Board in March of 2002. A copy of the completed *Water License Application Form* and the *Water License Application Supplementary Questionnaire for Mine Development* are attached as Appendix A to this document. NWB referred the Project to the Nunavut Impact Review Board (NIRB) for environmental screening. The Project was referred to a Part 5 Review under Section 12 of the Nunavut Land Claims Agreement by the Minister of Indian and Northern Affairs Canada (INAC) following a Nunavut Impact Review Board (NIRB) 12.4.4(b) Screening Decision. In February of 2006 MHBL took part in the Final Hearing process conducted by the NIRB. During that process MHBL and its consultants presented the Project to the NIRB and staff and went into extensive detail from an impacts assessment prospective for the Project. The Doris North Project has now completed the environmental review process and the NIRB recommended (March 2006) to the Minister for INAC that the Project should proceed to the regulatory phase. In August 2006 the Minister approved the NIRB report and a Project Certificate was issued by NIRB in September 2006.

This report is intended to provide a summary of the information provided to the NWB in support of MHBL's application for a water license for the Doris North Project. The document is intended to be inclusive with the detailed engineering reports, drawings and specifications attached as supporting documents. The focus is on all planned facilities and operational activities at the proposed Project dealing with water use and waste disposal. The report includes operational and environmental management plans relating to water use and waste disposal including plans for the reclamation of the mine following closure. This document strives to be inclusive however due to the scope of this application the reader will be referred to the attached appendices and supporting documents to appreciate the full context of the information provided.

MHBL intends to develop the Doris North Mine for the purpose of extracting gold for sale on global markets. The Doris North Project is located on the mainland in the West Kitikmeot region of Nunavut approximately 110 km southwest of Cambridge Bay and 75 km northeast of Umingmaktok (see Figure 1-1). The Project is located on Inuit Owned Lands at 68 deg. 09 min. N x 106 deg. 40 min. W, 5 km south of Roberts Bay, an extension of Melville Sound which connects with Bathurst Inlet about 80 km west of the Project.

Figure 1-1: Location Map



MHBL is proposing to construct, operate and reclaim a small underground gold mine (average throughput of 690 tonnes per day) that will have a two year life. According to current mine reserves the mine will produce approximately 311,000 ounces of gold from 460,000 tonnes of ore. Processing of the ore will occur on site with the gold being shipped off site by air in the form of dore bullion bars to a commercial refiner. The project will be self-sufficient and will have a footprint of approximately 54 hectares.

The site is remote and there are no permanent or winter roads that link it to any neighbouring communities or facilities. Currently, there is no infrastructure development on the site, with the exception of an exploration camp on the east shore of Windy Lake, located approximately 10 km southwest of the project site.

1.2 Changes to Project Development Plan from October 2005 Final EIS

Several changes have been made to the Doris North Project in relation to what was indicated in the October 2005 Final Environmental Impact Statement (FEIS) submission and supplementary documents submitted for the February 2006 NIRB final hearing. These modifications reflect advances in Project design as well as input from regulatory agencies such as the Department of Fisheries and Oceans Canada (DFO). All of the changes are relatively minor and generally lessen the potential for the Project to have an adverse impact on the environment. Some of these changes reflect specific commitments established under the NIRB process. These changes or advancements are highlighted here to avoid confusion as participants commence their reviews in advance of the Water License Hearings. Specifically the following changes or advancements have been made to the Project:

- The proposed milling process has been modified to allow all of the leached flotation concentrates to be placed underground as backfill material. This modification was made in response to suggestions put forward by DFO. It means that the solid residue resulting from the cyanide leaching of the flotation concentrate will now be filtered and washed within the mill with the solids trucked underground to be placed in stopes. Consequently this waste stream will be diverted from Tail Lake and should lessen the potential impact on Tail Lake. The filtrate solution will be recycled within the milling circuit with a small bleed solution being sent to Tail Lake with the flotation tailing. The bleed solution will be treated using the Caro's Acid Process within the mill to destroy residual cyanide and to reduce metal concentrations before being blended with the flotation tailing waste stream;

- The layout of the ANFO explosives mixing plant, magazines and AN storage has been modified following consultation with the proposed explosives supply contractor and Natural Resources Canada (NRCAN). The location of these proposed facilities remains unchanged however the physical layout of the mixing plant and magazines has been changed on the advice of the explosives supplier to reflect their experience and to comply with regulatory requirements for distance between these facilities;

- Under the NIRB process MHBL committed to construction of a small landfarm facility for the remediation of hydrocarbon contaminated soils generated by unplanned events during the mine life. The preferred location for this facility has now been established as being within the footprint of quarry number 2 adjacent to the mine's planned landfill. A design and operating plan for this landfarm have been developed and are included with this document;

- MHBL arranged for additional bathymetry data to be obtained in the area of Roberts Bay where the jetty is to be constructed. During the NIRB process MHBL had committed to assess the required length of this jetty and to shorten it if possible while still accommodating the required draft for the NTCL barges. The new bathymetry data reaffirmed the initial design at 103 meters in length to provide suitable draft and consequently it is not possible to shorten the planned length of the jetty;

- The layout of the plant site (mill, maintenance shop, camp, power house and reagent storage area) has been refined based on new topographical survey data and geotechnical drilling. The location of the plant site has not been changed just the arrangement;

- In the early winter of 2006 MHBL undertook a geotechnical drilling program on the proposed four quarry sites (Quarry 1 at Roberts Bay, Quarry 2 near the plant site, Quarry 3 near Tail Lake and Quarry 4 which is a cut and fill leveling near the portal to found the mill foundations). The drill holes were sampled at 1 meter depth intervals and the samples sent out for acid base accounting analysis. The objective was to adequately demonstrate that these quarry sources will provide geochemically suitable rock fill for mine site construction. The program did verify that rock from these quarried sources will be non-acid generating.

Additional detail on these modifications has been included in the Project Description portion of this report (Section 2).

1.3 Water Board Application Guidelines – Conformity Table

The role of the NWB in granting a water license is a significant component in the approvals process for the proposed Doris North Project. This document was prepared in accordance with published NWB guidelines for water license applications and with Project specific application guidelines for the Doris North Project provided by NWB staff in October of 2006. To aid readers in determining where in this document the NWB Project specific guidelines have been addressed a conformity table has been prepared that directs the reader to the appropriate location within this report and within the appendices and supporting documents where these guidelines addressed. For some guidelines the reader will be required to refer to more than one document where a particular subject has been discussed. As much as possible the subject matter has been addressed within this summary document so that the reader only has to go to the supporting document if more detail is needed to address the reader's interest. The conformity table for the Doris North water license application supplementary materials report is included here as Table 1-1.

The contents of this submission reflect the evolution of a project moving through the environmental assessment and regulatory process. The most up to date information available for the project has been provided in this document and should replace any previous plans or concepts.

Table 1-1: Conformity Table

Guidelines Section No.	Guideline	Title of Reference Document	Section/Page No.	Comment
4.a - General information presented for application designs and plans				
4.a(i)	Design requirements, design criteria, design parameters, design standards/analysis/method	1) Design of the Tailings Containment Area - Supporting Document S1 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 4) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4	1) Full document 2) Full document 3) Full document 4) Full document	
4.a(ii)	Design assumptions and the limitations associated with such design assumptions	1) Design of the Tailings Containment Area - Supporting Document S1 2) Design of the Surface Infrastructure Components - Supporting Document S2	1) Section 3 (Pages 5 thru 8) 2) Section 3 (Pages 6 thru 9)	
4.a(iii)	The inclusion of clear, definable engineering qualifiers with all design drawings and reports	1) Design of the Tailings Containment Area - Supporting Document S1 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4	1) Sections 3 and 5 2) Section 3 (Page 6) 3) Full document	1) Section 3 contains design criteria and assumptions, Section 5 contains dam design information 2) Design criteria and assumptions.

Guidelines Section No.	Guideline	Title of Reference Document	Section/Page No.	Comment
4.a(iv)	Site specific data and analysis to support the design and management decisions made	1) Design of the Tailings Containment Area - Supporting Document S1 2) Design of the Surface Infrastructure Components - Supporting Document S2	1) Section 5.3.1 (page13), Section 5.5 (thermal analysis), Section 5.6 (creep deformation analysis), Section 5.7 (stability analysis), Section 5.8 (settlement analysis), Appendix D (geotechnical investigations), Appendix E (wave run up calculations) and Appendix F (water balance calculations) 2) Appendices A, B and D	2) Bathymetry information, Foundation investigations, thermal pad design
4.a(v)	Materials that appropriately delineate the particulars of a design or plan	1) Design of the Tailings Containment Area - Supporting Document S1 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components, Supporting Document S4	1) Sections 3, 4, 5, 7 and 9 2) Sections 3, 4, 5 and 6 3) Full document	1) Design criteria, site selection, design and operational plan 2) Design criteria and assumptions, Design of surface infrastructure components, operation and maintenance procedures and construction information.
4.a(vi)	Construction methods and procedures in how infrastructure will be put in place on-site	1) Design of the Tailings Containment Area - Supporting Document S1 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components, Supporting Document S4	1) Section 8 (pages 28 thru 33) 2) Section 6 (Pages 31 thru 35) 3) Full document	1) Construction of tailings containment area 2) Construction of surface earthworks for infrastructure.

Guidelines Section No.	Guideline	Title of Reference Document	Section/Page No.	Comment
4.a(vii)	Instrumentation and monitoring requirements of the proposed designs and plans	1) Design of the Tailings Containment Area - Supporting Document S1 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components, Supporting Document S4	1) Section 11.1.3 Dam instrumentation, Section 11 (pages 39 thru 43 covers monitoring of the tailings containment area 2) Section 7 (Page 36) 3) Drawings G-04, T-09 and T-10	
4.a(viii)	Details on how facilities, structures, and plans will be operated, maintained and implemented	1) Water License Application Support Document 2) Design of the Tailings Containment Area - Supporting Document S1 3) Design of the Surface Infrastructure Components - Supporting Document S2	1) Section 3, Section 4 2) Sections 9 (operation) and Section 10 (maintenance) 3) Section 5 (Pages 21 thru 30)	
4.a(ix)	Construction, chemicals, and other materials used and are in contact or may impact waters either directly or indirectly	1) Water License Application Support Document 2) Hazardous Material Management Plan	1) Section 3.8 and Section 4.5 2) Full document	
4.a(x)	Mitigation for construction in and in close proximity of waters	1) Environmental Protection Plan - Supporting Document S10 2) Design of the Surface Infrastructure Components - Supporting Document S2.	1) Section 2.7 and 2.13 - General Procedures 2) Section 6.2 (page 31) for the jetty construction	
4.a(xi)	Appropriate referencing of other documents and annexed materials	1) Water License Application Support Document	TOC and throughout the text	

Guidelines Section No.	Guideline	Title of Reference Document	Section/Page No.	Comment
4.b - Plans and designs presented where water use or waste deposition occurs				
4.b(i)	Earthwork infrastructure	1) Water License Application 2) Design of the Tailings Containment Area - Supporting Document S1 3) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 4) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4	1) Section 2.4.1 thru 2.4.5 and Sections 2.4.8. thru 2.4.15 2) Section 5 (dam design) 3) Sections 4, 5, 6, 7, 8, 9, 10 and 11 4) Drawings T-01 thru T-14	
4.b(ii)	Water intake facilities and how water will be withdrawn	1) Water License Application 2) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4	1) Section 2.4.13 2) Drawing T-11, and T-12	
4.b(iii)	Interim waste rock facilities	1) Water License Application 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 4) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4 5) Interim Waste Rock Storage Plan - Supporting Document S10d	1) Section 2.4.7 and 3.3 2) Sections 4.13, 5.5.5, 5.5.6 and 6.10 3) Section 10.2.14 (page 70) and 10.2.16+10.2.17 (Pages 70 and 71) 4) Drawings S-07 and S-08 5) Full document	

Guidelines Section No.	Guideline	Title of Reference Document	Section/Page No.	Comment
4.b(iv)	Tailings containment area	1) Water License Application 2) Design of the Tailings Containment Area - Supporting Document S1 3) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 4) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4	1) Section 2.4.8 and 3.6 2) Full document 3) Section 11 (Pages 78 thru 88) 4) Drawings T-01 thru T-14	
4.b(v)	Landfills	1) Water License Application 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 4) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4 5) Landfill Design and Management Plan - Supporting Document S10g	1) Section 2.4.11 2) Sections 4.16, 5.10 and 6.14 3) Section 10.2.22 (Page 72) 4) Drawing S-13 and S-14 5) Full document on landfill facility	

Guidelines Section No.	Guideline	Title of Reference Document	Section/Page No.	Comment
4.b(vi)	Landfarms	1) Water License Application 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 4) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4 5) Landfarm Design and Management Plan - Supporting Document S10h	1) Section 2.4.11 2) Sections 4.17, 5.11 and 6.15 3) Section 10.2.23 (Page 73) 4) Drawing S-13 and S-14 5) Full document on landfarm facility	
4.b(vii)	Fuel and chemical storage facilities	1) Water License Application 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 4) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4 5) Hazardous Materials Management Plan - Supporting Document S10e	1) Section 2.4.9 and Section 3.8 2) Sections 4.9, 4.10, 5.6, 6.7 and 6.8 3) Section 10.2.5 (Page 65) and Section 10.2.9 (Page 68) 4) Drawings S-01, S-02, S-05 and S-06 5) Full document on hazardous materials management	

Guidelines Section No.	Guideline	Title of Reference Document	Section/Page No.	Comment
4.b(viii)	Explosives management areas and facilities	1) Water License Application 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 4) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4 5) Explosives Management Plan - Supporting Document S10f	1) Section 2.4.10 2) Sections 4.8, 5.5.3 and 6.4 3) Section 10.2.6 (Page 66) 4) Drawing S-04 5) Full document on explosives management	
4.b(ix)	Construction materials (i.e. quarried rock)	1) Water License Application 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 4) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4 5) Geochemical Characterization of Quarry Materials - Supporting Document S7	1) Section 2.4.14 and Figure 2.6 2) Sections 3.5 and Appendix E 3) Section 7.2 (Page 35) 4) Drawing G-05 5) Full document on geochemical characterization	
4.b(x)	Hazardous waste facilities	1) Water License Application 2) Hazardous Materials Management Plan - Supporting Document S10e	1) Section 3.8 2) Section 2.4 (Page 9)	

Guidelines Section No.	Guideline	Title of Reference Document	Section/Page No.	Comment
4.b(xi)	Site water management facilities	1) Water License Application 2) Design of the Tailings Containment Area - Supporting Document S1 3) Design of the Surface Infrastructure Components - Supporting Document S2 4) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 5) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4 6) Water Management Plan - Supporting Document S10j 7) Water Quality Model - Supporting Document S6	1) Sections 3.6.5 and 3.7 2) Full document 3) Sections 4.14, 4.15, 5.9 and 6.12 4) Section 5.2.4 (page 28), Section 9.2.8 (page 58), Section 10.2.16 thru 10.2.18 (pages70-71) 5) Drawing S-07 and T-01 and T-13 6) Full document 7) Section 2 (page 3)	
4.b(xii)	Wastewater treatment facilities	1) Water License Application 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4	1) Section 2.4.12 and Section 3.5 (mill effluent) 2) Section 4.11 Page 18/19 3) Drawing S-07	

Guidelines Section No.	Guideline	Title of Reference Document	Section/Page No.	Comment
4.b(xiii)	Ore stockpiles and recovery reject materials	1) Water License Application 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4	1) Section 3.3 2) Sections 4.11, 5.5.1 and 6.9 3) Drawing S-07 and S-08	
4.b(xiv)	Dewatering programs	1) Water License Application	1) Section 3.2	No dewatering programs are planned. Mining will be under "dry" permafrost conditions.
4.b(xv)	Hydrostatic testing programs	1) Design of the Tailings Containment Area - Supporting Document S1		No hydrostatic testing programs are planned
4.b(xvi)	Road, airstrip and ice road construction	1) Water License Application 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 4) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4	1) Sections 2.4.2 thru 2.4.5 2) Sections 4.2, 4.3 4.4, 4.5, 5.2, 5.3, 6.3 and 6.4 3) Sections 10.2.2 thru 10.2.4 (Pages 63 thru 65) and Sections 10.2.7 and 10.2.8 (Page 66) 4) Drawings G-02, S-01 thru S-03, S-10 thru S-12 and S-15 thru S-26	
4.b(xvii)	Water use	1) Water License Application	1) Sections 5.1, 5.2 and 5.3	

Guidelines Section No.	Guideline	Title of Reference Document	Section/Page No.	Comment
4.b(xviii)	Macroscopic site water management	1) Water License Application 2) Water Management Plan - Supporting Document S10j 3) Water Quality Model - Supporting Document S6 4) Design of the Tailings Containment Area - Supporting Document S1	1) Section 2.4.4, Section 3.7 and Section 3.6.5 2) Full document 3) Sections 4 and 5 (pages 44 thru 82 4) Section 7 - tailings water management	
4.b(xix)	Spill contingency and emergency response	1) Water License Application 2) Doris North Project Emergency Response and Contingency Plans - Supporting Document S10a	1) Section 4.6 2) Full document	
4.b(xx)	Interim and final abandonment and reclamation of the mine site	1) Water License Application 2) Mine Closure and Reclamation Plan - Supporting Document S10l	1) Section 8 2) Full document	
4.b(xxi)	Aquatic effects monitoring	1) Water License Application 2) Monitoring and Follow up Plan - Supporting Document S10m 3) Final Report on Effluent and Aquatic Study Monitoring Design - Supporting Document S12	1) Section 7.9 2) Section 8.0 3) Full document	3) Item 3 is a Supporting Document from the October 2005 Doris North FEIS
4.b(xxii)	General monitoring	1) Water License Application 2) Monitoring and Follow up Plan - Supporting Document S10m	1) Section 7 2) Full document	

Guidelines Section No.	Guideline	Title of Reference Document	Section/Page No.	Comment
4.b(xxiii)	Quality assurance and quality control	1) Water License Application 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 4) Quality Assurance/Quality Control Plan - Supporting Document S10k 5) Design of the Tailings Containment Area - Supporting Document S1	1) Section 4.1 2) Section 6.1 3) Section 9.2.9 and 9.2.10 (Page 58) 4) Full document 5) Section 8.3 QAQC for tailings dam construction	1) Water quality monitoring QA/QC 2) Construction QA/QC 3) Construction QA/QC 4) Water quality monitoring QA/QC
4.b(xxiv)	Geotechnical and structural monitoring	1) Water License Application 2) Design of the Tailings Containment Area - Supporting Document S1 3) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4	1) Section 7.7 2) Section 11 3) Drawings G-04, T-09 and T-10	
4.b(xxv)	Marine jetty design and management	1) Water License Application 2) Design of the Surface Infrastructure Components - Supporting Document S2 3) Technical Specifications for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S3 4) Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components - Supporting Document S4	1) Section 2.4.1 2) Sections 3.2.2, 4.1, 5.1, 6.2 and Appendix C 3) Section 10.2.1 (Page 63) 4) Drawings J-01 thru J-03	

Guidelines Section No.	Guideline	Title of Reference Document	Section/Page No.	Comment
4.b(xxvi)	The collection of weather data for purposes of mine design	1) Water License Application 2) Hydroclimatic Parameter Re-Evaluation 2006 - Supporting Document S5 3) Air Quality Management Plan - Supporting Document S10b 4) Monitoring and Follow up Plan - Supporting Document S10m	1) Section 3.6.1 2) Full document 3) Section 3.3 (Page 10) 4) Section 2.3	
NIRB: Doris North Project Certificate Terms and Conditions related to Nunavut Water Board, Water Licensing Process				
Condition 10	*In commentary*: "...the sampling shall be conducted in accordance with a methodology approved by NWB though a Quality Assurance/Quality Control ("QA/AC") plan…."	1) Water License Application 2) Quality Assurance/Quality Control Plan - Supporting Document S10k	1) Section 4.1 2) Full document	
Condition 13	MHBL shall collect additional water quality data for the 2006 field season and incorporate it into a revised water quality model to be submitted to the NWB as part of the water license application. MHBL will meet discharge criteria on a site specific basis set by the NWB where possible, for the protection of the receiving environment at the point of discharge.	1) Water License Application 2) Water Quality Model - Supporting Document S6	1) Section 3.6.5 2) Section 3.3.2 (Page 15)	
Condition 14	MHBL shall collect additional precipitation, evaporation and runoff data and incorporate it into a revised water balance to be submitted to the NWB as part of the water license application.	1) Water License Application 2) Hydroclimatic Parameter Re-Evaluation 2006 - Supporting Document S5	1) Section 3.6.1 2) Full document	
Condition 18	MHBL shall submit to the NWB, as part of the water licence application, a program detailing the methodology for testing quarried rock for acid generation and metal leaching potential. The sampling, testing and analysis must me done by a professional geologist registered in Nunavut.	1) Water License Application 2) Geochemical Characterization of Quarry Materials - Supporting Document S7	1) Section 2.4.14 2) Full document	
Condition 31	A complete Closure and Reclamation Plan prepared in accordance with the NWB requirements shall be filed by MHBL at the time MHBL makes application to the NWB for a water license for the mine.	1) Water License Application 2) Mine Closure and Reclamation Plan - Supporting Document S10l	1) Section 8 2) Full document	

2.0 PROJECT DESCRIPTION
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2.1 Project Phases

The Doris North Project (the Project) will consist of four distinct but contiguous phases; construction, operations, closure and post closure, with exploration activities being conducted throughout the development and operations periods. These phases are defined as follows:

- Construction – The period of time required to mobilize equipment and materials to the Doris North Project site once all regulatory requirements have been met and a decision to proceed given by the MHBL Board of Directors; and the time required to physically construct all of the necessary facilities on surface to allow production to commence and to develop the underground workings to a point where sufficient ore can be extracted to sustain surface milling operations. It is expected that this phase will last approximately 18 to 24 months;

- Operations – The period of time required to extract and process the known ore reserves at the Doris North Project. It is expected that this phase will last approximately 24 months;

- Closure – The period of time after operations have ceased and while the site is being decommissioned and reclaimed. It is expected that this phase will last two years to remove the buildings and infrastructure and an additional five years until no further active management of Tail Lake discharge is required. In other words the closure phase is expected to last 7 year. The camp will be used during the initial two year period. After two years the summer management of the active Tail Lake discharge would utilize a small tent camp (2 people on site for a short summer window) for five years; and

- Post Closure – The post closure phase starts after there is no longer an active management of the discharges from Tail Lake and continues until post closure monitoring verifies that reclamation of the site is complete and that no further active management is required.

2.2 Project Summary

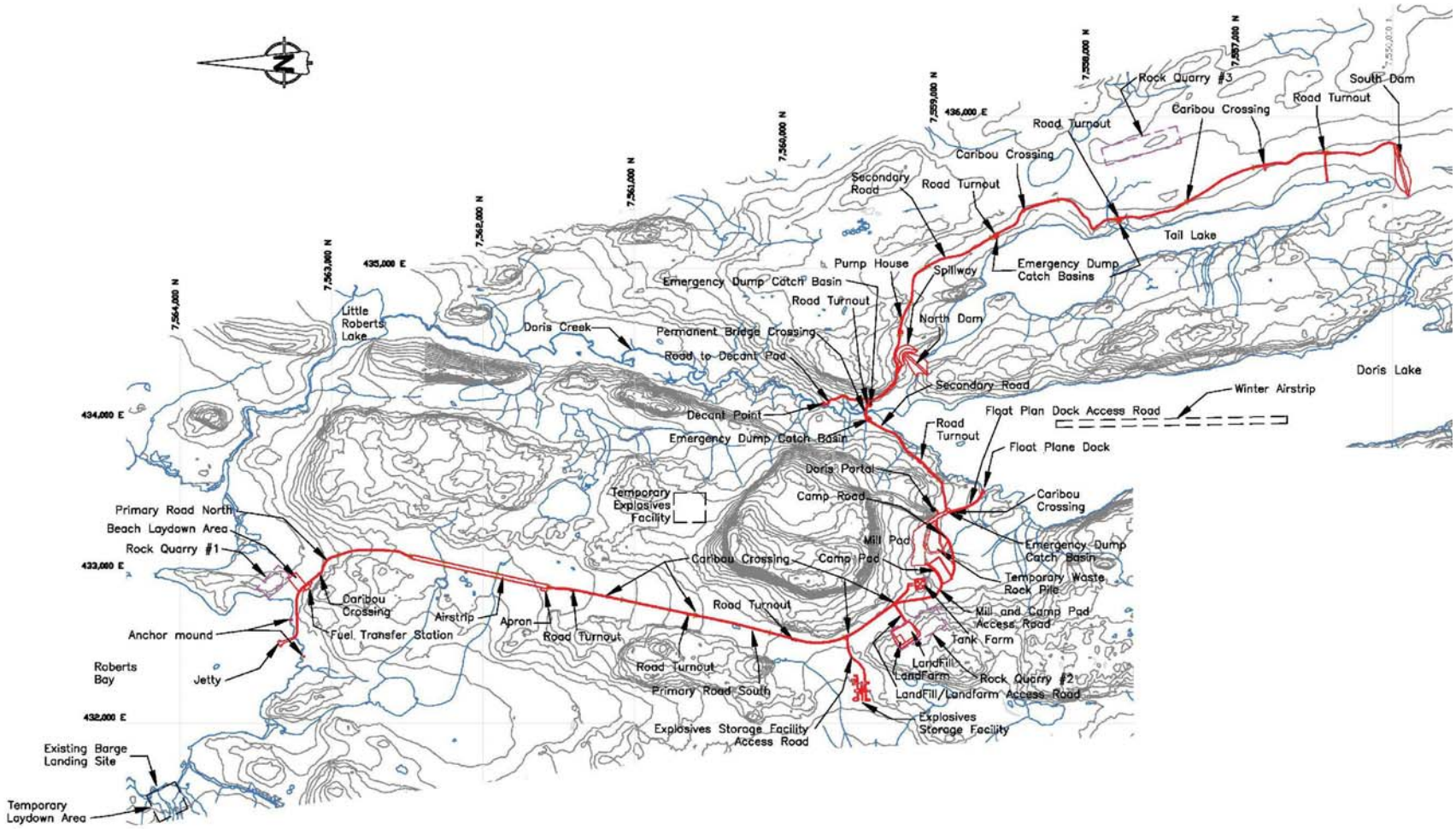
Mineral exploration on the 80 km long Hope Bay greenstone belt has been ongoing since the early 1990s. MHBL has been exploring for commercial mineral deposits in the area since 2000 when it acquired the right to conduct such exploration from BHP Minerals Ltd. Since then a number of prospective gold deposits have been found, out of which three significant mineralized areas have been identified: the Boston area, the Doris North area (includes Doris North, Doris Connector and Doris Central) and the Madrid area (includes the Naartok, Suluk and Madrid mineralized resource areas).

Exploration work conducted through 2001, indicated that the Doris North deposit had readily accessible higher ore grade resources than the Boston or Madrid mineralized areas and thus offered MHBL an opportunity to reach commercial production at a lower capital outlay. A feasibility study was completed on developing the Doris North resource in early 2003. This feasibility study indicated that this resource could be economically developed as a low tonnage underground mine (subject of this document).

MHBL has continued exploration activity at other sites on the belt with primary focus on the Boston and Madrid areas with the objective of upgrading gold resources at the Boston and Madrid deposits to technical levels, which, if results are positive, would be incorporated into feasibility studies in 2007. To date feasibility studies on the resources at these other two areas have not been completed and thus it is not known whether the resources identified in these areas can be commercially developed. However MHBL is encouraged by its exploration activity at both the Madrid and Boston areas and feels that there is good reason to be optimistic that sufficient resources will be identified at both of these sites to allow these deposits to also be brought into commercial production in the foreseeable future.

The Doris North Project will consist of an underground mine with a single adit and ramp access. The ore will be brought to surface where it will be stockpiled and processed through a crushing and milling plant with a nominal capacity of 668 t/day (design capacity of 800 TPD and an operating factor of 83.5%). The product will be shipped off site in the form of dore bars. This Project is expected to operate for 24 months, process 460,000 tonnes of ore yielding approximately 311,000 ounces of gold. The site is remote and there are no permanent or winter roads that link it to any neighbouring communities or facilities. Currently, there is no infrastructure development on the site, with the exception of an exploration camp on the east shore of Windy Lake, located approximately 10 km west of the project site. The primary access route to the property for fuel, equipment and supplies will be via the Arctic Ocean (sealift using tugs and barges). The proposed mill site is located approximately five kilometers from Roberts Bay. This area is accessible by ships and barges for a short ice-free shipping season. A jetty will be constructed in Roberts Bay as a landing facility for the barges. Equipment will be offloaded and stored in a lay down area close to the shore. Annual fuel supply will be trucked from the barges to a 7.5 million liter capacity tank farm constructed at the plant site. The layout of the proposed facilities is presented in Figure 2-1.

Figure 2-1: Overall Site Infrastructure Layout



A 4.8 km all-weather road will link the Roberts Bay jetty site with the mill and camp location (plant site), allowing year-round haulage of supplies from the sealift landing site laydown area. The mill, crushing plant, fuel storage tank farm, camp, office complex, workshops, power generation plant, sewage treatment plant and all other operational mine infrastructure will be located in a central location adjacent to the underground mine adit. An all-weather airstrip, suitable for small aircraft will be constructed along the alignment of the main road between the plant site and Roberts Bay. During summer months the site will also be serviced by float planes and for that purpose a dock will be constructed on the shore of Doris Lake. This dock will be linked to the mill site with an all-weather road. During winter months an airstrip capable of handling larger aircraft will be constructed on the ice on Doris Lake and the site serviced from this airstrip.

Flotation tailings and treated barren bleed solution produced during the milling process will be deposited in Tail Lake about five kilometers from the proposed mill location. Tailings deposition will be sub-aqueous, requiring the construction of two water retaining structures: the North and South dams. The tailings will be contained in Tail Lake by constructing a low permeability frozen core dam across the outlet of Tail Lake to the north and by a similar second dam constructed across a topographic low point at the south end of the lake. An all-weather service road will be constructed along the east side of Tail Lake all the way to its southern end. The tailings pipeline will follow the roadway, and emergency tailings dump ponds will be constructed at strategic locations. A small barren bleed solution from the concentrate leach circuit will be treated in a water treatment plant within the mill to destroy residual cyanide and precipitate heavy metals. This treated solution will then be mixed with flotation tailings and discharged into Tail Lake. The water quality eventually discharged from Tail Lake will meet discharge standards established under the Metal Mining Effluent Regulation. A discharge strategy has been developed to release water from Tail Lake on an annual basis during open water periods. This water will be pumped to Doris Creek at a point immediately upstream of a 4.3 m high waterfall where the Tail Lake water will mix with the outflow from Tail Lake. Under the discharge strategy it is predicted that water quality within Doris Creek downstream of the waterfall will meet Federal water quality guidelines for the protection of freshwater aquatic life (fish and benthic invertebrates).

The Project is proposed to begin with initial equipment arriving by sea-lift in the fall of 2007. Development of the underground mine, construction of the road, building pads, airstrip, fuel storage facilities and the tailings dam would commence in the 1st quarter of 2008. The milling equipment, the other infrastructure components, remaining equipment and the first year's operating supplies would arrive on the 2008 sealift. Production would commence at the end of 2008 and continue through the end of 2010. A construction workforce peaking at 120 will be required to carry out construction and site development work from January through December 2008. During operations, milling and processing will need a total workforce of 24 from the 4th quarter of 2008 to the 1st quarter of 2011, underground mining will require a peak workforce of 60 from early 2008 through the end of 2010, while maintenance support, catering, supervision and administration will require a total workforce of 81. Of the total operating workforce it is expected that half would be on site at any given time. The Project is predicted to result in an increase in direct employment in Nunavut by 371 person-years, with 159 person-years of this total predicted to go to Inuit. The Project is predicted to increase total (direct plus indirect) Territorial employment by 443 person-years: 371 person-year increase in employment in the Goods Industries (the same as the direct effect), a 71 person-year increase in the Service Industries, and a 2 person-year increase in Public Administration.

The closure phase of the Project will commence after all ore has been depleted, and will consist of reclamation and decommissioning activities related to all of the facilities constituting the Project.

2.3 Proposed Construction Activity

The major proposed construction components and activities include:

- Development of a rock quarry (Quarry 1) adjacent to the new jetty at the south end of Roberts Bay;
- Construction of a 103 m long rock fill jetty into the southern end of Roberts Bay to facilitate offloading of sealift barges during construction and operations;
- Construction of a rock fill lay down area near the south end of Roberts Bay to store equipment and materials arriving at site by barge, while awaiting transfer to the Doris North Project Site;
- Construction of a diesel fuel shore manifold and delivery piping system and a contained tank truck loading facility to be sited in a bermed facility located near Roberts Bay jetty;
- Construction of a 4.8 km long all weather access road from the south end of Roberts Bay to the Doris North Project site; the proposed road will generally follow the previous winter road alignment to the Doris North Project site;
- Construction of a 914 m long gravel airstrip runway and associated apron area along the all weather road between Roberts Bay and the Doris North Project area;
- Construction of a rock fill pad c/w safety berm at the end of a small spur road adjacent to the all-weather road, over the ridge west of the accommodation camp, to act as the permanent explosives storage area (explosives magazine);
- Installation of pre-fabricated explosives (powder) and detonator storage magazines and an ANFO mixing facility (sea-can container storage units);
- The construction of an all-weather road to the shore of Doris Lake as access to the freshwater pump intake and float plane dock;
- Development of a second rock quarry near the Doris North Project plant site to provide clean broken rock for construction of roads and building pads (Quarry 2);
- Development of a third rock quarry (Quarry 4) at the Doris North Project plant site. This quarry will provide a source of clean broken rock for use in constructing the plant side building pad. Quarry 4 is the levelling of a rock outcrop area to provide a solid bedrock foundation for the grinding circuit portion of the mill;
- Construction of a 7.5 million litre capacity fuel storage tank farm (5 x 1.5 million litre tanks) in a bermed lined containment area at the plant site;
- Construction of rock fill pads to accommodate various infrastructure components, including the camp, mill, mine site lay down area and ore stockpiles;

- Development of the Doris North underground mine with access via a decline ramp from surface including construction of three ventilation raises that will come to surface;
- Construction of the ore processing plant (the mill). This will be a conventional steel frame steel clad building that will house the ore processing equipment, including a cyanide detoxification circuit);
- Installation of diesel fuelled power generator units (powerhouse);
- Construction of a maintenance/warehouse workshop building (a steel frame building);
- Installation of a waste oil burner unit c/w storage tank within the shop building to facilitate the disposal of waste hydrocarbons, and in the process, to generate heat for this area;
- Construction of a 175-person accommodation camp with attached offices and change house (dry) facilities (primarily composed of modular trailer units);
- Installation of a packaged potable water treatment plant;
- Installation of a packaged primary sewage treatment plant with the treated wastewater being pumped to the ore processing plant to be combined with the mill tailings slurry for discharge to Tail Lake;
- Installation of incinerator units to burn all kitchen and combustible waste generated by the camp;
- Construction of a rock fill float plane and boat dock on the northwest shore of Doris Lake;
- Construction of a potable water supply pump intake on the north end of Doris Lake and installation of a fresh water pipeline to the water treatment plant at the camp and to the mill;
- Installation of a freshwater storage tank and distribution piping adjacent to the mill;
- Construction of a rock fill all-weather road (length approximately 5.9 km) to the south end of Tail Lake, including a clear-span bridge crossing over the outlet creek from Doris Lake;
- Development of a fourth rock quarry (Quarry 3) on the east side of Tail Lake to provide broken rock for construction of roads and the tailings dams;
- Installation of a tailings pipeline along the side of the road to the south end of Tail Lake and the construction of four tailings pipeline dump catch basins at strategic points along the pipeline;
- Installation of a reclaim water pump in Tail Lake and a pipeline along the Tail Lake road to reclaim water back to the ore processing plant for use in milling;
- Construction of low permeability dams at the north and south ends of Tail Lake to create the tailings containment area;

- Installation of a pumping system and pipeline to manage periodic release of excess water from within the Tail Lake tailings containment area into the Doris Lake outflow creek; and
- Construction of a non-hazardous solid waste disposal site (landfill) within the quarry to be located northwest of the Doris North Project site camp (Quarry 2).

2.4 Project Components

Key components of the proposed Doris North Project include:

2.4.1 Jetty

The Doris North mine site is approximately 4.5 km inland from the Arctic coastline at the south end of Roberts Bay. MHBL will ship supplies and equipment to site via annual sealift. To accommodate this sealift a new jetty will be constructed on the southeastern shore of Roberts Bay. The bay is relatively shallow at this location, necessitating the construction of a 103 m long jetty out into the bay to reach water deep enough for tugs and barges to safely operate. The selected design is a 103 m long, 6 m wide rock fill structure jetty, with a 25 m long mooring face. The final height of the jetty will be 1.4 m higher than the highest high tide elevation, to accommodate a 0.5 m freeboard above the maximum wave heights experienced. The maximum rock fill depth for the jetty will be approximately 6.8 m, with an average depth of less than 3 m thick.

Construction will be completed through the placement of run-of-quarry rock from the shoreline, progressively moving out. Prior to placement of the rock fill on the marine sediments; layers of geogrid will be placed to assist in providing support against foundation failure. In deeper water, rock will be placed with an extended boom excavator to allow better control over the placement of the fill on the geogrid layers.

During construction, silt curtains will be deployed around the construction zone, to prevent migration of suspended solids that may be mobilized as the rock fill is placed on the soft marine sediments. It is anticipated that the jetty will undergo settlement, and that it would require annual maintenance to ensure trafficability.

The jetty footprint will cover approximately 1,800 m^2 of ocean bottom. The bulk of the jetty will be constructed from run-of-mine quarry material (1,000 mm maximum size). The final surfacing grade above the water line will consist of 0.2 m of a surfacing grade layer (38 mm maximum size fraction) and 0.3 m of a select grade material (200 mm maximum size fraction) which would act as intermediary between the sub base and the surfacing layer. The side slopes of the jetty will be at the angle of repose for the quarry rock (approximately 40^0).

The overall jetty width will be 6 m, which would allow easy and safe off loading of the 20 ft (6.1 m) long seacan containers with forklifts and trucks; NTCL provides a Komatsu 500 loader for such purposes. The jetty will end in a widened working area, with a 25 m long mooring face. Bollards and mooring chains will be anchored into the jetty to allow securing of barges to the jetty structure. Barges will be moored end-on to the jetty due to depth limitations at the south end of Roberts Bay, and off-loading will take place via the end of the barges. In rough weather conditions, the barges may be kept in place by the tugs, or off-loading may be suspended until the weather conditions improve.

Upon closure all bollards and mooring attachments will be removed and the jetty will be graded down so that the surface of the rockfill is below water (30 cm below the low water level, 50 cm below the mean water level).

Additional information on the proposed jetty can be found in Supporting Document S2, entitled "Design of the Surface Infrastructure Components", prepared for MHBL by SRK Consultants Ltd and in Supporting Document S4, entitled "Detailed Design Drawings, Doris North Project" also prepared for MHBL by SRK Consultants Ltd.

2.4.2 Winter Ice Roads and All Weather Access Roads

In the summer of 2007, construction materials and supplies will arrive in Roberts Bay by barge and be off-loaded at the current off-loading site along the west shore of the bay. The material will then be left in place pending freeze up in late 2007. A barge containing fuel will be left frozen in the Bay as per current practice.

In early 2008 a winter road will be constructed across Roberts Bay once the bay ice is thick enough to support road traffic. This road will then be used to transfer construction equipment and supplies to the south end of Roberts Bay to allow construction to commence. This winter ice road will only be needed in this first winter of construction. After 2008 no further winter ice road construction is required to support the Doris North Project.

The proposed Project all-weather roads will be constructed of quarried rock with a minimum fill thickness of 1.5 m required to cover micro-relief and protect permafrost. Wherever possible, roadways will be constructed in the winter to ensure the integrity of the permafrost. Some settlement of roads is expected and will be addressed through an annual maintenance program.

All roadway fill will be from non-acid generating rock material from four different quarry locations (Quarry 1 thru 4). No underground waste rock will be used to construct the all weather roads, airstrip, building pads, laydown areas or other surface infrastructure components.

The road surface will be 6 m wide for the main road and 5.1 m wide for the secondary roads. Side slopes will be at angle of repose (40^{o}, or 1.2H:1V). Roadway drainage will be via 0.5% surface grading in both directions from the centreline of the roadway for the main road, while secondary roads will be graded 0.5% in the down slope direction only. The pad will consist of a 0.2 m thick surfacing grade layer overlying a 0.3 m thick select grade layer. Both these will overlie a 1.0 m thick sub grade layer.

MHBL will install graded caribou crossings at appropriate locations along all of the proposed all-weather roads. These crossings will typically consist of a gently sloped section with fine grained crushed rock covering to allow caribou to cross the roads with low risk of injury. MHBL will work with the Kitikmeot Inuit Association (KIA), community Elders and representatives of the local hunters and trappers associations as appropriate to determine the number and location of these caribou crossings prior to the start of construction. MHBL will work with the KIA to arrange appropriate consultation and site visits with Elders from local communities and representatives of the local hunters and trappers associations before the start of the 2008 construction season to look at the proposed road alignments and

presence of any indications on the ground of caribou travel routes. In consultation with the KIA, MHBL will use information obtained from these site visits together with *Inuit Qaujimajatuqangit* obtained from these consultations to determine where and how many caribou crossings should be installed. The final design (width, grade, capping material, *etc.,*) of the crossings will be determined in a similar manner.

Subject to the outcome of these consultations, caribou crossing will be provided at all road junctions, major bends and at regular intervals along stretches of road where no junctions are present. Proposed crossing locations are indicated on Figure 2-1. The caribou crossings will entail flattening of the roadway shoulder to 5H:1V for a 10 m wide section on either side of the road. This flattened section will be clad in transition zone and surfacing grade material to ensure a suitable surface for caribou to travel on. A typical plan and cross section of the caribou crossings are presented in Figures 2-2 and 2-3. Roadway signposts will be installed to warn traffic of the locations of these crossings.

Figure 2-2: Typical Plan for Caribou Crossing

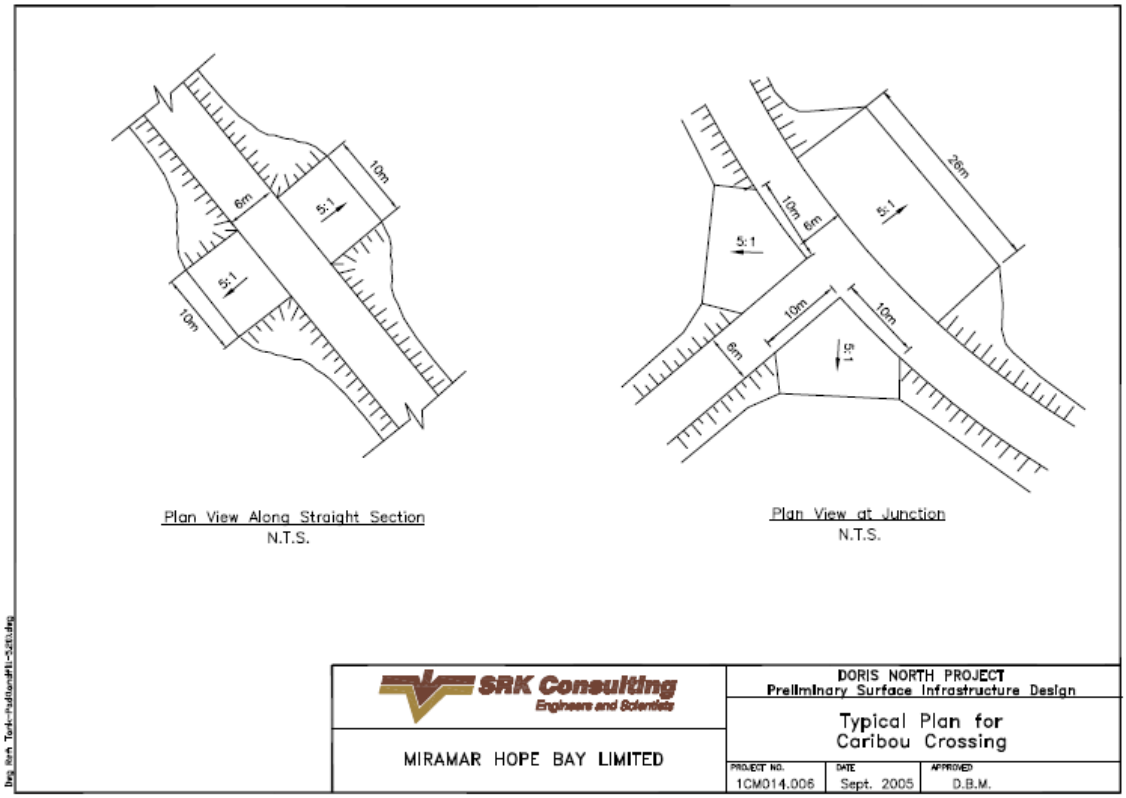
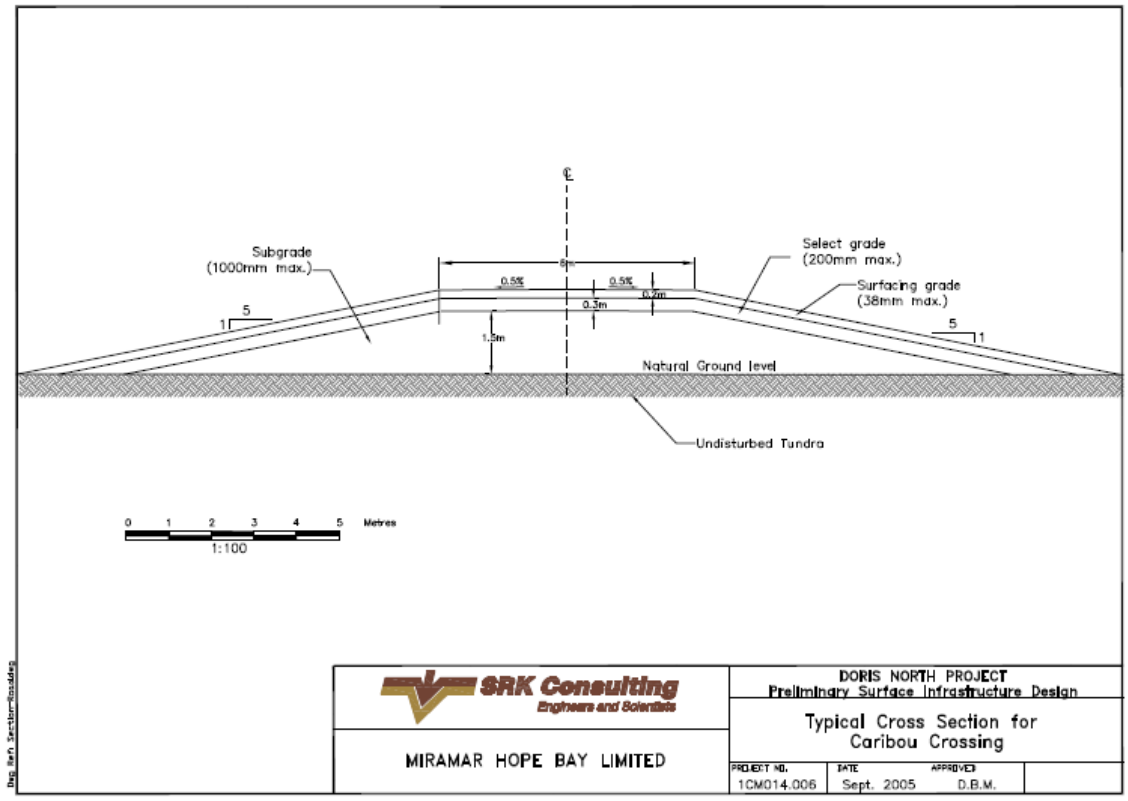


Figure 2-3: Typical Cross Section for Caribou Crossing



2.4.2.1 Main Road from Roberts Bay to Mill/Camp Site

The 4.8 km all weather road between the jetty at Roberts Bay and the mill area will follow the natural topography, which is well suited towards road construction. There are no natural obstacles, and the grades are low, suggesting few construction difficulties. Between Roberts Bay and where the road will turn southeast towards the mill, the road will be constructed towards the windward side of the valley to avoid snowdrifts that occur in the lee side of the western outcrops. Between the turn in the road and the mill, the road will follow along the northeastern edge of the valley before turning east into the mill location. There are a number of areas where culverts will have to be installed to allow seasonal runoff to continue flowing along its original routes (see Figure 2-1). None of these culvert locations are actual permanent streams, but merely topographic lows where runoff collects.

The soil conditions along the route consist of open tundra underlain by thick marine silts and clays, with abundant ground ice overlying bedrock. Areas where the surface is marked by large ice-wedge polygons indicate that abundant ground ice, encountered during drilling operations, is widespread.

At two locations along the route, the 6 m wide road will be widened to 10 m for a distance of 30 m to form passing turnouts. These turnouts provide space for passing and turnaround of vehicles traveling along the road.

2.4.2.2 Tailings Service Road

Tailings will be deposited into Tail Lake, necessitating a 5.5 km, 5.1 m wide all-weather service road. A 127 mm diameter insulated HDPE tailings feed line and a 100 mm diameter, insulated and heat traced return water pipeline will be placed on the shoulder of the road, taking up at least 1.5 m of the roadway space. The pipelines will be placed on the outside edge of the roadway, *i.e.,* closest to the Tail lake shorelines. This will minimize the number of pipe crossings required. Eight passing zones measuring 10 m wide and 30 m long will be constructed along this stretch of road to ensure safe passing of traffic. The locations of these passing zones are indicated on Figure 2-1.

The road will start at the mill and pass the portal on the south before following a northeasterly direction towards the northern end of Doris Lake. At this location a clear span bridge will be constructed to cross the Doris Lake outlet creek. The road will then turn southeast and will approximately follow the east shore of Tail Lake, always above the projected full supply elevation in Tail Lake of 33.5 m. There will be a 10 m x 10 m turning platform adjacent to the South Dam where the road ends.

This roadway has been designed to have a minimum longitudinal grade of 1% at any point, as well as minimizing the number of low-points. Since the tailings and return water pipeline follow the roadway grade, these aspects will enable the lines to be drained by gravity flow in the event of a stoppage of either pipeline. Contents of the tailings line will be collected at selected emergency dump catch basins. The return water line will not be captured during these dump periods, but will be allowed to flow directly onto the Tundra.

2.4.2.3 Explosives Magazine Service Road

A permanent explosives storage and mixing facility will be constructed 800 m northwest of the camp, and accessed by the main all-weather road coming from the barge landing site (Figure 2-1). The detonator magazine will be 275 m off this road, which will ensure that it is tucked in behind a rock outcrop effectively shielding it from view to the mill and campsite. The powder magazine will be located on the same road 100 m beyond the detonator magazine and both of these facilities will be joined to the bulk ammonium nitrate storage area and explosives mixing plant with approximately 110 m of additional roadway. These roadways will be 5.1 m wide allowing only one-way traffic to and from the main road. Sufficient turn-around room will be provided in the magazine areas to allow for safe vehicle turn around.

For the construction phase a temporary explosives storage site will be constructed directly on the frozen tundra east of the permanent airstrip.

2.4.2.4 Doris Lake Dock Service Road

The link between the boat and float plane dock will be a 300 m long, 6 m wide all-weather road. The road will join up with the airport access and tailings service road immediately south of the portal. This roadway will also provide the bedding platform for the two four inch diameter water pipelines from Doris Lake (fresh, and fire/mill water supply). These pipelines will be heat traced and insulated and will take up at least 1.5 m of the width of the road. At

the road junction a series of culverts will be installed to allow crossing of the two fresh water pipelines, the return water pipeline and the tailings pipeline.

2.4.2.5 Tailings Decant Pipe Access Road

The decant pipe access road is located at the north end of Doris Lake, leading out from the tailings service road. This 378 m long, 5.1 m wide road segment provides access to the tailings discharge decant location immediately upstream of the waterfall in Doris Creek. This roadway will act as a bedding platform for the discharge pipeline leading from the discharge pump station.

2.4.2.6 Non-Hazardous Solid Landfill Access Road

The permanent non-hazardous solid waste disposal site will be located in the rock quarry immediately west of the camp site (Quarry 2). A 150 m long stretch of all-weather road will link the landfill with the main access road to the camp. This roadway will be 6 m wide to permit access by large equipment.

2.4.2.7 Road Usage and Maintenance

The all-weather roads will be periodically maintained using a conventional road grader using standard road grading procedures for gravel topped roads. Typically the grader will roughen up the surface of the road, re-shape the crown of the road, remove any ruts or potholes and to fill in areas of settlement. Periodically new topping gravel will be placed on the surface to fill in settlements, potholes or to re-shape the road crown as required. Stockpiles of crushed quarried rock will be maintained in the site quarries for this purpose.

The only dust suppression agent used on these roads will be water laid down from a truck mounted tank used solely for this purpose. The truck will be filled from the fresh water supply system at the plant site. No chemical suppressants are planned for or thought necessary.

Road maintenance on the road to Roberts Bay will be required during the period of mid July through mid September when material is being brought to site by the annual sea lift. The frequency is estimated to be once per week during this period. Road maintenance of the other site all-weather roads including the road to Tail Lake is expected to only be required monthly during the non snow months.

During the operational period the majority of road traffic along the all-weather access road that deal with movement of material and supplies will occur during and immediately after each annual sealift expected to occur in mid August of each year.

Additional information on the proposed all weather roads can be found in Supporting Document S2, entitled “Design of the Surface Infrastructure Components”, prepared for MHBL by SRK Consultants Ltd.

2.4.3 Doris Lake Outflow Stream Crossing

The stream crossing at the Doris Lake outflow is substantial, requiring a bridge deck with a span of at least 25.6 m to minimize impact on the stream banks. Based on site specific surveys the stream bank-full width (*i.e.*, the ordinary high water mark) of Doris Creek at this location is approximately 15 m. The bridge abutments are designed to lie outside of this bank-full width. The bridge will be a modular 7.32 m wide prefabricated steel deck bridge with a loading capacity of up to 75 tonnes. The bridge will provide 4.1 m of clearance above the ordinary high water mark.

There are suitable founding conditions just upstream of the small set of falls in the stream. The roadway will be widened to 10 m on either side of the stream crossing and raised to greater than 2.5 m thick for a bridge approach angle slope of less than 20H:1V (5%). The bridge will be supported at either side of the bridge by I-beam cross members founded on the road embankment. Additional information on this bridge crossing of Doris Creek can be found within supporting document S2 (SRK 2006b – Design of the Surface Infrastructure Components).

2.4.4 Diversion of Natural Drainage Paths

The Doris North Project is an underground mine and no natural streams will be diverted to accommodate mine infrastructure. The plant and camp complex does not interfere with any natural drainage systems, other than diffuse natural runoff. Water from upslope will be naturally diverted around the pads, due to the elevated nature of the pads, whilst runoff from the pads will be collected in sumps and disposed of by pumping to the tailings containment area unless through monitoring it can be demonstrated that collected water is acceptable in quality for direct release onto the tundra.

MHBL will install road culverts at select locations for two reasons: (1) firstly, road culverts will be installed where there is evidence of permanent seasonal flow channels which concentrates freshet and summer rainfall flows, and (2) to ensure that no standing water is created by the presence of the roads.

Additional information on the planed road culverts can be found within supporting document S2 (SRK 2006b – Design of the Surface Infrastructure Components).

2.4.5 All Weather and Winter Airstrips

The all-weather airstrip must meet the minimum requirements of two design aircraft: Dornier-228 and the De Havilland Twin Otter. The airstrip is to be equipped with lights for night use and with the instrumentation necessary to support IFR (Instrument Flight Rules) flights. A winter airstrip on Doris Lake will be sized to accommodate up to a Lockheed C-130/ L-100 Hercules, and is also to be equipped with lights and IFR instrumentation.

The permanent all-weather airstrip will be constructed by widening 914 m of the all weather road between the barge landing site and the mill to 23 m. This will provide year round air access for both the Twin Otter and Dornier 228 aircraft. This airstrip is not located in an

optimum location with respect to the prevailing northwest winds. However MHBL is aware of the risks associated with this airstrip location and orientation of the airstrip.

A 40 m x 17 m apron for vehicle parking will be constructed adjacent to the southern end of the runway. This apron will also provide ample room to allow the design aircraft to turn around. A similar apron is not required at the north end of the runway, as both design aircraft are capable of making an 180^0 turn within the 23 m width of the runway.

The airstrip will be 23 m wide with 40% (21.8^o) side slopes. Airstrip drainage will be via 1.5% surface grading either side of the airstrip center line. The pad will consist of a 0.2 m thick surfacing grade layer overlying a 0.3 m thick select layer, overlying a 2 m thick sub grade layer.

Most of the preferred area for the airstrip would be on tundra, which overlies ice-rich marine clays encountered in drill holes SRK-21, -22, and -23. Thermal modeling has indicated that 2.0 m of fill should provide sufficient insulating capacity to protect permafrost beneath the airstrip.

According to the standard specifications for permanent airstrips less than 1,200 m long and intended for night time use with a non-precision approach system, lighting requirements to be installed include an approach lighting system, visual approach slope indicators, runway edge, runway threshold, runway end and obstacle lighting (Transport Canada 1993). MHBL estimates that during the mine life there will be on average 3 to 4 flights per week to and from the Doris North Project site.

Every year, once sufficient ice has developed on Doris Lake (approximately 1.5 m), a Hercules size airstrip (1,524 m x 30.5 m) will be constructed. The winter airstrip will also be instrumented and illuminated for IFR night operations, similar to lighting and instrumentation proposed for the permanent all-weather airstrip. Lights are to be placed every 200 feet on either side of the airstrip.

Additional information on the airstrip construction can be found within supporting document S2 (SRK 2006b – Design of the Surface Infrastructure Components).

2.4.5.1 Airstrip Maintenance and De-Icing

The airstrip will be periodically maintained using the same techniques as proposed for the all-weather roads. Airstrip maintenance will be required during the period of mid May through November when the ice strip on Doris Lake is not available. The frequency is estimated to be once per month during this period.

No de-icing of aircraft is planned at the Doris North site. No de-icing equipment is planned. There will be no de-icing storage tank or de-icing fluids stored at the airstrip. Charter aircraft will come to site on a scheduled basis and depart soon after arriving. These flights will typically not stay over night. Other northern mine sites typically operate without the requirement for de-icing equipment and Doris North plans to operate in a similar manner.

The only dust suppression agent used on the airstrip will be water laid down from a truck mounted tank used solely for this purpose. The truck will be filled from the fresh water

supply system at the plant site. No chemical suppressants are planned for or thought necessary.

2.4.6 Underground Mine Development

Underground mining will be carried out by a combination of mechanized cut and fill and open stoping, assuming a minimum mining width of 2.5 m and external dilution averaging 17% at zero grade. Mining of the entire deposit has been planned and scheduled, all required waste and on-ore development has been laid out and individual stopes engineered with ore and grade release schedules. Costs and productivity estimates utilize experience from Miramar's Yellowknife operations, adjusted to site-specific conditions.

A full spectrum of mining methods was considered. One of the most important aspects to consider was control of excavation geometry, as this is a very high-grade deposit with variable and narrow geometry. Mining methods selected were open stoping (drilling with electric hydraulic jumbo drills and jacklegs) and mechanized cut and fill. Mining methods were assigned to portions of the deposit, based on shape of the mining solid and apparent vein variability defined by drilling. The selected methods are described in the following sections.

- Open stoping was chosen for all of the hinge area. It is a top-down mining method where the majority of the drilling will be done by electric-hydraulic jumbos using 4 m steel. A 3 m by 3 m pilot drift will be driven in ore, following the hanging wall near the apex of the hinge, and the ore along the sides will be slashed into the drift. Ground support will be installed, and the floor will be benched by drilling and blasting to recover all the ore.

  The design allowed for a maximum of 20% in-stope-ramp grade on the hanging wall and footwall. Where the hinge plunged more steeply than could be followed with an in-stope-ramp at 20% grade, waste mined to maintain the 20% was included in the mining solid as internal dilution.

- Mechanized cut and fill using development waste for fill, was chosen for the remaining portions of the deposit. This method is highly flexible and will allow for dealing with irregularities in structure or grade.

  A drift is driven along the ore structure at a planned width of 2.5 m. As it is an ore extraction drift, and not a travel way, there is no legal minimum clearance required beyond the width of the equipment. Rock bolting is done along the ribs where necessary, and then a 3 m lift is slashed down from the back, either by horizontal breasting, or by using uppers. Ground support is installed in the new back and ribs, and then the broken ore is mucked out using a scoop tram.

  The initial access from the haulage system to a cut and fill stope is driven at minus 15% gradient, and results in a decrease in elevation of 7.5 m. After each lift of ore is mucked out from the stope, the back of the access ramp is slashed and the broken muck is used to fill the ramp to provide level access to the stope at the elevation of the top of the next lift of fill (an increase of 3 m in elevation).

Waste rock is then placed in the stope, filling it to within 3 m of the new back, and the next lift is mined. When successive lifts have been mined to the point that the access ramp has increased in gradient to plus 15%, a new access to the ore is driven at a gradient of minus 15%. In this way, the accesses to each stope will be spaced 15 m vertically apart.

Underground mining for the Doris Hinge ore zone will commence with construction of a 4 m high by 5 m wide portal, collared at surface near the mill. It will access the northeast trending ore zone by way of a decline ramp going down to a vertical depth of approximately 36.5 m. The ramp will have a 10% slope and be approximately 900 m in length.

Initial ventilation of the ramp development will use two 45 kW (60 HP) high pressure fans with 1.2 m (48") diameter vent tubing supplying the required 21 m^3/s (45,000 cfm) to four pieces of equipment: one 2-boom jumbo, one 3 m^3 load hull dump (low profile underground front end loader — (LHD), one 30 tonne truck, and one utility vehicle.

When the main ramp reaches the ore body, approximately 500 m ramp length from surface, a temporary ventilation raise/escape way (Vent #1) will be driven to surface. At the top of the vent raise, a large diameter low pressure 45 kW (60 HP) main fan will be installed to force 47 m^3/s (100,000 cfm) up the main ramp. The auxiliary fans used for development will then be relocated to the bottom of the vent raise.

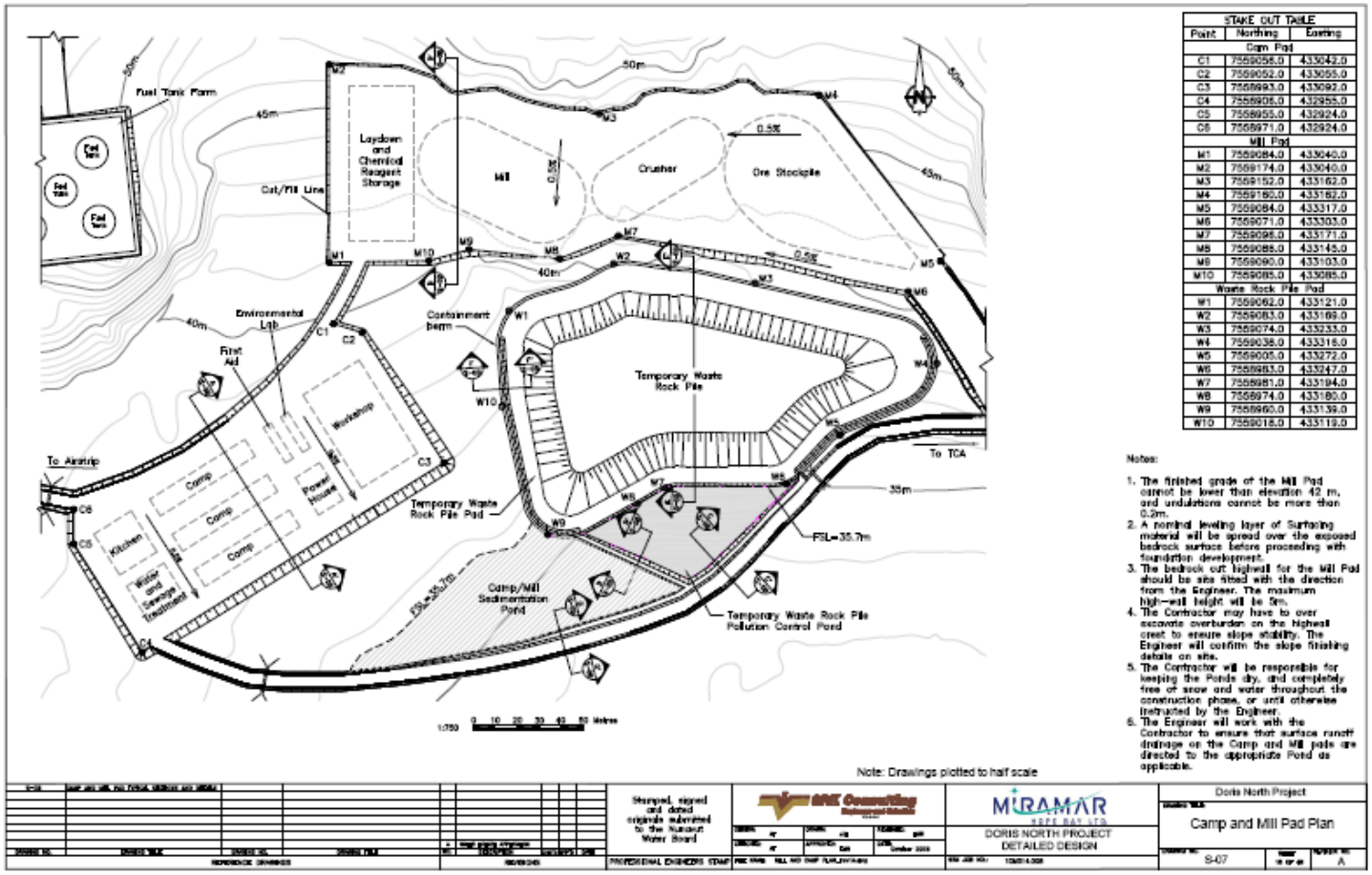
As the ramp development reaches the northern and southern extents of the mine, two additional ventilation raises/escape way (Vent #2 and Vent #3) will be driven to surface. The temporary raise (Vent #1) will then be sealed off and the two new raises (Vent #2 and Vent #3) will each have a low pressure large diameter 45 kW (60 HP) fan mounted on top of them. The fan, which will have a total capacity of 85 m^3/s (180,000 cfm), will be adjusted to force a total of 70 m^3/s (150,000 cfm) through the ramp system and up to surface, sufficient to accommodate the mobile equipment, which will be in use at that time, as required by the NWT/Nunavut Mine Safety Act and Regulations. Fresh air will be drawn off the main ramp with auxiliary fans and forced into the working stopes. This configuration will remain in place until the ore body is mined out.

It should be noted that all of the underground workings required to mine the Doris Hinge zone will be to the north of Doris Lake; none of the mine workings will extend underneath Doris Lake. Consequently, groundwater inflow from Doris Lake is expected to be minimal. The mine workings for the Doris North Project are located within permafrost and are sufficiently distant from Doris Lake that groundwater inflow is not expected (*i.e.*, based on geotechnical investigations conducted in 2002/2003, the talik zone caused by Doris Lake is limited to the perimeter of the lake.

2.4.7 Plant Site Facilities (Mill, Camp, Workshops)

The detailed engineering for the mill and workshop facilities is not yet complete; however the proposed layout of the facilities has been engineered by SRK. Details of this layout are presented in support document S2 attached to this application (SRK 2006b – Design of the Surface Infrastructure Components. The proposed layout of the plant site facilities is shown in Figure 2-4.

Figure 2-4: Detailed Plan Layout of Mill/Camp



STAKE OUT TABLE		
Point	Northing	Easting
Camp Pad		
C1	7559056.0	433042.0
C2	7559052.0	433055.0
C3	7558993.0	433092.0
C4	7558905.0	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	7559180.0	433182.0
M5	7559084.0	433317.0
M6	7559071.0	433303.0
M7	7559098.0	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	433199.0
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 highest 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.

A summary of the various facilities to be constructed at the plant site is presented in the following paragraphs:

- A 1,500 m^2 (30 m x 50 m) machine and maintenance shop and storeroom will be erected on site, immediately between the camp and the mill complex. The shop will be supplied with all tools and equipment required for service and maintenance of the underground mining equipment fleet. The shop will be linked to the mill and camp via Arctic Corridors, minimizing exposure of the workforce to the elements.

  The workshop floor will be a concrete bunded structure with selected sumps to collect any spillage or wash water. Mining equipment and other surface and underground vehicles will be washed prior to maintenance in a dedicated wash bay to be located in the surface service maintenance shop. Wash water for this activity will come from the site's fresh water supply tank. The wash bay will be equipped with a sump to collect the dirty water from the vehicle washing activity. The sump will be equipped with a divider to allow light hydrocarbons to be collected from the surface using oil adsorbent materials. There will be provision to remove the mud through conventional settling which will be sent to the mill tailing pump box for co-disposal with the tailings solids. The wash bay system will be equipped with equipment to allow heavier hydrocarbons to be removed from the wastewater using cyclone action and to facilitate some recycle of the wash water.

  Due to the presence of permafrost it is not planned to wash any equipment within the underground mine workings. This equipment will be brought to surface as required for washing and major maintenance.

- Mill reagents will be shipped and stored in 6.1 m x 2.4 m sea-can containers. A storage area will be provided immediately adjacent the mill for storing 20 containers, single stacked, 2 m apart. The mill reagent storage area has been sized based on the number of containers required to supply the mill for one year.

- An additional lay-down area for equipment and supplies will be constructed adjacent to the camp on the down slope side.

- A conventional 175-person capacity camp will be constructed at the Doris North Project site, consisting of modular skid mounted units linked together by use of Arctic Corridors and will consist of single rooms with attached bathrooms. The kitchen and recreation facilities will be an additional five skid mounted modular units joined to the rest of the camp via the Arctic Corridor. The first aid station will be located in a separate modular unit connected to the rest of the facilities by an Arctic Corridor. The camp will be located west of the mill complex with access for workers provided via Arctic Corridors. Where bedrock is not present, the modular camp units will be placed on 2.0 m thick rock-fill pads to protect the underlying permafrost.

- The office and dry facilities will comprise of six modular skid mounted units joined together, and ultimately joined to the dorms via an Arctic Corridor. Three of these units will comprise the dry area, and three will be the office area for use by MHBL personnel. This office will be fully equipped with electrical and communication outlets.

- A boat and floatplane dock will be constructed in the small bay on Doris Lake immediately southeast of the mill. The dock portion will consist of pre-fabricated floating modules built of wood supported on HDPE pontoon. The in-lake portion of the dock will be 4.1 m wide by approximately 24 m long and will be tied into the dock access road using a rockfill approach ramp (see Drawing S-09 in Supporting Document S4 – Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components, Doris North Project – SRK). Three sets of concrete filled bollards 2 bollards per set) will be constructed along the dock to secure the dock in place. The bollards will be set into the lake bottom at a depth of approximately 5 meters below the lake bottom and grouted in place using cement grout. Mooring cleats will be imbedded in the platform to provide contact points for securing float planes and watercraft.

- The mill and crushing plant will be located immediately west of the portal, on exposed bedrock. The bedrock is already exposed in this area, and thus the foundation preparation will be limited to leveling of the site using precision blasting. The areas surrounding the mill and crusher complexes that are not on exposed bedrock will be leveled by infilling with run-of-mine quarry rock to form a final pad at least 2.0 m thick. This will serve to protect the underlying permafrost.

  In the area between the portal and the crusher, an ore stockpile pad will be constructed with approximately 10,000 tonnes, or 15 days of mill feed. Ore will be end dumped by the underground haul trucks; ore will be drawn from the surface stockpile using a front-end loader and fed into the primary crusher.

  The crushing circuit will be a conventional single stage crushing plant. The crushing plant will be housed within a steel clad building.

  The milling equipment will be housed in steel frame, steel clad building constructed on concrete footings founding on bedrock. The floor in the ore processing plant will be concrete with concrete sumps designed to contain and facilitate recovery of spilled process material. Where practical the milling equipment will arrive on site as a number of modular prefabricated ore processing units mounted on skids that will be shipped to site completely pre-piped and electrically wired. The units will be assembled inside the mill building and interconnected. However the larger pieces of milling equipment, such as the grinding mills and the larger tanks, will have to be erected on site on concrete footings using conventional construction techniques.

  The mill will be equipped with sumps designed to hold spillage equivalent to a minimum of 110% of the volume of the largest tank or vessel within that circuit. The mill will be arranged so that spillage is segregated by circuit (*i.e.*, spillage from the cyanide leach circuit will be kept apart from spillage from the flotation circuit so that cyanide solution does not contaminate the flotation process, thereby interfering with gold recovery and potentially by-passing the cyanide detoxification circuit). The individual sumps will be equipped with pumps designed to recover spillage for return to the appropriate circuits. These sumps will be concrete lined to prevent release of solution and slurry into the underlying rock fill pads and ground.

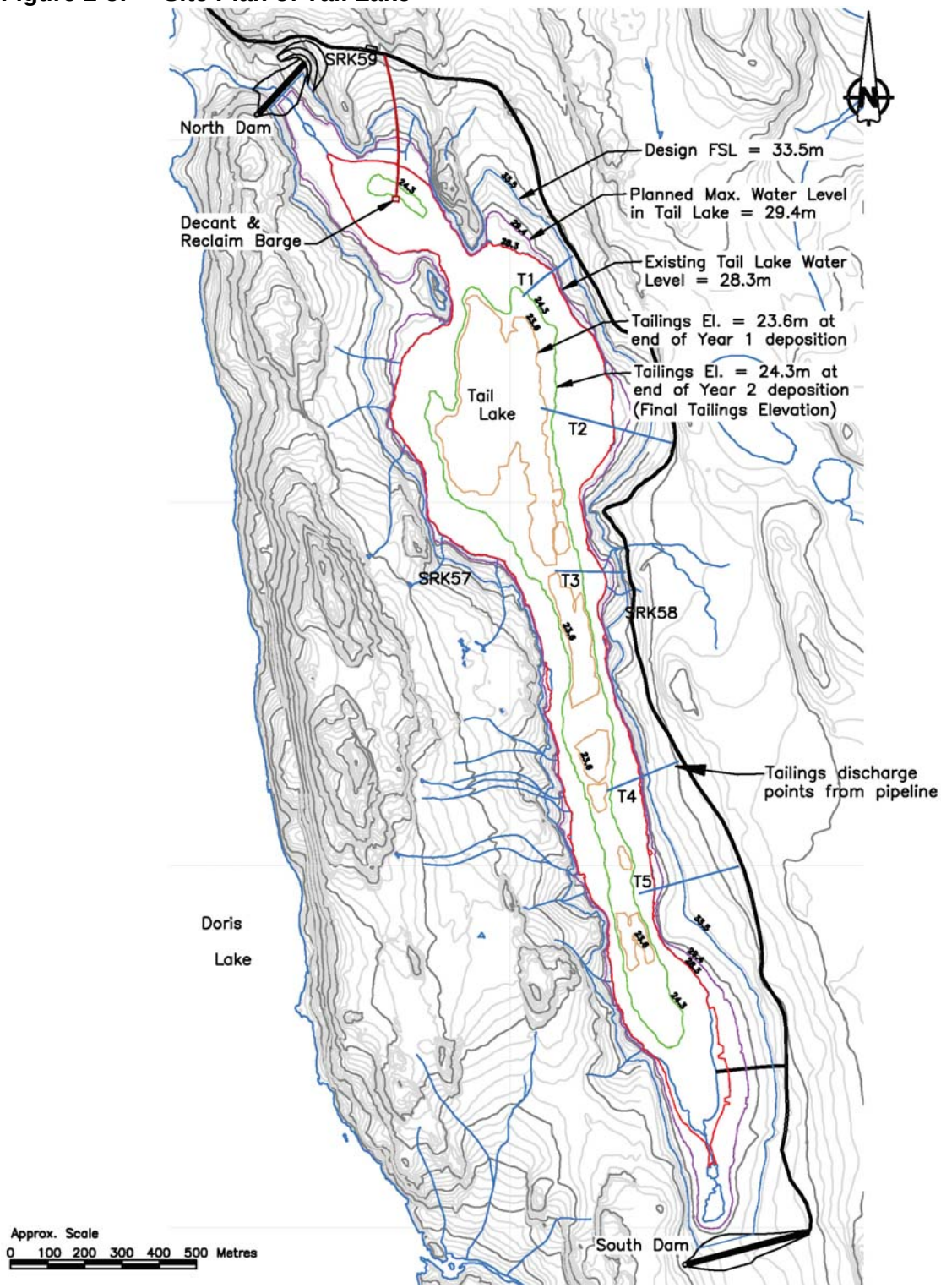
- During mine development a peak of 137,041 tonnes of waste rock will require temporary storage, prior to being returned underground. In all, waste rock storage space will only be required for a period of 32 months. The temporary waste rock pile will be constructed upslope of the ore stockpile and east of the mill. The pile will be constructed on a 1 m thick pad constructed from clean quarry rock placed directly onto the tundra. This pad will be completely bunded, allowing for full containment of on-pad surface water. A HDPE lined storm water collection pond will be constructed on the low point of the pad, sized to contain the 1:100 year, 24-hr duration storm event (assuming a 6-hour pumping cycle). All water contained in this pond is considered contaminated and will be pumped to Tail Lake via the mill circuit. The waste rock pile will be constructed in five lifts, each 5 m high. Secondary lifts will be benched in 10 m for stability and access. Pile side slopes will be angle of repose.

2.4.8 Construction of Tailings Impoundment Area (Tail Lake)

Flotation tailings and a small volume of treated barren bleed solution produced during the milling process will be deposited in Tail Lake located about 5 km from the proposed mill location (see Figure 2-4). Tailings deposition will be sub-aqueous, requiring the construction of two water retaining structures: the North Dam and the South Dam. The North Dam is designed to retain a maximum hydraulic head of 7.5 m and the South Dam 2.0 m.

The tailings impoundment is sized to operate as a zero discharge facility during the two years of operation, if necessary; however, the proposed water management strategy is based on the annual release of supernatant from the impoundment. In addition, under the most conservative water balance assumptions, Tail Lake would take just over five years to reach the design Full Supply Level (FSL) of 33.5 m with no discharge. A permanent spillway will be constructed at this elevation, to prevent the possibility of dam overtopping.

Figure 2-5: Site Plan of Tail Lake



2.4.8.1 Construction of Dams and Embankments

The two proposed dams will be constructed as a rock fill structures with a geosynthetic clay liner (GCL), filter and transition zones and a frozen key trench founded on non-organic permafrost soils and/or bedrock. The detailed design report for these two dam structures is attached to this application as supporting document S1 (SRK 2006a – Design of the Tailings Containment Area) Detailed design drawing and construction specifications are also attached as supporting documents S4 and S3 respectively (SRK 2006d – Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components and SRK 2006c – Technical Specifications for Tailings Containment Area and Surface Infrastructure Components).

Passive looped thermosyphons are incorporated in the design. The purpose of the looped thermosyphons is to lower the ground temperature of the foundations to overcome the uncertainties associated with salinity and the unfrozen water content of the marine deposit. The thermosyphons will consist of passive horizontal loop evaporators that would be installed at the base of the key trench during the construction of the dams. The thermosyphons will each have a single loop evaporator that will cover half of the dam along the longitudinal axis. The looped evaporator will be offset by 1.5 m apart and will cover the entire length of the dam.

Each dam will be keyed into the foundation by clearing the organic layer and excavating a key-trench. The key-trench will be at least 2 m deep, unless competent bedrock is encountered.

The dam abutments will extend to bedrock, which appears competent at shallow depth but have some open and contiguous discontinuities. The slope of the rock will be limited to a 1H:1V slope, thus resulting in some rock excavation. The three dimensional aspect associated with the active layer at the abutments will be considered to provide an adequate seal against water leakage along the core-bedrock interface or in the near-surface fractured bedrock. Slush grouting or similar surface treatments may be required to fill voids in fractures and prepare the key trench. The condition of the abutments will be assessed during construction excavation.

The geometric design of the dams has been based on the results of numerous field investigations, including seven detailed geotechnical drilling programs between 2002 and 2006. A geophysical investigation was also completed in 2006. These investigations specifically targeted geotechnical and thermal information on potential dam locations and along the perimeter of Tail Lake. The subsurface investigations included the installation of temperature measuring devices (thermistors) in selected holes, to aid in the determination of temporal permafrost conditions.

Generally the ground surface is covered by tundra vegetation, intersected with clearings of exposed overburden soils and bedrock. The stratigraphy at the North dam is characterized by two distinct zones. About two-thirds of the dam longitudinal section is dominated by a frozen and saturated sand deposit with a thickness of 10 to 15 m. The remaining one-third portion is dominated by frozen marine clayey silt with a thickness reaching a maximum of about 15 m. This deposit contains excess ice. Bedrock consists of intact basalt.

The stratigraphy along the South dam alignment consists of a marine deposit comprised of marine silt and clay overlying a till deposit. The marine deposit reaches a thickness of about 20 m in the middle of the valley and gradually become thinner towards the valley sides. The fine grained marine deposit is ice-saturated and contains excess ice. Bedrock consists primarily of basalt along the west and central portions of the valley and argillite near the east abutment.

Ground temperature measurements along the dam alignments indicate that permafrost is present over the entire length of the dams, with mean annual ground temperatures ranging between -9 °C and -7 °C.

Salinity measurements on pore water extracted from soil samples indicate that the frozen pore water in the marine deposit (silt and clay) is saline. The salinity measurements were similar or slightly exceeded the range for seawater.

Dam construction activities will occur during the winter months to benefit from the cold temperatures. Dam construction will be carried out by a qualified contractor under the supervision of a qualified design engineer's representative. Construction will be subject to strict quality assurance and quality control (QA/QC) procedures.

Detailed equipment to monitor the dam performance will be built-in during the construction phase, and a rigorous monitoring and reporting program will be followed through to final decommissioning of the dams.

2.4.8.2 Roads, Pipelines and Distribution Lines

Tailings will be deposited into Tail Lake, necessitating a 5.5 km, 5 m wide all-weather service road. A 127 mm diameter insulated tailings feed line and a 100 mm diameter, insulated and heat traced return water pipeline will be placed on the shoulder of the road, taking up at least 1.5 m of the roadway space. The pipelines will be placed on the outside edge of the roadway, *i.e.,* closest to the Tail Lake shoreline. This will minimize the number of pipe crossings required.

A pump house pad will be constructed next to the tailings service road close to the North Dam (Figure 2-4). The control instrumentation for the tailings decant and reclaim system will be housed in a structure erected on this pad.

2.4.9 Fuel Storage and Handling Facilities

Every year 7.5 million liters of diesel fuel will be shipped to Roberts Bay via sealift and pumped to a fuel truck at a contained fuel transfer station. Pumps and floating fuel hoses are supplied by the shipping company for the purpose of this fuel transfer. The fuel transfer station will be located across the all-weather access road from the lay-down area, a minimum of 100 m inshore from Roberts Bay. From the fuel transfer station, fuel will be hauled by standard fuel trucks via the all-weather access road to a permanent tank farm at the mill.

The fuel transfer station will be constructed on a HDPE lined pad with lined containment berms a minimum 0.5 m high. The containment berms will allow for the station to retain over

110% of the capacity of the largest fuel truck at 40,000 L. Ramp accesses for the fuel trucks will be located at opposite ends of station, allowing for safe drive through access. The access ramps will be 6 m wide and graded at a 5H:1V slope.

The fuel transfer station pad will be a minimum of 2.0 m thick to preserve the permafrost and be graded at a slope of 1% to a collection sump. The pad will be constructed with the same specifications as the permanent lay-down area. The HDPE liner will be placed at a depth of 0.3 m below the pad surface and be built to the same specifications as the permanent tank farm liner described in the following section.

Surface run-off from work area of the fuel transfer station will be directed towards and collected in a sump. The sump and containment area of the fuel transfer station will have sufficient capacity to contain the 1:100 year, 24-hour duration storm event. At any time when water is contained in the sump it would be subjected to water quality testing, and if deemed uncontaminated it would be pumped out onto the tundra. If this water is contaminated it would be treated through a filtration system to remove hydrocarbons before discharge.

Fuel will be trucked from the fuel transfer station at Roberts Bay to a permanent tank farm at the mill site location.

The regulations governing the bulk storage of fuel in aboveground storage tanks are in the process of being upgraded. The tank farm has been designed in accordance with the principles outlined in two working documents: Environment Canada's 'Proposed Federal Petroleum Products and Allied Petroleum Products Storage Tank Systems Regulations' (Environment Canada 2003) and the Canadian Council of Ministers of the Environment's (CCME's) 'FINAL DRAFT: Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products').

The 7.5 million liter capacity fuel tank farm (five 1.5 million liter steel tanks, measuring 14.8 m diameter and 9.8 m high) will be constructed on a level precision blasted surface, on a partially exposed bedrock section at the mill site. Founding the tank farm on bedrock eliminates the risk of foundation settlement which may lead to pipe rupture and fuel spills.

The tanks will be erected in an engineered containment area consisting of a HDPE lined pad, with minimum 0.8 m high lined containment berms, having sufficient capacity to retain 100% of the volume of the largest single fuel tank (1,500 m^3) plus 10% of cumulative volume of all additional tanks (600 m^3). The base of the containment area will be graded at 1% to a corner sump location that will be used to pump out uncontaminated storm water and snowmelt directly onto the tundra using a removable pump. Prior to pumping out storm water, the water will be subjected to water quality testing, and if the water is deemed contaminated it will be treated through a filtration system to remove hydrocarbons before discharge. Any fuel spills will be pumped to appropriate containers. A minimum pad thickness of 0.5 m will be placed at the base of the sump; pad thickness elsewhere is determined by 1% slope of pad floor.

To ensure capture of any fuel spills during transfer from tanker trucks to the storage tanks, a secondary fuel transfer station will be located inside the secondary containment berm. Ramp access for the fuel truck to the fuelling station will be located at one corner of the secondary containment berm. This ramp will be 6 m wide and will be graded at a 5H:1V slope to allow safe access for the fuel truck.

The tank farm pad will be a minimum of 0.5 m thick with a minimum 0.8 m high containment berm surrounding the entire facility, for a total berm thickness of 3.1 m. The HDPE liner will cover the entire inside area of the tank farm, including the inside slopes of the containment berms and the base of the sump. The liner will be installed between two layers of geotextile, which in turn, will be placed between two 0.3 m layers of appropriately crushed pea gravel and/or geotextile. The primary construction material for the tank farm will be clean quarry material crushed to <38 mm.

The tank farm requires a small building to house a generator and provide general storage. For these purposes a 6.1 m x 2.4 m x 2.4 m metal sea container (seacan) will be located immediately adjacent to the tank farm at one corner of the secondary containment berm.

Additional information on the construction of the fuel storage facilities can be found within supporting document S2 (SRK 2006b – Design of the Surface Infrastructure Components).

2.4.10 Explosives Mixing and Storage Facility

MHBL will provide permanent and temporary storage for the following annual amounts of explosives and detonators on site:

- 38,000 kg of explosives,
- 39,000 detonators, and
- Peak annual supply of bulk ammonium of 700,000 kg.

ANFO will be mixed on site on a batch basis by mixing bulk ammonium nitrate with diesel fuel in a prefabricated mixing plant. After mixing ANFO will placed into 25 kg bags and stored within the ANFO storage magazine. ANFO bags will be withdrawn on a daily basis to meet underground consumption needs. ANFO mixing will be done on a batch basis by the explosives supply contractor personnel. For design purposes the total amount of mixed product was assumed to be 20,000 kg which includes the weight of mixed explosives and half the weight of ammonium nitrate in the mixing plant building.

The facility layout is in accordance with Federal regulations that govern the storage and mixing of explosives that require that powder and detonators be stored in independent magazines and that all bulk ammonium nitrate storage, explosives and detonator magazine and the mixing plant be separated by a minimum distances based on the amounts that are being stored (NRCan 1995). In addition, these regulations require the explosives storage and mixing facilities to be separated by minimum distances from permanently occupied buildings and roadways. In interpreting the minimum distance requirements, it should be noted that the road between Roberts Bay and the mill site has been classified as a lightly traveled road based on the following:

- The road is used to haul goods from the annual sea-lift to the camp lay-down area (a couple of weeks every year);
- Fuel is only hauled along this road for a 2 week period every summer;
- The road is used to transport personnel from the airstrip to the camp (3 to 4 scheduled flights a week);
- Explosives will be hauled to the mine along this roadway; and

- The transportation of explosives shall be in accordance with the Explosives Act.

The actual explosives and detonator magazines will be Type 4 prefabricated magazines, contained within sea cans. The mixing plant will also be a pre-manufactured facility contained within a sea can.

The permanent explosives magazines and storage areas will be placed on a 2 m thick rockfill pad while the temporary explosives magazines and storage areas will be founded on ice pads and accessed by an ice road. The temporary facilities will be used during the construction phase and then decommissioned. The permanent facilities will be used during the operational phase and then be decommissioned.

The explosives magazines have to be a minimum distance away from the camp. The temporary explosives magazine layout will have a setback distance of 1,436 m from the camp and the permanent explosives magazine layout will have a setback of 760 m from the camp. In both case a significant rock outcrop is in the direct line of site between the explosives magazine area and the camp and other plant site buildings, providing additional safety buffering. MHBL has consulted with Natural Resources Canada over these setback distances and is of the opinion that they meet all appropriate guidelines and regulations.

Additional information on the construction of the explosives storage and mixing facility can be found within supporting document S2 (SRK 2006b – Design of the Surface Infrastructure Components). Additional information on the operational management of explosives can be found within supporting document S10 – Environmental Protection Plan in a sub document entitled Explosives Management Plan (S10f).

2.4.11 Landfill and Landfarm

All solid non-combustible, non-hazardous waste will be disposed of in a portion of the rock quarry (Quarry 2) immediately west of the camp. An area approximately 100 m x 100 m will be dedicated to landfill operations. The final quarry configuration will consist of a flat surface, graded at approximately 1% in the down slope direction, adjoining a steeper angled rock surface that forms the transition to natural ground on the ridge above. Storm and melt water will be diverted away from the landfill by small 0.5 m berms on the upslope edges of the excavation.

Annual landfill operation will involve clearing of snow prior to spring melt, placement of waste rock over the summer period, and placement of a graded cover prior to the winter period of snow accumulation. Wastes produced during the winter months would be stored temporarily in the solid waste disposal site area and relocated to its final location following snow removal.

Upon closure, the disposal site will receive a final cover of clean rock, the surface will be re-graded to blend in with the surrounding terrain, and surface drainage will be directed away from the site. As this landfill does not contain any hazardous waste the closure plan does not require infiltration or thermal control.

Additional information on the proposed design for the Doris North non-hazardous landfill facility can be found within supporting document S2 (SRK 2006b – Design of the Surface Infrastructure Components). Additional information on the operational management of the

non-hazardous landfill facility can be found within supporting document S10 – Environmental Protection Plan in a sub document entitled Landfill Design and Management Plan (S10g).

Kitchen waste will be incinerated on a daily basis in a small diesel fuel incinerator unit to prevent food waste from becoming a wildlife attractant. A good supply of spare parts including a spare burner unit will be kept on site to minimize the downtime for this unit. Incinerator ash will be drummed and transferred for storage to the landfarm facility within Quarry 2. The ash will be tested and if found to be uncontaminated will be mixed into any soil undergoing remediation within the landfarm. Once the combined soil-ash meets all regulatory standards for soil remediation; the soil will be used on site for remediation of disturbed lands. If the ash does not meet acceptable standards it will be placed underground in an appropriate area for permanent isolation from the surface environment where it will become encapsulated within the frozen ground upon final mine closure. Experience from the Windy Camp incinerator suggests that this ash will meet current soil standards for use in site remediation.

A small landfarm facility will be constructed inside the footprint of quarry 2 to allow for the on-site remediation of hydrocarbon contaminated soils produced as a result of unplanned accidents on site. This landfarm will be bermed and have an underlying impervious HDPE liner. Accumulated water and snowmelt will be passed through a filter system to remove hydrocarbons and then land applied onto the nearby tundra for adsorption into the surface layer of the tundra. Any contaminated soil that cannot be successfully remediated will be placed underground in an appropriate area for permanent isolation from the surface environment where it will become encapsulated within the frozen ground upon final mine closure. Experience from the Windy Camp landfarm suggests that this operational approach will allow most soils contaminated with diesel fuel to be successfully treated to meet current soil standards for use in site remediation.

Additional information on the proposed design for the Doris North landfarm facility can be found within supporting document S2 (SRK 2006b – Design of the Surface Infrastructure Components). Additional information on the operational management of the landfarm facility can be found within supporting document S10 – Environmental Protection Plan in a sub document entitled Landfarm Design and Management Plan (S10h).

2.4.12 Sewage Treatment Plant

Sewage from the construction camp will be collected and treated in a modular sewage treatment plant set up on site for this purpose. During the construction phase of the Project the treated wastewater from the sewage treatment plant will be pumped overland and discharged approximately 200 m to 500 m to the northwest of the camp in a direction away from Doris Lake. The discharge technique would be similar to that used at the Windy exploration camp over the past several years where the treated wastewater is pumped into a small depression on the tundra in an area where the flow is not directed through an existing drainage swale directly into a lake or watercourse. In this manner the treated wastewater can be distributed across the tundra avoiding direct impact on the local lakes.

During operations sewage will be treated in a modular packaged biological treatment plant that will be brought to site fully assembled within two skid mounted 12.2 m x 2.4 m

containers (61 m^2). The treatment plant will have a treatment capacity of 68.6 m^3/day, which is sufficient capacity for a fully manned 175-person camp.

The plant will be located down slope of the camp. The camp wastewater will be collected in a grinder pump lift station and discharged to the solids settling tank within the sewage treatment plant. The proposed plant will be a high-efficiency packaged plant using the process of rotating biological contactors (RBCs) to remove pollutants from wastewater. The treated wastewater flows through four zones, each with a progressively higher standard of treatment.

During the operational phase of the project treated effluent and sludge will be pumped to the tailings impoundment as part of the tailings feed stream.

Water quality performance estimates were obtained from a manufacturer of package sewage treatment plants (Information provided by PJ Equipment Sales Corp). Expected average solute concentrations and annual loadings for the 175 person camp are summarized below. It was assumed that these loadings would report to Tail Lake continuously throughout the mill operational period, and for one year thereafter.

Table 2-1: Predicted Effluent Quality from the Sewage Treatment Plant

Parameter	Average Concentration (mg/L)	Average Loading (kg/year)
Total Ammonia	10	250
Nitrate	1.0	25
Nitrite	30	751
Aluminum	0.052	1.3
Arsenic	0.0002	0.004
Cadmium	0.0001	0.0013
Chromium	0.0025	0.063
Copper	0.0020	0.050
Iron	0.025	0.63
Lead	0.0001	0.0013
Molybdenum	0.0001	0.0013
Nickel	0.0005	0.013
Phosphorus	1.0	25
Uranium	0.0002	0.005
Zinc	0.002	0.05

2.4.13 Fresh Water Intake Facilities

During the construction phase potable water for the construction camp will be obtained from Doris Lake using the same pumping facilities that will be in place for the operational phase. Potable water will be chlorinated and stored within the camp.

During the operational phase of the project potable water, fire suppression water and up to 50% of the mill water (recycle water will be maximized for up to six months of the year) will

be supplied from Doris Lake. Two separate 100 mm diameter insulated and heat traced HDPE lines will pump water from the lake to storage tanks at the mill and camp sites.

The freshwater pump house will be located on the north shore of Doris Lake in close proximity to the proposed float plane dock. The pump intake will be a 4 inch diameter HDPE DR17 fusion welded pipe set on the bottom of the lake with the intake approximately 25 meters from shores. The pipe will be covered in clean rockfill (transition material) to anchor it in place. The intake end of the pipe will be screened in accordance with the guidelines for pump intakes published by DFO (Freshwater Intake End-of-Pipe Fish Screen Guidelines, DFO 1995). The intake design is presented in Drawings T11 and T12 (detail no. 7) include in Supporting Document S4, Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components, Doris North Project).

Additional information on the freshwater pump intake facility is available in supporting document S2 (SRK 2006b – Design of the Surface Infrastructure Components).

2.4.14 Construction Rock Quarries

Geotechnical drilling undertaken during 2003 and 2006 has provided information on the foundation conditions at all proposed locations of the major surface infrastructure components. The information obtained from exploration and geotechnical drilling and thermistor installations suggests that the active layer over the permafrost is between 1.5 and 2.5 m thick. Thermal modeling suggests that in order to protect permafrost, the minimum pad thickness under all buildings and critical infrastructure will have to be a minimum of 2.0 m.

All of the construction rock fill will be obtained from four quarry sites located close to the major infrastructure components:

- Quarry at the south end of Roberts Bay adjacent to the proposed sealift offloading jetty site (Q1);
- Quarry at the Doris North Project site west of the proposed camp (Q2);
- Quarry on the east side of Tail Lake close to the proposed tailings dam site (Q3); and
- Quarry at the proposed plant site (this quarry is actually the levelling of an outcrop to found the mill, specifically the grinding circuit equipment) (Q4).

While there will be a non-acid generating rock available from the development of the underground mine, MHBL has decided not to use this material for the following reasons:

- The rate at which this non-acid generating waste will be generated by underground mining is too slow to be effective during the limited construction window. MHBL plans to construct all roads and building pads under winter conditions necessitating that a supply of non-acid generating rock be available in a timely manner to meet this schedule; and

- The amount of waste available from underground development will be small in comparison to the overall construction needs.

The quarries will be drilled and blasted in benches, and the rock will be hauled to where it will be required. The construction rock properties have been assumed to be as follows; specific gravity = 2.50, swell = 40%, load cubic metre (LCM) density = 1.79 Mg/m^3, moisture content = 4%, reconsolidation = 50%, and the reconsolidated (excavated cubic metre (ECM)) density = 2.08 Mg/m^3.

The quarries will be developed through conventional drill and blast techniques. The rock mass is competent, and conventional hard rock bench design parameters is envisioned, consisting of 3 to 5 m high benches blasted with 80 degree wall slopes. Bench setback will be between 3 to 5 m. These parameters will be adjusted as needed based on observed rock quality once quarry development starts.

During quarry development and operation, surface runoff (rain and snowmelt) management will consist of an upstream quarry berm to prevent runoff from outside of the quarry footprint from entering the area, as well as a downstream berm to contain surface runoff within the quarry footprint. The quarry base will have a low spot where this water can collect without affecting quarry operations. This will contain any development sediment by allowing it to settle out in a central location.

Assuming an average powder factor of 0.9 kg/bank cubic meter, 245 tonnes of ammonium nitrate (ANFO) will be required to complete the surface infrastructure construction.

Table 2-2 presents an estimate of construction material quantities that will be required to construct the infrastructure components as described in this application. In addition, construction quantities for the North and South Dams required to contain Tail Lake and fish habitat structure volumes are also included. Pro-active shoreline protection rock volumes for Tail Lake perimeter also forms part of the construction quarry rock volume. These quantities are intended to serve as a reasonable guideline for costing purposes, and to confirm total construction volumes required from the quarries. Table 2-2 also includes a column that identifies the most likely quarry source for each of the surface infrastructure components. Figure 2-5 also presents this information in graphical form, by color coding all the surface infrastructure components according to the quarry source.

Table 2-3 lists estimated quarry rock requirements for maintenance of the surface infrastructure components. Additional construction rock volumes that may be required at mine closure is listed in Table 2-4. Finally, Table 2-5 list a cumulative total quarry rock volume expected to be developed from each of the four rock quarries.

Figure 2-6: Construction Quarry Source

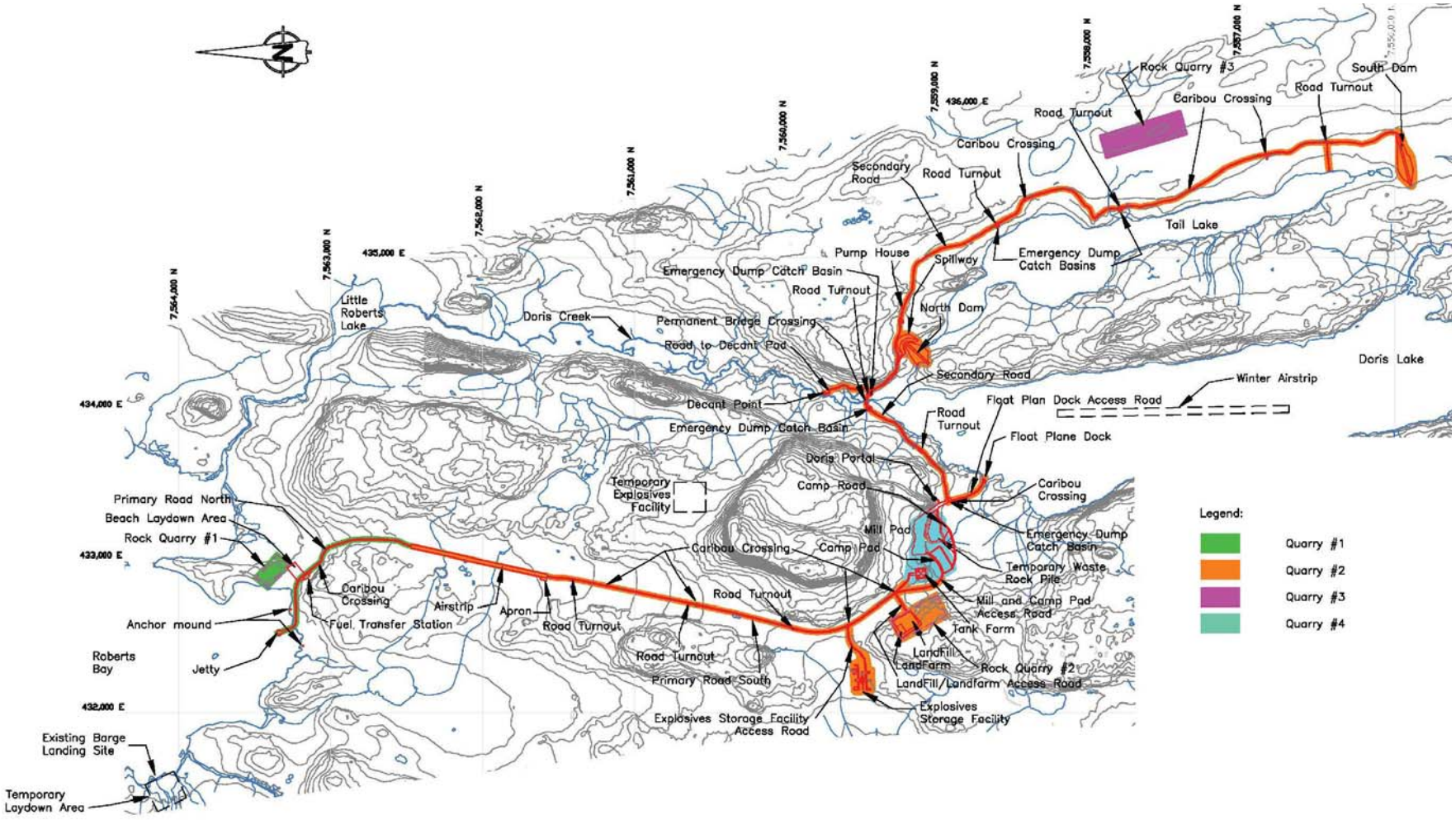


Table 2-2: Estimated Footprint Size, Quarry Rock Volumes (Neat) and Quarry Locations for Surface Infrastructure Components

Infrastructure Component	General Detail	Estimated Quantity[1]		Footprint Surface[1] Area	Quarry Source
		ECM (m^3)	Dry Tonnes		
Jetty	6m wide traffic surface; 1.2:1 side slopes; 0.5m sediment consolidation; 103m length (SRK 2005b)	5,600	11,600	1,800	Q1
Jetty (contingency)	Allowance for excessive slumping and settlement during construction (SRK 2005b)	2,800	5,800	900	Q1
Beach lay-down area	60m x 100m surface area; 1.2:1 side slopes; 2.5m average thickness	16,300	33,800	6,700	Q1
Fuel transfer station	32m x 16.5m surface area; 1.2:1 side slopes, 3m average thickness; 0.8m high containment berm	2,000 (300 m^2 HDPE, 600 m^2 geotextile)	4,000	600	Q1
Tank farm at mill (7.5 million litre)	71m x 71m surface area; 1.2:1 side slopes; 0.5m average thickness; 0.8m high containment berm	5,200 (4,700 m^2 HDPE, 9,400 m^2 geotextile)	10,800	5,000	Q2
Tailings discharge decant road	5.1m wide traffic surface; 1.2:1 side slopes; 2.0m average thickness; 378m length	5,700	11,900	2,400	Q2
Tailings discharge pump house pad	20m x 20m surface area; 1.2:1 side slopes; 2.0m average thickness	700	1,500	400	Q2
All-weather road (barge site to mill)	6m wide traffic surface; 1.2:1 side slopes; 2.0m average thickness; 4.8km length	80,700	167,800	51,900	Q1 (20%) Q2 (80%)
Road turnouts (2) (barge site to mill)	10m wide; 30m long; 1.2:1 side slopes; 2.0m average thickness	1,200	2,500	800	Q1
All-weather road (tailings service road)	5.1m wide traffic surface; 1.2:1 side slopes; 2.0m average thickness; 5.9km length	88,500	184,100	59,000	Q2
Caribou crossings (8)	10m long; 5:1 approach slopes; 2.0m average thickness	2,500	5,200	2,500	Q2
Road turnouts (8) & turnaround (tailings service road)	10m wide; 30m long; 1.2:1 side slopes; 2.0m average thickness & 10m x 10m turnaround	5,000	10,500	3,100	Q2
Explosives magazine access road	5.1 m wide traffic surface; 1.2:1 side slopes; 2.0m average thickness; 525m length	7,900	16,400	5,200	Q2
Float plane & boat dock service road	6m wide traffic surface; 1.2:1 side slopes; 2.0m average thickness; 300m length	8,500	17,600	3,300	Q2
Landfill access road	6m wide traffic surface; 1.2:1 side slopes; 2.0m average thickness; 150m length	2,600	5,300	1,600	Q2
Bridge crossing and abutments (2)	10m wide traffic surface; 1.2:1 side slopes; 2.5m average thickness; 27m length	1,900	3,800	900	Q2
Permanent all-weather airstrip	23m wide traffic surface; 2.5:1 side slopes; 2.5 m average thickness; 914m length	66,900	139,100	32,500	Q2
Airstrip apron	17m x 40m surface area; 2.5:1 side slopes; 2.5m average thickness	2,000	4,100	1,600	Q2
Explosives magazines	3 pads, total 550m^2 surface area; 1.2:1 side slopes; 2.5m average thickness; safety berm; AN/FO pad	8,500	17,600	1,700	Q2
Mill and camp area	Mill Crusher Ore Stockpile Workshop Fuel tank farm Mill reagents storage Lay-down area Power supply Camp/Dry Mine office Sewage treatment plant Potable water treatment plant Waste rock pile pad and berm Waste rock pile pond berm	55,100 (1,000m2 HDPE, 2,000m2, geotextile)	114,600	62,600	Q4
Float plane & dock	10m x 30m surface area; 1.2:1 side slopes; 3.0m average thickness	900	1,900	1,000	Q2
Tailings emergency dump catch basins (4)	25.2m x 25.2m surface area; 2:1 side slopes; 2.0m average base thickness; 1m high containment berm	5,100 (1,200 m^2 HDPE, 1,200 m^2 geotextile)	10,600	4,400	Q2
North Dam	Refer to SRK (2005a) for details of this structure	65,400	136,100	12,100	Q2
South Dam	Refer to SRK (2005a) for details of this structure	42,100	87,400	12,800	Q2
Roberts Bay fish habitat	8 spurs with each 5m x 15m surface area; 0.5m thickness; and 6 rock spurs each with 5m x 20m surface area; 0.5m thickness (Golder 2005)	600	1,200	1,200	Q1
Doris Lake fish habitat	5 areas each with 25m x 25m surface area; 1.5m thickness; and 1 area with 30m x 30m surface area; 1.5m thickness (Golder 2005)	6,000	12,500	4,000	Q2
Shoreline protection	20% of 12.9 ha surface area (up to elev. 29.4m); 0.5m thickness (SRK 2005c)	12,900 (25,800m^2 geotextile)	26,800	25,800	Q3
TOTALS		**502,600**	**1,044,500**	**305,800**	-

1. All estimated quantities and areas have been rounded to nearest 100.

Table 2-3: Estimated Quarry Rock Volumes Required for Maintenance of the Surface Infrastructure Components

Infrastructure Component	General Detail	Estimated Quantity[1]		Footprint Surface[1] Area (m^2)	Quarry Source
		ECM (m^3)	Dry Tonnes		
Jetty maintenance	Allow 50cm to be added to Jetty surface every year for 5 years	1,400	2,800	n/a	Q1
All surface road maintenance	Allowance for all surface road maintenance @ 5cm new surfacing grade every year for 8 years	73,000	151,800	n/a	Q1 (10%) Q2 (90%)
Landfill interim cover	100m x 100m surface area; 1.2:1 side slopes; 0.3m average thickness added on top of waste every year for 8 years	24,000	50,000	n/a	Q2
Shoreline erosion (contingency)	20% of 12.9 ha surface area (up to elev. 29.4m); 0.5m thickness (SRK 2005c)	12,900 (25,800m^2 geotextile)	26,800	25,800	Q3
TOTALS		**111,300**	**231,400**	**25,800**	**-**

1. All estimated quantities and areas have been rounded to nearest 100.

Table 2-4: Estimated Quarry Rock Volumes Required for Closure of Surface Infrastructure Components

Infrastructure Component	General Detail	Estimated Quantity[1]		Footprint Surface[1] Area	Quarry Source
		ECM (m^3)	Dry Tonnes		
Landfill closure	100m x 100m surface area; 1.2:1 side slopes; 1m average thickness for ultimate cover	10,000	20,800	n/a	Q2
Shoreline erosion (contingency)	Remaining 60% of 12.9 ha surface area (up to elev. 29.4m); 0.5m thickness (SRK 2005c)	38,700 (77,400m^2 geotextile)	80,500	77,400	Q3
Shoreline erosion (worse case contingency)	36.7 ha surface area (up to full supply level); 0.5m thickness (SRK 2005c)	183,500 (367,000m^2 geotextile)	381,600	367,000	Q3
TOTALS		**232,200**	**482,900**	**444,400**	**-**

1. All estimated quantities and areas have been rounded to nearest 100.

Table 2-5: Total Volumes of Material Excavated from Each Quarry

Quarry	Estimated Quantity	
	ECM (m^3)	Dry Tonnes
#1	52,000	108,000
#2	491,000	1,020,500
#3	248,000	515,700
#4	55,100	114,600
TOTAL	**846,100**	**1,758,800**

The proposed rock quarries were characterized as having low acid generating and metal leaching potential. The three main proposed quarry sites (Q1, Q2 and Q3) were geologically mapped in the summer of 2003 and chip sampled in several traverses, aligned across the various rock types encountered at each quarry site. Composite samples were then prepared so that each of the rock types encountered was represented. The composite samples were then subjected to whole rock analysis by XRF; trace metals content analysis; acid base accounting analysis, including sulphur speciation and determination of inorganic carbonate content; and for soluble metals content using the BC Ministry of Energy and Mines shake flask extraction procedure and to kinetic testing using humidity cells. The geochemical characterization of the various lithologies encountered at these rock outcrops was thus tested. The following provides a summary of the findings of these investigations:

Table 2-6: Static ABA Testing of Quarry Humidity Cell Composite

	Quarry 1	Quarry 2	Quarry 3
Paste pH	8.8	8.7	8.8
CO_2 (wt %)	2.14	4.62	1.22
Fizz rating	Moderate	Moderate	Moderate
Total sulphur (wt %)	0.07	0.07	0.08
Sulfate sulphur (wt %)	<0.01	<0.01	<0.01
Sulphide sulphur (wt %)	0.07	0.07	0.08
Maximum Potential acidity (kg $CaCO_3$/t)	2.1	2.0	2.6
Carbonate neutralization potential (kg $CaCO_3$/t)	48.6	104.9	27.7
Total neutralization potential (kg $CaCO_3$/t)	73.9	124.9	41.2
Carbonate net neutralization potential (kg $CaCO_3$/t)	46.5	102.9	25.1
Total net neutralization potential (kg $CaCO_3$/t)	71.8	122.9	38.6
Carbonate neutralization potential ratio	23.1	52.5	10.7
Total neutralization potential ratio	35.2	62.5	15.8

Table 2-7: Kinetic Humidity Cell Testing of Quarry Samples (63 week test duration)

	Quarry 1	Quarry 2	Quarry 3
Estimated Time for sulphide depletion (y)	87	85	65
Predictions based on TNP			
Time for TNP depletion (y)	216	332	122
Estimated time to onset of ARD (y)	No ARD	No ARD	No ARD
Estimated duration of ARD (y)	expected	expected	expected
Predictions based on CaNP			
Time for CaNP depletion (y)	145	272	86
Estimated time to onset of ARD (y)	No ARD	No ARD	No ARD
Estimated duration of ARD (y)	expected	expected	expected

The 3 quarry samples tested in these humidity cells were tested using the siderite correction method for NP as follows:

- Quarry 1 sample had no reported ankerite/dolomite but 6% calcite. However, the siderite NP correction showed a decrease from 68 to 47 kg/t. The calcite content matches well with the carbonate NP of 49 kg/t.

- Quarry 2 sample had about the same amounts of calcite and ankerite/dolomite (~6%), but the siderite correction showed no significant change in NP (this may indicate that ankerite/dolomite is nearly all dolomite).

- Quarry 3 sample had no reported ankerite/dolomite but 2.5% calcite. However, the siderite NP correction showed a decrease from 23 to 11 kg/t. The calcite content matches very well with the carbonate NP of 28 kg/t.

From these three sample, it's seems that some carbonate is present as ankerite and that total NP does exceed carbonate NP (so there is some silicate NP) but the siderite correction shows results that don't match the mineralogy. The data suggests that all three quarry sites will produce non-acid generating rock suitable for site construction purposes.

In the winter of 2006 a geotechnical drilling program was conducted at all four quarry sites to better define and characterize subsurface rock conditions (2 holes per quarry site). The data obtained from this program has been used in the design and operational planning for the four proposed quarry sites. Additional information on the quarry design and operational planning can be found in supporting document S2 (SRK 2006b – Design of the Surface Infrastructure Components)

The outcrops are 15 to 20 m in height and will not be mined below grade to prevent creating permanent ponds at closure. Given the nature of the bedrock geology in the area it is unlikely that the rock types seen at surface will significantly change as the quarries are developed given the relatively shallow depth of the proposed quarries (maximum of 20 m in depth). This was validated during the 2006 geotechnical drilling program.

A total of 157 samples was taken from this drill program and subjected to conventional acid base accounting analysis. The data verified that the construction rock from these four quarry sites will be non-acid generating rock. Additional information on this sampling program is attached in supporting document S7 (SRK 2006f – Geochemical Characterization of Quarry Materials).

However there is always a small chance that some unexpected change in rock type will be encountered as the quarries are developed. To ensure that any such change is detected the quarry faces will be inspected by MHBL's field geologists as they are exposed and if sulphide mineralization is encountered quarrying will stop until additional testing is completed and the implications assessed. The objective is to ensure that no potentially acid generating rock is used in site construction.

In addition a program of check ABA (acid base accounting) testing will be conducted on the quarried rock used in site construction to verify that all rock used is non acid generating.

Two samples from the proposed mill site (Q4) were obtained through geotechnical drilling (Drill Holes # SRK-30 and SRK-31B). Samples from both holes were subjected to conventional ABA testing with the following results:

Table 2-8: Acid Base Accounting Analysis of Mill Site Rock

Sample	Paste pH	CO2 (Wt.%)	CaCO3 Equiv. (Kg CaCO3/Tonne)	Total Sulphur (Wt.%)	Sulphate Sulphur (Wt.%)	Sulphide Sulphur* (Wt.%)	Maximum Potential Acidity** (Kg CaCO3/Tonne)	Neutralization Potential (Kg CaCO3/Tonne)	Net Neutralization Potential (Kg CaCO3/Tonne)	Fizz Rating
SRK-30	8.8	2.49	56.6	0.09	<0.01	0.09	2.8	58.5	55.7	moderate
SRK-31B	8.5	5.91	134.3	0.14	<0.01	0.14	4.4	128.0	123.6	moderate

*Based on difference between total sulphur and sulphate-sulphur
**Based on sulphide-sulphur

The quarry 4 material was similarly confirmed as being non-acid generating.

On this basis the selected quarry sites will allow for the production of a non-acid generating, chemically stable rock for use in the construction of the site infrastructure, such as building pads, access roads and the airstrip. A program of ARD characterization will be conducted during construction to verify this conclusion.

Four holes were drilled along the proposed routing for the underground decline as part of the 2006 geotechnical drilling program to confirm rock properties for mine planning.

Selected samples from this drilling program were also subjected to conventional acid base accounting analysis to determine the acid generating potential of the rock expected to be brought to surface as part of the mine development process. The results suggest that this rock will also be non acid generating, however at this time MHBL has no plans to use this rock in infrastructure construction but it will become the base of the interim waste rock stockpile on surface. Additional information on these test results can be found in supporting document S8 (SRK 2006g – Geochemical Characterization of Portal Development Rock).

2.4.15 Concrete Production

Use of concrete during construction will be kept to a minimum due to the lack of a natural on-site source of sand and gravel aggregate from which to make concrete. All concrete aggregate will have to either be made on site through fine crushing or shipped to site in bulk bags. There will, however, be a need for concrete production for construction purposes, specifically in relation to the mill foundations and building floors. A batch concrete plant will be brought to site and erected in one of the quarry sites to make concrete as needed.

2.5 Construction Schedule

The Project is proposed to begin with initial equipment arriving by sea-lift in the fall of 2007. Development of the underground mine, construction of the road, building pads, airstrip, fuel storage facilities and the tailings dam would commence under winter conditions in the 1st quarter of 2008. The milling equipment, the other infrastructure components, remaining equipment and the first year's operating supplies would arrive on the 2008 sealift. Production would commence at the end of 2008 and continue through the end of 2010. A construction workforce peaking at 120 will be required to carry out construction and site development work from January through December 2008. This schedule assumes receipt of the required permits and authorizations in a time frame that matches this construction schedule.

3.0 OPERATIONS

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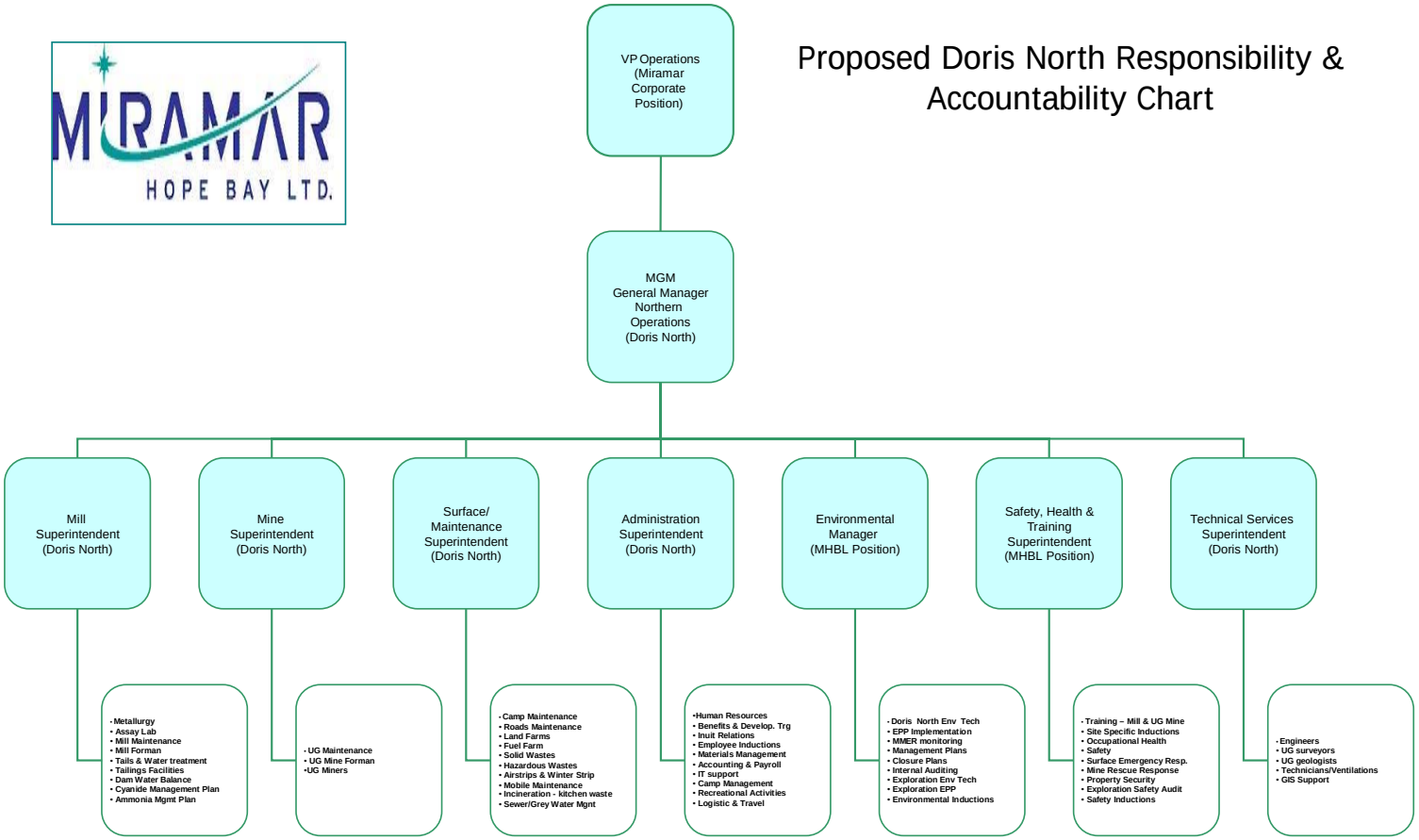
The following sections present a summary of the planned operation of the key components of the Doris North Project.

3.1 Management Structure

The proposed management structure for the Doris North Project is presented in Figure 3-1. This organizational chart also list responsibility areas for the key management positions at the mine site and the reporting relationship to the corporate office of Miramar Mining Corporation. This organizational is under review and will be adjusted as the project moves through detailed engineering and construction and as key management staff are hired.

The organizational chart does provide the NWB with an understanding of the planned reporting relationships, including health and safety and environmental monitoring and compliance.

Figure 3-1: Proposed Doris North Responsibility and Accountability Chart



3.2 Underground Mine

Underground mining will be carried out by a combination of mechanized cut and fill and open stoping, assuming a minimum mining width of 2.5 m and external dilution averaging 17% at zero grade. Mine engineering has been well advanced. Underground mining for the Doris North ore zone will commence with construction of a 4 m high by 5 m wide portal, collared at surface near the mill. It will access the northeast trending ore zone by way of a decline ramp going down to a vertical depth of approximately 36.5 m. The ramp will have a 10% slope and be approximately 900 m in length. The fist 100m of the ramp will have an up-grade slope to prevent surface water from draining into the underground workings.

Underground trucks will haul the ore from the underground mine to a stockpile located on surface near the mill. The mining rate will be nominally 668 tonnes per day, with 460,000 tonnes of ore being extracted over the 24-month operating life. Mining is projected to be complete in the fourth quarter of 2009.

The underground mine operations workforce is expected to consist of approximately 75 persons. The breakdown of the projected underground labour force is presented in Table 3-1.

Table 3-1: Projected Underground Workforce

Mine Operations	Owner	From Nunavut*
Miners	20	8
Raise Miner	4	
Trammer	8	4
Mucker	8	2
Truck Driver	4	4
Nipper	4	4
Timberman	2	
Mechanics	6	
Electrician	4	
Supervision/Technical Services	15	
Total	75	22

Note: ** Staffing levels from Nunavut are estimates only. Actual numbers will depend upon availability of qualified personnel.*

Water for drilling and dust suppression will be supplied from sumps and re-cycled to them. Due to the freezing conditions, a brine solution will be used. The sumps will be charged by a 50 mm (2") line from the mill. Once a sump is full, the pumping will stop and the line blown clean with compressed air to eliminate freeze-up. Potable water will be supplied in bottles. The mine workings will be wholly within permafrost and do not encroach on the Doris Lake talik; consequently no groundwater is expected within the mine. In the highly unlikely event that groundwater is encountered MHBL will collect this water in internal mine sumps and transfer this water to the tailings containment area.

A leaky feeder system will provide communication for the entire underground mine. The system will also allow radio contact directly to the maintenance shops. A second communications line (emergency phones) will be installed directly to the underground safety station and to an appropriate location on surface, such as the security desk, the first aid room, or the surface mine rescue station.

The major pieces of mobile equipment required for mine operations (mining and surface) will consist of:

- 2 double boom electric/hydraulic jumbo drills;
- 3 single boom electric/hydraulic jumbo drills;
- 3 3 m^3 scoop trams;
- 4 1.5 m^3 scoop trams;
- 2 20-tonne underground diesel haul truck;
- 2 diesel powered portable air compressor units;
- 1 scissors lift truck;
- 4 underground equipped pick up trucks;
- 1 966 Front-end loader;
- 1 road grader; and
- 1 20-person capacity minibus.

3.3 Waste Rock and Ore Management

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 into the temporary waste rock stockpile to be returned into the underground mine during the mine life. 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 north of the ore stockpile and portal access road. The pile will be constructed within a 0.5 m high 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 analyzed as needed and if found to be contaminated pumped to the tailings impoundment area via the mill pump box. Only runoff that meets acceptable criteria for discharge will be released onto the tundra from this runoff collection pond.

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;
- 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 25 tonnes of rock to be used will be required to meet this requirement assuming that the 25 tonnes is all from one rock lithology and location; and
- The NPR value derived from the ABA test must exceed 4.0 and the NNP must be greater than +20 Kg/tonne $CaCO_3$ equivalent to meet the threshold of being classified as non-acid generating for this purpose.

Ore will be trucked from the underground mine with underground haul trucks and end dumped onto the ore stockpile of approximately 10,000 tonnes capacity.

3.4 Mill (Ore Processing)

The mill is being designed for a rated capacity of 800 tonnes per day (36.2 tonnes/hour at an operating factor of 92%), however the nominal milling rate will be 668 tonnes per day (~ 27.8 tonnes per hour). The simplified milling flowsheet is presented in Figure 3-2.

Ore will be fed from the ore pad to the primary crusher by front-end loader. The product from the crushing plant will be conveyed to a crushed ore bin to be located indoors. Crushed ore will be drawn by a conveyor belt from the bin to feed the ore into the grinding circuit. The slurry output from the grinding circuit will pass over a gravity concentrator and through cyclones to recover the “free milling” gold. It is projected that up to 30% of the gold contained in the ore will be recovered from the gravity circuit, prior to the addition of any chemicals or reagents. The slurry output from the cyclones will be sent to a two-stage froth flotation process to recover the gold bearing sulphide minerals in the form of a flotation concentrate. The flotation circuit will reduce the mass of material going on for further processing to about 7.5% of the total weight of the ore processed. The remaining 92.5% will be discharged to the tailings containment area, with no further treatment.

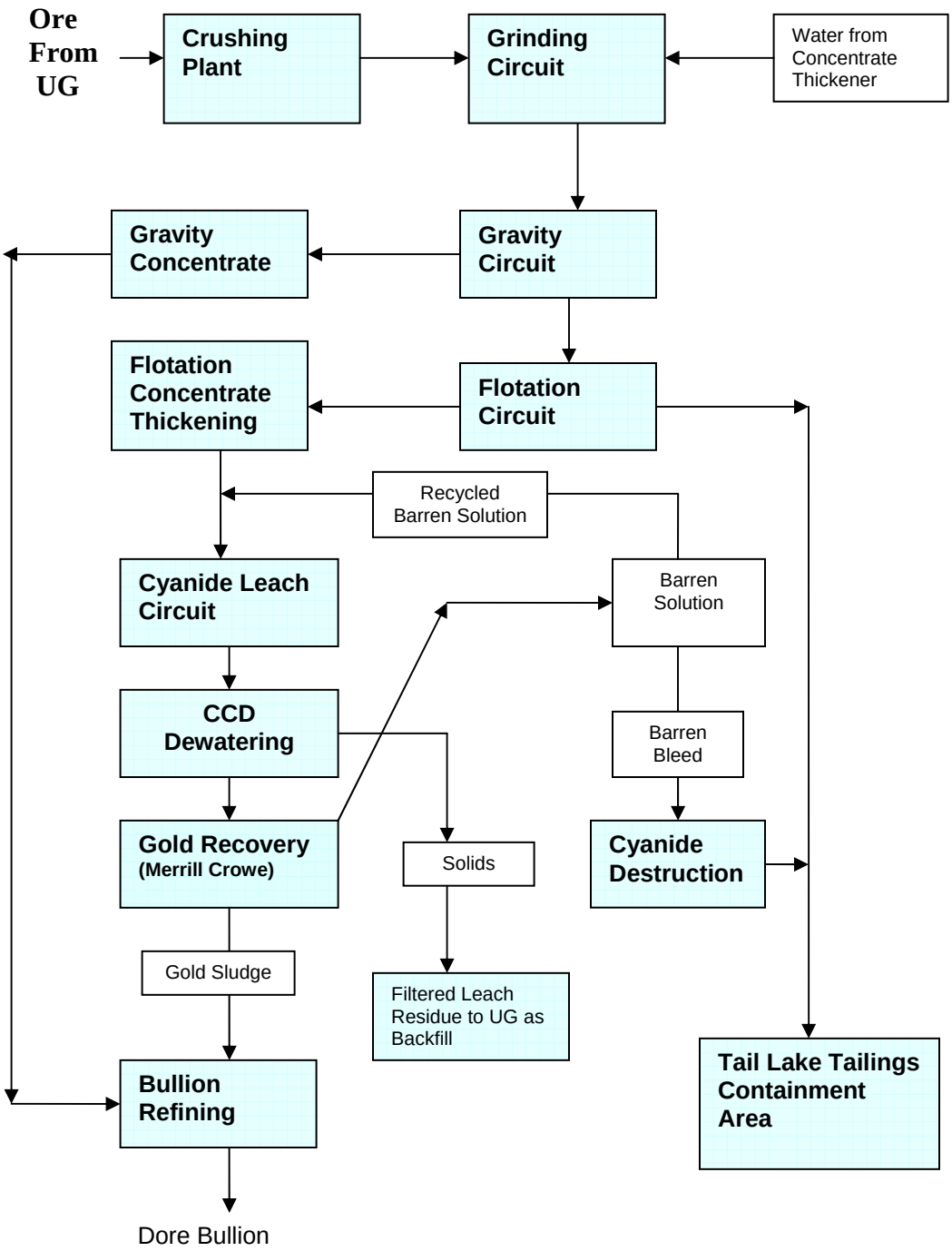


Figure 3-2: Simplified Milling Flowsheet

The gold contained in the flotation concentrate will be extracted in a conventional agitated tank leach circuit using a dilute sodium cyanide solution to leach out the gold. The leach slurry will be fed to a two stage CCD circuit; the underflow from the 2nd stage will be fed to pressure filter with a fresh water wash cycle for additional gold recovery and cyanide removal. The recovered pregnant solution will be fed to a Merrill Crowe Plant for gold recovery; the zinc precipitate will be dried in an oven, mixed with fluxes (such as silica sand, borax and sodium nitrate) and smelted in a smelting furnace to produce gold bullion and a slag. Similarly, the gravity table concentrates will be mixed with fluxes and smelted on site to produce gold bullion and a slag. The slag will be recycled back to the milling process through the grinding circuit. The bullion will be cast into dore bars, which will be shipped off site to a custom refiner. Overall gold recovery in the milling process is projected to be 94.9%.

The washed filter cake from the pressure filter will be trucked underground and used to backfill mined areas.

About 70 percent of the barren solution from the Merrill Crowe plant will be recycled back to the head end of the cyanide leach circuit, however a bleed solution will be removed from this recycled barren solution stream to prevent buildup of contaminant concentrations that will impair ongoing gold recovery; this amounts to about 30 percent of the barren solution (2.95 m^3 per hour).

The barren bleed solution will be treated in an effluent treatment circuit to detoxify the remaining cyanide. Cyanide detoxification will be achieved using the Caro's Acid process. The treated solution will then be combined with the flotation tailings slurry and pumped to the Tail Lake tailings containment area. The quality of the combined effluent discharged into the tailings containment area following cyanide detoxification is estimated to be 0.29 mg/L Total CN (0.04 mg/L WAD CN), 32 mg/L CNO, <0.1 mg/L SCN, 1.0 mg/L Total Ammonia, 0.039 mg/L Total Cu, <0.05 mg/L Total Pb, 0.03 mg/L Total Nickel and 0.09 mg/L Total Zn.

Mill Reagents

The type and projected annual consumption of reagents to be used within the milling process are summarized as follows:

- 45 tonnes of sodium cyanide in 1 tonne tote bags;
- 2.5 tonnes of sodium hydroxide (caustic) in 1 tonne tote bags;
- 25 tonnes of copper sulphate in 1 tonne tote bags;
- 4 tonnes of frothing agent MIBC (for flotation) in drums;
- 9 tonnes of Aero Float 208 promoter in 1 tonne tote bags;
- 18 tonnes of Potassium Amyl Xanthate (PAX) collector in drums;
- 118 tonnes (98,000 litres) of 50% hydrogen peroxide and 917 tonnes (715,000 litres) of 37% sulphuric acid delivered in either 1000 litre bulk tanks or 208 litre drums for use in making Caro's Acid for cyanide detoxification;
- 440 tonnes of steel grinding media (steel balls) in barrels;

- 1 tonnes of zinc dust; and
- 6 tonnes of smelting flux (borax, sodium nitrate, silica sand) in 1 tonne tote bags

3.5 Effluent Treatment

The barren bleed solution (~30% of the total barren solution – 2.95 m^3 per hour) will be treated in an effluent treatment circuit to detoxify the remaining cyanide. Cyanide detoxification will be achieved using the Caro's Acid process. Caro's acid is an oxidant prepared by reacting hydrogen peroxide with sulphuric acid. It is a more powerful oxidant than hydrogen peroxide and does not require a catalyst to remove copper cyanide complexes. Weak acid dissociable (WAD) cyanide is removed at near stoichiometric addition rates for Caro's acid, amounts that are approximately half the addition required by hydrogen peroxide. Further, the molar ratio of acid to cyanide remains constant over a range of cyanide concentrations down to 0.1 ppm.

The Caro's Acid reagent is prepared as follows:

$H_2O_2 + H_2SO_4 = H_2SO_5 + H_2O$

The reactions involving oxidation of cyanide using Caro's Acid are as follows:

$SO_5^{2-} + CN^- = SO_4^{2-} + CNO^-$
$4SO_5^{2-} + SCN^- + H_2O = 5\ SO_4^{2-} + CNO^- + 2H^+$

The reaction times are fast (seconds) and residual total cyanide levels in the range of 1 to 2 mg/L can readily be achieved. An advantage of the process is the reduction in the pH level of the cyanide leach solution being detoxified as a result of the reaction. Test work on Doris North ore produced a terminal pH range of 8.2 to 8.5 following cyanide detoxification with Caro's Acid, which is close to the ore's natural alkalinity in fresh water.

In this detoxification process, free and weak acid dissociable cyanide complexes are oxidized to the much less toxic cyanide complex, cyanate (CNO). Metals are precipitated. The treated barren bleed solution will then be combined with the flotation tailings slurry and pumped to the Tail Lake tailings containment area. The quality of the combined effluent discharged into the tailings containment area following cyanide detoxification is estimated to be 0.29 mg/L Total CN (0.04 mg/L WAD CN), 32 mg/L CNO, <0.1 mg/L SCN, 1.0 mg/L Total Ammonia, 0.039 mg/L Total Cu, <0.05 mg/L Total Pb, 0.03 mg/L Total Nickel and 0.09 mg/L Total Zn.

The cyanide detoxification process will be largely automated. The operator will monitor free and WAD cyanide concentrations by titration on a two and four hourly basis, respectively. An ORP probe will be used to prevent excessive cyanide discharge to the tailings containment area resulting from a short term upset in the cyanide detoxification process. A site-specific relationship between redox potential and cyanide levels will be developed, but generally, negative redox values indicate a surplus of cyanide species present in the final tails. The ORP probe output will be input directly to the DCS (Digital Control System) in the mill for continuous logging, with excessive values triggering operator intervention and/or feed stoppage. The prevention of excessive cyanide in the mill discharge will be accomplished by the following action: An ORP alarm or operator intervention due to

excessive WAD cyanide levels (typically in excess of 4 ppm, as measured by titration) will trigger the cessation of barren bleed solution being fed to the effluent treatment circuit until the detoxification process upset is resolved. During this period all barren solution will be recycled to the head end of the cyanide leach circuit.

3.6 Tailings Management and Discharge Strategy

Treated barren bleed solution combined with flotation tailings produced during the milling process will be deposited in Tail Lake about 5 km from the proposed mill location. The tailings will be pumped as a slurry with a solids content of 36% solids by weight and will be discharged sub-aqueously into Tail Lake.

3.6.1 Hydroclimatic Parameter Re-Evaluation

Intervener submissions during regulatory hearings suggested that estimates of mean annual precipitation and mean annual runoff derived in the Doris North FEIS - Meteorology and Hydrology Baseline Study (the baseline study) could be low, and result in inaccurate water balance modeling. During preparation of the Environmental Impact Statement for the project, two sets of hydroclimatic values were used. One set (“dry case”) was based on the values presented in the baseline study, and the second set (“wet case”) was based on a wetter scenario as suggested by regulators and interveners.

MHBL commissioned Golder Associates to prepare a follow up study to re-assess the hydroclimatic parameters used for the Doris North Project. A report (attached as Supporting Document S5 – “Doris North Project Hydroclimatic Parameter Re-Evaluation 2006 – Golder 2006a) was prepared in compliance with the NIRB Project Certificate Condition 14, which states that “MHBL shall collect additional precipitation, evaporation and runoff data and incorporate it into a revised water balance to be submitted to the NWB as part of the water licence application.” The objective of this report is to re-evaluate baseline hydroclimatic parameters, including mean annual rainfall, snowfall and precipitation, evaporation, and water yield. The water balance focuses on the Tail Lake tailings impoundment and Doris Lake and outflow as a source of water supply and for disposal of treated tailings decant water. Because these water bodies have the capacity to store water, the water balance is most sensitive to annual values, and the cumulative effects of successive years of precipitation, rather than short-duration events. Therefore, the focus of this report is to establish whether the mean annual values presented in the baseline study are accurate or whether they should be revised for use in future water balance modeling.

Data used during the baseline study included long-term climatic and hydrometric data reported by Environment Canada, as well as short-term climatic and hydrometric data collected in the Doris North area. Subsequent to the baseline study, MHBL has undertaken additional studies from which climatic and hydrometric data are available for the period 2003 to 2006. Additional relevant climatic data were received from Indian and Northern Affairs Canada, and a precipitation analysis by the Canadian Institute for Climate Studies was also considered.

Monthly and annual rainfall in the Doris North area is similar to that recorded at the Environment Canada climate station at Cambridge Bay. This is based on three years of concurrent data for the two stations, and is further supported by nine years of concurrent

data for Cambridge Bay and the INAC Walker Bay climate station. Thus, the recommendations of the baseline study are supported.

Comparison of snowfall at the local and regional climate stations is complicated by the use of different measurement methods (snow-on-ground, snowfall gauging and snow course surveys) and by variations in snow density, consolidation, melt and sublimation of the snow pack, exposure and wind redistribution. However, the snow water equivalent displays a decreasing trend to the north, and snow water equivalents measured at Doris North from 2004 to 2006 are consistent with those reported for the Environment Canada climate station at Cambridge Bay. Thus, the recommendations of the baseline study are supported.

Based on the recommendations of the baseline study with regards to mean annual rainfall and snowfall at Doris North, it follows that recommendations with regards to mean annual precipitation are also supported. The conclusions of the baseline report with regards to lake evaporation are further supported by the new data. Previous studies have established a decreasing gradient in lake evaporation to the northeast, and have established reliable long-term mean values at sites to the southwest. The baseline estimate is supported by these observations, as well as one year of local pan evaporation data and three years of local calculated evaporation data.

A decreasing gradient in water yield to the northeast exists in the region surrounding Doris North. Local annual water yield data are only available for five years, but indicate that water yields at Doris North are lower than those for the Ellice River, as suggested by the baseline study. The mean annual water yield measured at Doris North over the monitoring period is less than that estimated by the baseline study, but given the short monitoring period and the fact that monitoring took place during regional dry conditions; it is unlikely to be representative of long-term conditions. The baseline study conclusion that the mean annual water yield at Doris North is substantially lower than that of the Ellice River is supported by the additional data collected subsequent to the baseline study.

Water balance modeling for the Doris North project currently considers two sets of data. One set reflects the conditions estimated by the baseline study (dry case) and one set incorporates higher runoff estimates, as suggested by interveners and regulators (wet case). Both of these cases were modeled to account for uncertainty in local conditions. The climate and hydrology data that were collected during post-baseline monitoring (2003 to 2006) are consistent with the results of the baseline study, and do not support the suggestion that conditions at Doris North are similar to those of areas to the west (Kugluktuk) or south (Ellice River watershed). This supports use of the “dry case” scenario for water balance modeling at Doris North.

However, the available data include only three years of complete annual data (precipitation, evaporation and water yields for 2004 to 2006) and an additional two years of partial annual data (water yields for 1997 and 2000). Furthermore, it appears that the three years of complete data occurred during years that may have been drier than average in the region. Therefore, it would still be prudent to model the “wet case” scenario to continue to account for existing uncertainty. It is recommended that climate and hydrology monitoring continue at Doris North, prior to and during operations. This will provide additional data to confirm local hydroclimatic conditions and to provide vital input for water management and adaptive management planning during project construction, operations and closure.

3.6.2 Tailings Solution Characterization

In 2003, MHBL commissioned work to characterize the properties of the final mill tailings slurry that are of interest from an environmental perspective. Bateman Minerals conducted a metallurgical testing program on a representative sample of the Doris North ore. As part of this work, Bateman created a bulk sample of both the flotation tailings slurry and the cyanide leach slurry. The cyanide leach tailings were then subjected to the Caro's Acid cyanide detoxification process using the optimized operating parameters previously developed by Bateman. Both the solid and liquid fractions of each of these tailings slurry materials were analyzed for a wide spectrum of parameters. The flotation tailing slurry was then combined with the detoxified cyanide leach slurry from the Caro's Acid treatment process in the same proportions that they will be produced in the mill to create a bulk sample of combined tailings. A sample of both the solid and liquid phases of this combined tailings slurry was sent for analysis for a wide spectrum of parameters. A sample of the solution was subjected to an LC50 toxicity test (Reference Method for Determining Acute Lethality of Effluent to Rainbow Trout, EPS 1/RM/13, Second Edition, December 2000) conducted at BC Research in Vancouver. A sample of the combined tailings slurry was subjected to a standard settling test, and the supernatant analyzed for total suspended solids to assess the expected clarity of the tailings containment area supernatant. The bulk sample of combined tailings was then left to sit for one month to age and then the solutions were re-analyzed to look at changes, especially in relation to cyanide and nitrogen compounds.

The results indicate that the combined tailings solids are expected to be non-acid generating (NPR = 8.8). The tailings solution will meet MMER discharge criteria, is not acutely toxic and will have a supernatant total suspended solids concentration of < 5 mg/L after 24 hours of settling time.

3.6.3 Tailings Acid Rock Generating Potential

ABA testing indicates that mill tailings will have low acid generating potential. A sample of mill tailing from the lab scale pilot plant testing was subjected to both static (ABA testing) and kinetic testing using a conventional humidity cell for a period of 100 weeks (May 2004 – July 2005). The static ABA testing gave a total neutralization potential ratio (NPR) of 8.8 and a carbonate neutralization potential of 10.6. The total Sulphur concentration was 0.34 wt% S with not detectable Sulphate sulphur. The Net neutralization potential was +82.7 kg $CaCO_3$/tonne equivalent and a carbonate net neutralization potential of +101.9 kg $CaCO_3$/tonne equivalent.

The humidity cell test results confirm that the combined mill tailings are not acid generating, and are not expected to be a significant source of metal leaching. The predicted time for total sulphide depletion was estimated at 24 years while the predicted time for total neutralization potential depletion was estimated at 76 years (predicted time for carbonate neutralization potential was estimated at 75 years).

The Doris North deposit is known to contain siderite (an iron carbonate). Conventional ABA testing can overestimate actual available neutralization when iron carbonate minerals are present, specifically siderite. To confirm that the combined tailings will be non-acid generating, the metallurgical composite tailings sample and the tailings humidity cell close out residue were both subjected to conventional ABA analysis using the EPA Modified

Sobek Method and to the Peroxide Siderite Correction for NP ABA procedure. The results confirm that there is considerable NP tied up in the siderite, however the tailings will still meet the criteria to classify as non acid generating (NPR.3). The results are as follows:

	NPR Modified Sobek	NPR Siderite Correction
Metallurgical Tailings Composite	5.9	3.0
Tailings HC Close out Residue	7.5	3.6

For the same purpose a Static NAG test using hydrogen peroxide (Miller, 1997 procedure) was conducted on both samples:

	NAG pH
Metallurgical Tailings Composite	5.1
Tailings HC Close out Residue	5.3

The results confirm that the Doris North mill tailing is not likely to be net acid generating.

3.6.4 Tailings Disposal and Impoundment

Flotation tailings and treated barren bleed solution (tailings) produced during the milling process will be deposited in Tail Lake about 5 km from the proposed mill location. Tail Lake is 81 ha in size within a catchment area of 4.4 km^2. The normal water level in Tail Lake is 28.3 m above sea level. Detailed bathymetry for Tail Lake confirms that it is a shallow lake, with a maximum depth of 6 m. Tail Lake has a discontinuous outflow into Doris Lake immediately upstream of the Doris outflow creek. Ogama Lake (158 ha in size) is situated immediately south of Tail Lake and its normal water level is at 24.3 m above sea level. The height of land between the lakes is at 33 m above sea level. The normal volume of Tail Lake is approximately 2,2 million m^3.

The tailings will be pumped as a slurry with a solids content of 36% solids by weight and will be discharged sub-aqueously into Tail Lake. The discharge location will not be fixed, but will be moved around such that the tailings impoundment can be sequentially filled from its deepest location. This deposition methodology will enable the final closure water level to be returned to its pre-deposition value of 28.3 m. Tailings will be pumped from the mill to Tail Lake via a 127 mm insulated pipeline. The pipeline route will be southwest from the mill site towards the northwest shore of Doris Lake. From there the pipeline will continue along the Doris Lake shore towards a crossing at the Doris outflow before continuing south-west towards the Tail Lake shoreline. The maximum piping distance from the mill to the southern tip of Tail Lake will be 5.5 km.

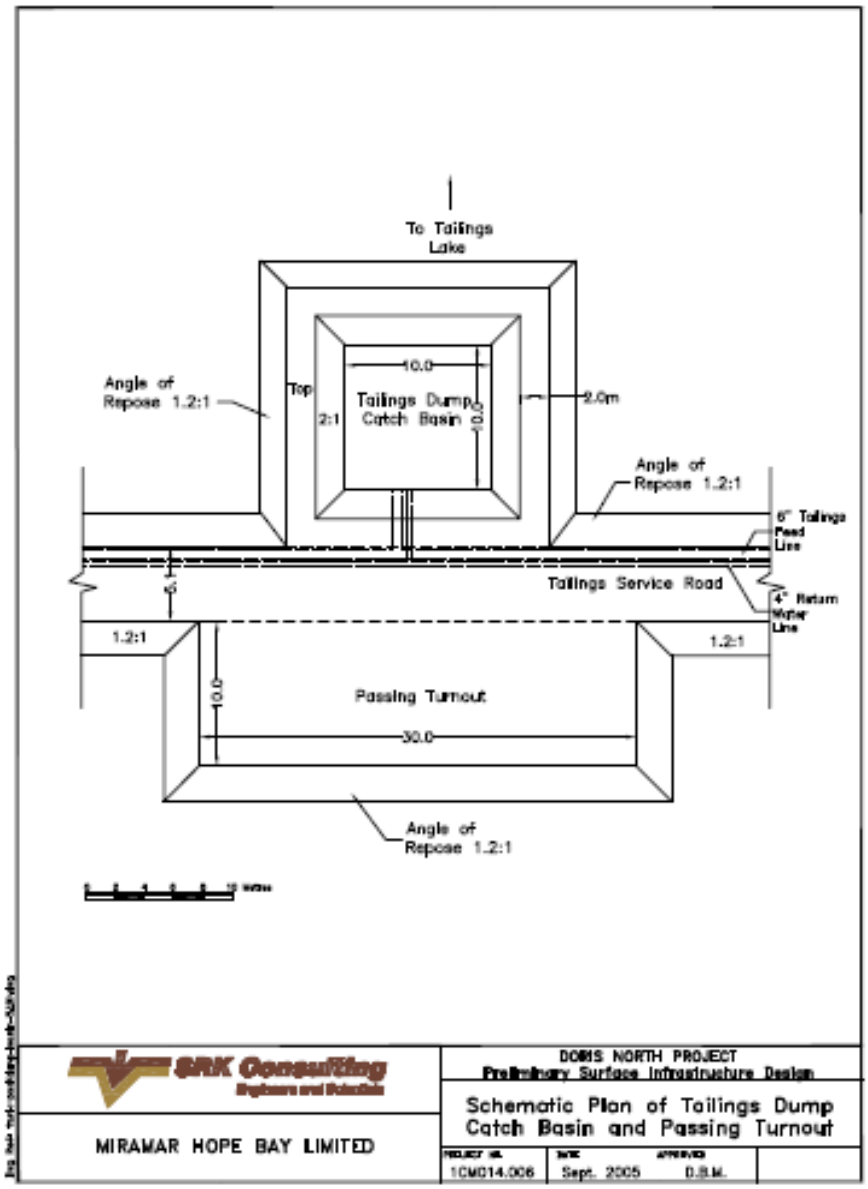
Return water will be pumped from Tail Lake to the plant through a heat traced and insulated 100 mm diameter HDPE line. Both tailings and return water pipelines will follow the alignment of the tailings service road.

Operationally the pipe settling and freezing risk will be managed by constructing emergency dump catch basins strategically along the pipeline to allow drainage of the pipeline in the event of a pump stopping. This would ensure controlled containment of the tailings. The emergency dump catch basins located outside the Tail Lake watershed will be sized to hold the contents of both the tailings and reclaim water pipelines. Within the Tail Lake watershed, the reclaim water line will drain by gravity onto the tundra and into Tail Lake; consequently,

the emergency dump catch basins within the Tail Lake watershed have been sized to hold only the contents of the tailings pipeline.

The emergency dump catch basins have been sized to allow two sequential fillings plus an additional 0.5 m of freeboard. Containment in each basin will be provided by HDPE lining. Details on the emergency dump catch basin designs are presented in Figure 3-3.

Figure 3-3: Schematic Plan of Tailings Dump Catch Basin and Catch Turnout



Additional information on the tailings management strategy for the Project can be found in supporting document S1 (SRK 2006a – Design of the Tailings Containment Area).

3.6.5 Tailings Water Management Strategy

The tailings water management strategy is based on a revision of the water quality modeling presented to the NIRB as part of the October 2005 FEIS. The revised model (attached as supporting document S6 (SRK 2006e – Water Quality Model) and incorporates new baseline water quality data collected in 2005 and 2006 (some of the 2006 data is still undergoing check assaying as part of the QA/QC procedures being completed for MHBL by Golder Associates).

The water management strategy for the Project entails an active managed discharge from Tail Lake beginning in Year 1 of operations and continuing until it can be shown that there is no adverse impact on downstream aquatic life from an unregulated discharge from Tail Lake. At the end of Year 9 (seven years after mining ceases) water quality in Tail Lake is predicted to be within the CCME Guidelines allowing for a complete "walk-away" closure scenario.

During the mine's operating life (two years) and for an additional three years after mining and milling ceases the volume of water to be released from Tail Lake will exceed the natural inflow into Tail Lake. By the third year following the cessation of mining and milling, the water level in Tail Lake will reach the pre-development level of 28.3 m above sea level and the amount of water that needs to be released from Tail Lake is predicted to be equal to the natural inflow. Prior to this time, MHBL will commission a human health and ecological risk assessment to determine if the quality of the water contained in Tail Lake is suitable for release in an unregulated fashion through the former Tail Lake outflow into Doris Lake without resulting in an adverse impact to aquatic life downstream. In the event that the risks are shown to be unacceptable, MHBL will continue to actively manage the annual discharge from Tail Lake by pumping this water to the discharge point in Doris Outflow Creek upstream of the waterfall. Pumping would only cease if it can be demonstrated that no adverse impact on downstream aquatic life will occur with an unregulated discharge. At that time the North Dam will be breached and the outflow from Tail Lake will be restored to the pre-mine outflow channel into Doris Lake. Under this scenario no further management of water releases from Tail Lake will be required however monitoring will continue for a minimum of one more year to verify that water quality remains acceptable for discharge.

Under this water management strategy, the maximum water level in Tail Lake will be 29.4 m, with a flooded footprint of 94 ha.

Various alternate water management strategies were also assessed, all of which would result in minimal changes of water quality in the receiving environment. For example, all water could be contained in Tail Lake until the full supply level is reached. While this strategy would provide ample time to monitor the development of water quality in Tail Lake to verify the predictive modeling results, it would necessitate an extended period of site management. The strategy selected by MHBL involves maximizing the annual discharge volume from Tail Lake as early as possible in the mine life while meeting the constraint of resulting in minimal change of water quality in the receiving environment. Other benefits for this strategy include the fact that the full supply level of Tail Lake will not be reached, and, as a result the effects of permafrost thaw and associated silt release will be minimized.

The primary objective of the Tail Lake water management strategy will be to meet CCME guidelines for the protection of freshwater aquatic life in Doris Creek, with the possible exception of nitrite.

Starting in Year 1, key elements for the implementation of the recommended strategy would be as follows:

- At commencement of operations, water quality in Tail Lake would be monitored on a regular basis. The frequency will be adjusted as required but may commence on a daily basis for select parameters. As the dynamics, of the system, i.e. rate of change in water quality, becomes better understood, the frequency of monitoring could be reduced. Key parameters would include cyanide compounds (these would also be monitored in the tailings as part of the operation of the cyanide detoxification system) copper together with selected metals and nutrients, including ammonia, nitrite and nitrate. For this purpose a low level environmental laboratory will be established at site. The laboratory will be equipped with a low level inductively coupled plasma (ICP) mass spectrophotometer (MS) to enable low detection analyses of metals. Details of the operation of the laboratory setup and technical information for the ICP-MS are provided in Appendix J of supporting document S6 (SRK 2006e - Water Quality Model); and

- Before any discharge would commence, Tail Lake water would be submitted for toxicity testing and metals analysis. Only if the water passes the toxicity test will water discharge commence. Water samples will subsequently be submitted at regular intervals for toxicity testing for the duration of the open water discharge period. Discharge would be suspended immediately should Tail Lake water fail the toxicity test, or not meet MMER criteria.

It is anticipated that at the start of the open water season the analytical turnaround time will likely prevent discharge for the first few days. Once results become available, and criteria for discharge are met, the discharge will be managed as follows:

- Real-time monitoring of the flows in Doris Creek will commence as soon as practical during the open water season. Real-time flow monitoring will comprise a pressure transducer installed within Doris Creek. The pressure transducer will be connected to a programmable logic controller (PLC) that would record flows in Doris Creek and be used to control the discharge flow rate. In addition, a staff gauge will be installed in Doris Creek to enable daily verification of flow rates during periods of active discharge.

- Discharge from Tail Lake would occur with the aid of one or more pumps. Flow control will be achieved through a fixed rate pump coupled with an actuated flow control valve connected to a split recycle/discharge pipeline, with excess flow

returned to Tail Lake. The pump and flow control valve will be controlled by the PLC to discharge Tail Lake water at a ratio fixed relative to the flow in Doris Creek. The pump intakes in Tail Lake (for the operational period) will be mounted on a floating barge system. If necessary, silt curtains will be installed around the pump intake to minimize intake of suspended solids. The discharge to Doris Creek will be located sufficiently downstream from the flow monitoring transducer to ensure that the discharge will not interfere with the operation of the flow monitoring system, but sufficiently upstream of the waterfall to ensure complete mixing with Doris Creek.

Programming of the PLC to control the discharge flow rate will be undertaken as follows:

- Water quality will be monitored in Doris Creek and in Tail Lake at least two days in advance of commencing discharge. The Allowable Discharge Volume Ratio (ADVR) will be calculated from the copper concentrations in Tail Lake and in Doris Creek, and, calculations will be completed to verify that at that ratio, no other parameters will cause an exceedance of CCME guidelines in Doris Creek. If necessary, the ADVR will be adjusted as necessary to meet CCME guidelines or site specific objectives for Doris Creek;

- The Target Discharge Volume Ratio (TDVR) will then be set at 80 % of the ADVR and programmed into the PLC which will vary discharge flow rate according to the real-time measured flow in Doris Creek; and

- Water sampling will be undertaken upstream of the discharge location in Doris Creek, at the end of pipe discharge from Tail Lake and downstream of the waterfall in Doris Creek. Initially, sampling will be undertaken on a daily basis to verify that the pumping system is performing accurately. In time, based on the observed variability of flow, copper and other parameters of significance in Doris Creek, and the variability of copper in Tail Lake, it may be possible to reduce the sample frequency. The downstream together with the upstream and Tail Lake water quality monitoring results will be used to verify the performance of the discharge system at regular intervals and to make control adjustments as appropriate.

3.6.6 Contingency Discharge Strategy

Tail Lake can be operated successfully at several lower than optimum discharge rates. In the event that maximum allowable discharge flow rates are lower than estimated in the water balance base case discharge scenario, the proposed control system will automatically adjust to the lower flow rates.

MHBL will monitor actual performance (water quality and volume) in Tail Lake from the start of operations and will compare actual results with the modeled predictions. This will allow

MHBL to adapt its water management strategy if needed from as early as possible in the mine life.

In the unlikely event that no discharge is possible at or after commencement of operations, water balance modeling has shown that Tail Lake has sufficient capacity to store water for several years after operations would cease. During this time it will be possible to monitor changes in water quality in Tail Lake and, either commence active discharge if suitable conditions develop, or, project water quality into the future to the time that the FSL will be reached. The effects of natural discharge would be re-assessed for that time and if acceptable for natural discharge, Tail Lake would be allowed to fill to its FSL and then allowed to overflow naturally until solute concentrations approach CCME guidelines to enable discharge of excess water contained in Tail Lake and allow breaching of the North Dam. This represents the first contingency strategy.

A second contingency is available for the management of the water contained in Tail Lake. The water quality monitoring undertaken in the early stages of the 'holding' period will identify the solutes that may be of concern at the time the FSL is reached. This will provide ample time to identify water treatment requirements, if any, that may be required to enable discharge of excess water when the FSL is reached. Construction and commissioning of a water treatment plant would represent a second level contingency; however it is unlikely that this contingency would ever have to be developed.

The minimum design life of both dams has been set at 25 years. In reality, under the proposed water management strategy, the North dam will be breached by year 9, and the water in Tail Lake will return to its original elevation of 28.3 m. Under this scenario there will be no water ponding behind either dam.

Under the most conservative water balance assumptions, including upset conditions of extreme precipitation events, the fastest time that Tail Lake would take to reach the FSL is just under 5½ years. Using more realistic water balance assumptions Tail Lake can operate as a zero discharge facility for at least 7½ years.

3.6.7 Tail Lake Shoreline Erosion

MHBL has acknowledged that there is a potential for shoreline erosion around Tail Lake as the permafrost shoreline is thawed through raising and lowering of the water level, and proposed an adaptive management plan to put mitigation measures in place. MHBL subsequently conducted an extensive literature search into the mechanics of shoreline erosion processes in permafrost environments, and subsequently developed a hypothesis for how shoreline erosion impacts can be estimated at Tail Lake. This hypothesis was subsequently used to redesign an appropriate mitigation plan for shoreline erosion, based on measurable environmental triggers. Baseline monitoring for these processes has already been put in place.

Five specific case studies used to develop the hypothesis were; (1) Southern Indian Lake reservoir in northern Manitoba, (2) the Discovery Mine borrow pit in the NWT, (2) the Garrow Lake tailings impoundment at Polaris Mine, (4) three natural permafrost degradation and shoreline erosion features in the Doris North Project area, and (5) shoreline erosion features in Alaska.

Based on the estimated maximum erosion loss from Tail Lake at the dam FSL of 33.5 m, over an estimated 49 ha of inundated shoreline, the total suspended sediment load concentration in Tail Lake is estimated to be less than the MMER criteria, and therefore discharge is not likely to be affected.

Under the proposed mine development plan, the water level in Tail Lake is expected to rise from the pre-development elevation of 28.3 m to a flooded level of 29.4 m over the mine's operating life. There is concern that this rise in water level will result in the thawing of frozen marine sediments in the newly flooded shoreline and that this thawing will result in sloughing and erosion of the thawed sediments into the lake. As part of the development plan, MHBL has proposed to install rock armouring over geotextile over the area it has identified as being most susceptible to such sloughing. This rock armour would be installed at the time of dam construction prior to the start of tailings deposition.

The total area of shoreline that will be inundated as the water level rises from 28.3 to 29.4 m is 12.9 ha. Through field investigations, MHBL has identified 40% of this 12.9 ha (30,600 square meters) as being most susceptible to such sloughing based on observed ground conditions (slope angle, etc). During dam construction, MHBL will place 25,800 square meters of geotextile and 7,600 cubic meters (15,800 dry tonnes) of quarried rock over half of this area (20% of the 12.9 ha), a 15,300 square meter area, to create a 0.5 m thick rock armour layer to prevent potential sloughing. Adaptive management will involve MHBL monitoring the area on an annual basis and placing additional rock armouring as needed to prevent further erosion.

MHBL has included within the closure plan cost estimate a contingency allowance for the placement of additional quarried rock and geotextile to stabilize potential shoreline erosion that may occur along the edges of Tail Lake once the North Dam has been breached. This is a contingent measure in the event that receding water levels in Tail Lake following the breaching of the North Dam result in melting of frozen marine sediments and result in sloughing and erosion of the thawed shoreline into the lake after closure. The following allowance has been included for the placement of both geotextile and quarried waste rock onto the shoreline slopes to prevent such erosion:

- An allowance to armour the remaining 60% of the 12.9 ha surface area between the predevelopment lake level of 28.3 up to the planned flooded elevation of 29.4 m; 0.5 m thickness of placed quarried rock over 47,500 square meters of shoreline – 22,800 cubic meters (47,500 dry tonnes) of rock and 77,400 square meters of geotextile.

Consequently the closure cost estimate includes an allowance of $1.2 million to cover this contingency measure, *i.e.*, placement of an additional 22,800 cubic meters of armouring rock and 77,400 square meters of geotextile.

3.6.8 Tailings Water Balance

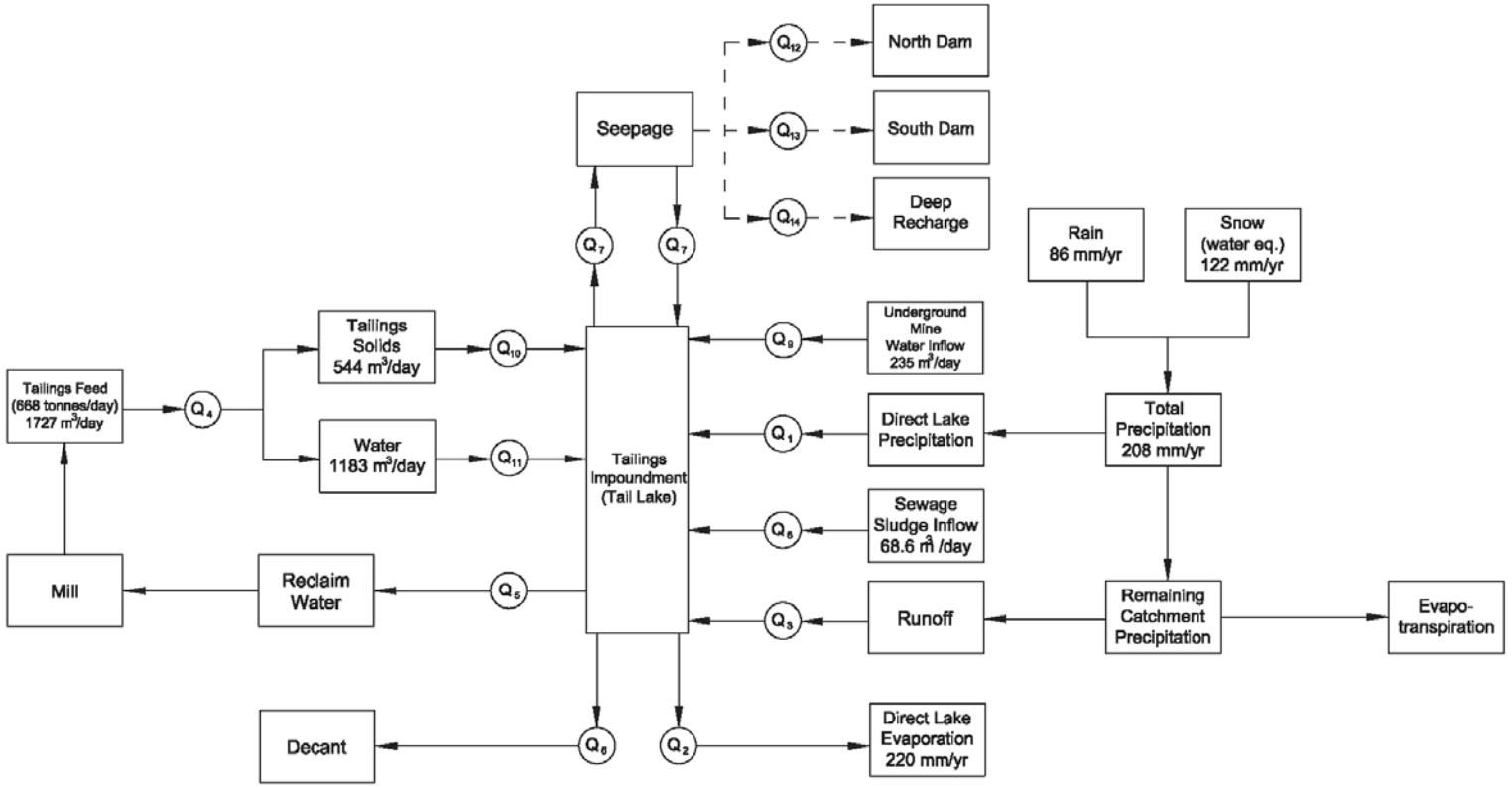
A water balance, as shown schematically in Figure 3-2, was developed for the Doris North Project to model potential receiving water quality that may result from various tailings management strategies. This section summarizes this water balance. Additional information can be found in supporting document S1 (SRK 2006a – Design of the Tailings Containment Area).

This water balance has been used in conjunction with other relevant technical data to determine the design height of the impoundment containment dams and to form the basis for the Tail Lake water quality predictions, both during operational, closure and post-closure periods.

The water balance illustrates that an operating FSL of 33.5 m for Tail Lake would be appropriate. Under the most conservative water balance assumptions, Tail Lake can operate as a zero discharge facility for just under 5 year ½ years before reaching FSL. Using more realistic water balance assumptions Tail Lake can operate as a zero discharge facility for at least 7 ½ years.

The water balance also illustrates that, by allowing an annual discharge the time to reach FSL in Tail Lake is dramatically increased. Allowing as little as 100,000 m^3/year of discharge increases the time to FSL under the base case (Scenario #1) to just under 9 ½ years, which is a 27% increase in time. If the annual discharge is 500,000 m^3/year, FSL in Tail Lake will likely not be reached, since the decant rate will exceed the annual inflow.

Figure 3-4: Simplified Water Balance Schematic



3.7 Storm Water Management

The mill and camp pad will be graded nominally to ensure that water will drain from the pads. Surface run-off from process and work areas will be directed towards and collected in a sump. The sump will be designed to contain a 1:100 year recurrence interval, 24-hr duration storm subject to a 6-hour pumping cycle. The storm water management pond will be sub-divided into two areas:

- A camp/mill sedimentation pond designed to capture runoff from the mill and camp pad with the exception of the temporary waste rock pile; and
- A temporary waste rock stockpile pollution control pond designed to capture runoff from the temporary waste rock pile.

This allows the water from each area to be monitored and managed separately in the event that drainage from the temporary waste rock stockpile proves to be unacceptable for direct discharge onto the tundra.

In both cases, water quality testing will be used to determine whether the water is uncontaminated and can be discharged to the tundra. If testing cannot be carried out in time, or if the water is considered contaminated it will pumped to the mill for circulation to Tail Lake.

3.8 Waste Oil & Hazardous Waste Management

Waste oil will be burned on site in a dedicated waste oil burner specifically designed for that purpose. Unused explosives will be burned or destroyed on-site and unused chemicals as well as any other hazardous material will be disposed of in an appropriate manner.

Other waste products, such as used glycol, vehicle batteries, waste grease, *etc*., will be packaged in appropriate containers and stored in a secure fashion pending shipment off-site for disposal in an appropriate manner. These materials will be placed into sea-can containers and held (pending shipment) on the plant site rockfill pad area where any spillage can be captured in the storm water sumps and directed to the tailings containment area.

4.0 MANAGEMENT AND MITIGATION PLANS
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MHBL is developing an integrated environmental health and safety management system (EHSMS) to encompass all of its operational activities at the Doris North Project. This system will be in place prior to the start of construction in 2008. A description of the EHSMS framework is attached to this application as supporting document S9 (Environmental Health and Safety Management System Outline).

A major component of this system is the Environmental Protection Plan which encompasses the operational management plans covering how the key components and activities of the project will be managed and monitored with the objective of minimizing the impact of the mine on the surrounding environment. This section summarizes the management and mitigation plans that have been developed for implementation at the Doris North Project.

All of these management and mitigation plans are considered “living documents”, that is they are intended to be reviewed and amended on a regular basis to reflect lessons learned and to allow experienced input from the operational staff at the mine and other stakeholder groups such as local communities, hunters and trappers associations, regulatory agencies, etc to be incorporated in subsequent revisions. In other words these plans will be modified and updated to adapt to lessons learned, i.e. adaptive management.

The Environmental Protection Plan for the Doris North Project is attached to this application as Supporting Document S10 and encompasses the following management plans:

- S10a Doris North Project Emergency Response and Contingency Plans
- S10b Air Quality Management Plan
- S10c Noise Abatement Plan
- S10d Interim Waste Rock Storage Plan
- S10e Hazardous Materials Management Plan
- S10f Explosives Management Plan
- S10g Landfill Design and Management Plan
- S10h Landfarm Design and Management Plan
- S10i Tailings Management Plan
- S10j Water Management Plan
- S10k Quality Assurance and Quality Control Plan
- S10l Mine Closure and Reclamation Plan
- S10m Monitoring and Follow-Up Plan

The following sections provide the reader with a high level summary of the objectives for each of these management plans:

4.1 Quality Assurance/Quality Control Program

MHBL has a Quality Assurance/Quality Program in place that was developed for the current exploration water licenses for the Windy and Boston Exploration sites. It has been adapted for use at the Doris North Mine and covers all environmental monitoring sampling procedures. This Plan will be updated to reflect the on-site laboratory sample handling and analytical procedures specific to the Doris North Project prior to the start of mining operations in early 2008. MHBL will register and seek accreditation of it's on site laboratory under the Canadian Association of Environmental Analytical Laboratories (CAEAL) and will work to maintain certification for the key water license discharge parameters during the mine's life. A copy of the Quality Assurance/Quality Control Plan (S10k) is included as a sub-component of the Environmental Protection Plan attached to this application as supporting document S10.

In the intervening period Quality Assurance/Quality Control standards covering baseline data collection have been implemented by the consultants collecting data on behalf of MHBL, specifically Golder Associates. Typically these procedures are summarized as follows:

Field Protocol: To check on the precision of the samples collected, periodic duplicate water samples are submitted for testing. A duplicate sample requires that the sample collector fill two sampling sets (group of bottles from two different samples at the same depth). Since sampling takes place over three seasons, no spatial bias towards any specific site or temporal bias towards any season is incorporated into the sampling program. The sampling program will also submit blind duplicates for analysis (i.e., duplicate samples not labeled with the location).

To ascertain whether contamination has reached the samples, field blanks are incorporated into the sampling process. A field blank is a set of bottles filled with demineralized, de-ionized water (supplied by the lab) and processed in the same manner as a collected water sample. These blanks are used for each sampling session. All blanks are filled in the field to ensure that they undergo the same conditions and procedures as the water samples. One field blank is processed for each sample collection period.

The third level of quality control is a check on the laboratory's precision and accuracy by preparing a split sample in the field. A split sample is a discrete water sample separated into two identical tests. The water sample is collected at one time and at a specific depth. In theory, the same results should be achieved when analyzed by the laboratory. Typically one split is processed for each sample collection period.

Laboratory Protocol: Laboratory quality assurance/quality control (QA/QC) measures typically consist of a routine program to check the accuracy and precision of the analyses and to ensure that laboratory contamination will not contribute to the results. These programs are typically conducted in-house by the laboratory. It involves checking every 20 to 25% of the total number of samples being analyzed. It also includes triplicate, blank and split samples collected in the field.

These quality assurance/quality control procedures will be carried forward by MHBL and will become part of the QA/QC Plan for the Mine before the on-site laboratory is commissioned.

The sampling protocols described in the QA/QC have already been implemented by MHBL to ensure consistency in the sampling technique for each parameter tested.

4.2 Waste Rock and Ore Management

MHBL has developed an Interim Waste Rock Storage Plan for the Doris North Project. This Plan forms a component of the Environmental Protection Plan for the Project and is attached as a sub-component of supporting document S10 to this application. The following is a summary of the key elements of the Interim Waste Rock Storage Plan (S10d).

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 into the temporary waste rock stockpile to be returned into the underground mine during the mine life. 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 north of the ore stockpile and portal access road. The pile will be constructed within a 0.5 m high 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 analyzed as needed and if found to be contaminated pumped to the tailings impoundment area via the mill pump box. Only runoff that meets acceptable criteria for discharge will be released onto the tundra from this runoff collection pond

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;
- 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 25 tonnes of rock to be used will be required to meet this requirement assuming that the 25 tonnes is all from one rock lithology and location; and
- The NPR value derived from the ABA test must exceed 4.0 and the NNP must be greater than +20 Kg/tonne $CaCO_3$ equivalent to meet the threshold of being classified as non-acid generating for this purpose.

4.3 Tailings Management Plan

MHBL has developed a Tailings Management Plan for the Doris North Project. This Plan forms a component of the Environmental Protection Plan for the Project and is attached as a sub-component of supporting document S10 to this application. The purpose of this document is to provide a consolidated source of information on the strategy to be applied at the Doris North Mine to manage the deposition and containment of mill tailings. The tailings management strategies for the Doris North Project have been previously described in Section 3.6 and consequently have not been repeated here.

4.4 Water Management Plan

MHBL has developed a Water Management Plan for the Doris North Project. This Plan forms a component of the Environmental Protection Plan for the Project and is attached as a sub-component of supporting document S10 to this application. The purpose of this document is to provide a consolidated source of information on the strategy to be applied at the Doris North Mine to manage:

- The containment, monitoring and release of snowmelt and rainwater that comes in contact with the Doris North plant site area; and

- The containment and release of excess water from the Tail Lake tailings containment system.

The water management strategies for the Doris North Project have been previously described in Sections 3.5, 3.6 and 3.7 and consequently have not been repeated here.

4.5 Hazardous Materials and Hazardous Waste Management Plan

MHBL has developed a Hazardous Materials Management Plan for the Doris North Project. This Plan forms a component of the Environmental Protection Plan for the Project and is attached as a sub-component of supporting document S10 to this application. The following is a summary of the key elements of the Hazardous Materials Management Plan (S10e).

The purpose of this document is to provide a consolidated source of information on the safe and environmentally sound transportation, storage, and handling of the major hazardous products to be used at the Doris North Gold Mine both during the construction and operational phases. These procedures are an integral component of the overall Environmental Protection Plan (EPP) for the proposed Doris North Gold Mine and will be periodically reviewed and updated as the Gold Mine moves through environmental permitting, construction, operations, and final closure and reclamation.

A hazardous material is one that, as a result of its physical, chemical, or other properties, poses a potential hazard to human health or the environment when it is improperly handled, used, stored, disposed of, spilled or otherwise managed. In combination with MHBL's "*Emergency Response and Contingency Plan*" the Hazardous Materials Management Procedures (HMMP) provide instruction on the prevention, detection, containment,

response, and mitigation of accidents that could result from handling of hazardous materials at the proposed Doris North Gold Mine.

The Doris North Gold Mine will use the following types of hazardous materials in the day to day operation of the underground mine and in the extraction of gold from the ore mined:

- Fuel and Lubricants – diesel fuel, oils, greases, anti-freeze, and solvents for power generation, building heating, equipment operation and maintenance;

- Process Plant/Milling Reagents/Consumables – Potassium Amyl Xanthate flotation collector, Aerophine 3418 Flotation Promoter, methyl isobutyl carbinol (MIBC) flotation frother, sodium cyanide for gold leaching, zinc dust for gold recovery in the Merrill Crowe process, caustic soda, hydrogen peroxide for effluent treatment, sulphuric acid for effluent treatment, copper sulphate for effluent treatment, and borax, sodium nitrate, silica sand for bullion refining;

- Explosives – ammonium nitrate and high explosives used for blasting in the mine;

- Laboratory chemicals – small volumes of various chemicals in the on-site analytical laboratory to analyze rock and water samples for grade control, to monitor metallurgical performance and to monitor environmental performance.

The procedures contained within the Hazardous Materials Management Plan are based on the following principles for best practice management of hazardous materials:

- Purchasing controls – control of shipping methods, appropriate packaging, shipping schedules, etc.
- Shipment Tracking procedures;
- Inventory controls on site – periodic inventory of materials in storage on site to determine usage and to identify and manage any unexpected loss;
- Maintenance of current safe handling and storage procedures – MSDS, WHMIS, TDG data and labelling – made available to those in contact throughout the operational site;
- Characterization of potential environmental hazards posed by these materials through the Environmental Management System;
- Allocation of clear responsibility for managing shipment, storage, handling and use of potentially hazardous materials;
- Defined methods for transport, storage, handling, and use;
- Identification of disposal methods for potentially hazardous waste generated from use of these products;
- Preparation of contingency and emergency response plans;
- Adequate type and delivery of training for management, workers, and contractors whose responsibilities include handling potentially hazardous materials;
- Maintenance and review of records of hazardous material consumption and incidents in order to anticipate and avoid impacts on personal health and the environment; and
- Procedures to track and manage wastes generated through use of these products, including regular shipments of potentially hazardous waste to appropriate licensed

disposal facilities following all relevant regulatory requirements (packaging, labelling, inventory tracking and waste manifesting).

MHBL requires that the transportation, storage, handling and use of hydrocarbon based products, ammonium nitrate, and all other chemicals to be used at the proposed Doris North Gold Mine be conducted in a safe and efficient manner. Prevention, detection, containment, response, and mitigation are the key elements in the management of hazardous materials. MHBL is committed to minimizing the potential for adverse environmental effects on terrestrial and aquatic biota and ecosystems that may result from accidental release. The first step in accomplishing this is to apply consistent practices towards the management of hazardous materials site-wide. MHBL will incorporate proper hazardous material management procedures into its environmental management plans and systems for the proposed Doris North Gold Mine to reduce risk of accidental release.

All hazardous materials to be used at the Doris North operation will be manufactured, delivered, stored, and handled in compliance with all applicable federal and territorial regulations, as well as ISO 9001(Quality Standards) and ISO 14001 environmental management standards. MHBL is strongly committed to preventing, to the greatest extent possible, both inadvertent release of these substances to the environment and accidents resulting from mishandling or mishap. MHBL will institute programs for employee training, facility inspection, periodic drills to test systems, and procedural review to address deficiencies, accountability, and continuous improvement objectives.

MHBL will actively work towards minimizing the generation of hazardous wastes by investigating alternatives to the use of hazardous materials, by recycling products and containers wherever feasible, and by treating wastes using state-of-the-art technologies before any release to the environment.

As with all other aspects of health and safety policy at the Doris North mine, all employees will be expected to comply with all applicable precautions and handling procedures with regard to hazardous materials. Employees are also expected to report any concerns to their supervisors, the Health and Safety Committee, or senior site management. All staff are encouraged to bring forward suggestions for improvements that can be incorporated into procedure revisions as appropriate.

4.6 Emergency Response and Spill Contingency Plan

MHBL has developed an Emergency Response and Spill Contingency Plan for the Doris North Project. This Plan forms a component of the Environmental Protection Plan for the Project and is attached as a sub-component of S10 to this application (S10a). The following is a summary of the key elements of the Emergency Response and Spill Contingency Plan.

The Emergency Response and Contingency Plan was developed to establish a guidance document for emergency response at the Doris North Project site. The document includes appendices to assist and inform all personnel on site so that they can respond to any site emergency that has the potential to adversely affect the natural environment and/or the safety of personnel. The plan is driven by the Miramar Hope Bay Limited (MHBL) environmental and safety policies and in compliance with regulatory requirements.

The Plan provides:

a. A clear chain of command for all emergency activities.
b. Accountability for the performance of the spill response.
c. Well-defined task and operational hazards/risk.
d. Reporting and record keeping requirements to track program progress.

The plan will be a "living" document and will be updated on a regular basis as new information comes to light or procedures, permits and authorizations change. The responsibility for the administration of the plan will rest with the Mine General Manager. The Environmental Department will support the Manager, and shall, in conjunction with the Safety Department, review the plan on a regular basis and update as needed. The plan will also be reviewed periodically by the mine Occupational Health and Safety Committee.

The purpose of the emergency response component of this document is act as a general resource for each member of Management and all employees to enable them to react to emergencies at the Doris North site. The plan will act as a guidance tool to ensure immediate and effective handling of any emergency. Prompt, effective and organized Emergency Response by the company will ensure safety of the employees, minimize the affect on the environment and maintain effective communication with the regulatory agencies.

Recognizing that spills or leaks of petroleum products and chemical substances have the potential of posing a variety of hazards and can endanger both short or long term public health and the environment, MHBL has developed a Spill Response Plan to address accidental releases of hazardous substances. Hazards that may exits at Doris North Mine site include the release of toxic vapours, fire, spills, and explosions.

The principal objectives of the Spill Response Plan component of this plan are:

- To provide information to cleanup crews, employees, contractors, KIA, and government agencies in the event of a spill;
- To promote the safe and effective recovery or disposal of spilled materials;
- To comply with the Miramar Hope Bay Limited (MHBL) environmental safety policies
- To comply with federal and territorial regulations pertaining to the preparation of contingency plans and reporting requirements; and
- To minimize the negative impacts of spills on the receiving environment (water/ice and/or land).

The spill response component of this plan addresses the organization of the Doris North Project spill response and related emergency measures. Alerting and notification procedures and cleanup strategies are outlined along with the duties and responsibilities of key spill response personnel.

4.7 Environmental Management System

MHBL management is committed to managing all aspects of their organizations' environmental, health and safety requirements and commitments through a formal, independently audited management system (EHSMS). The MHBL EHSMS will be developed over the next six months and will be in place in time for start of construction on the Doris North Project in 2008. As well as applying to the Doris North Project, the Corporate-wide EHSMS will be implemented throughout MHBL. The EHSMS will provide assurance to MHBL Management that the MHBL Environmental, and Health and Safety Policies will be followed at all operations by not only MHBL staff, but all of its primary contractors.

The EHSMS will be based on the most widely accepted international standards for environment – ISO 14001:04, and for health and safety – OHSAS 18001. A decision to certify the system(s) to these standards will be made in the future by MHBL management. The EHSMS will provide overall control over MHBL's commitments to meet all applicable laws and regulations, permit requirements, monitoring and reporting requirements, best management practices and community involvement programs.

The MHBL EHSMS will be developed on the PLAN, DO, CHECK, ACT and continual improvement principles. Basically this approach ensures that expectations are clearly stated, all individuals understand their responsibilities in normal and accidental situations, there is regular monitoring of expected performance and changes made to the system as operations change or tests of the system indicate a need for change. At the heart of the system is a commitment to clear and appropriate communication – both internal and external.

An outline of the main components that will comprise the EHSMS are presented in supporting document S9 (Environmental Health and Safety Management System Outline, Golder 2006b).

5.0 WATER WITHDRAWAL

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5.1 Potable Water

During the construction phase potable water for the construction camp will be obtained from Doris Lake using the same pumping facilities that will be in place for the operational phase. Potable water will be chlorinated and stored within the camp.

For the operational phase of the project, potable water, fire suppression water and up to 50% of the mill water (recycle water will be maximized for up to six months of the year) will be supplied from Doris Lake. Two separate 100 mm diameter insulated and heat traced HDPE lines will pump water from the lake to storage tanks at the mill and camp sites. Potable water will be treated in a packaged plant installed in a 12.2 m x 2.4 m container and will consist of sand filtration followed by ultra violet light and/or chlorination treatment.

The Project's projected potable water consumption is 30,000 cubic meters per year (daily average potable water consumption of 68.6 cubic meters per day plus a contingency of 17%) The daily consumption estimates is based on a 175 person camp with a per person consumption of 0.04 cubic meters (40 liters) per person per day.

5.2 Fresh Water Consumption

Mill process water requirements are projected to be 1,183 m^3/ day.

Water use underground is expected to be minimal. A brine solution will be mixed in the mill and piped underground for use in drilling and dust suppression. This brine solution will be recirculated through an underground sump. Development and production drilling will use this brine solution to stop drills from freezing in the permafrost. Total requirements are estimated at approximately 0.1 m^3/h. As mining is expected to be within the permafrost zones, groundwater is anticipated to be minimal. Any water encountered will be pumped from underground and discharged into the tailings line to Tail Lake.

Consequently the maximum projected freshwater use for non-potable water uses (process water) at the Doris North Project is estimated at 450,000 cubic meters per year (estimated daily average consumption of 1,183 cubic meters per day plus a 16% contingency allowance). This assumes no recycle of water from Tail Lake.

5.3 Reclaim Water

It is MHBL's intent to maximize the use of recycle water from the tailings impoundment, however, there is a possibility that the water may not be able to clarify sufficiently during the winter period when lake ice reduces the volume in Tail Lake (especially during the first winter). During summer months (June through September), process water will be taken from Tail Lake by a pump to be located near the north end of the lake. Make up freshwater

for use in the mill will be drawn from the freshwater holding tank only in case of a shortage from Tail Lake.

The projected volume of water recycled from Tail Lake as mill process water is 145,000 cubic meters per year (based on 1,183 cubic meters per day for four months). MHBL will attempt to increase the volume of water recycled from Tail Lake as this will improve its overall Tail Lake water management strategy.

There will be two internal recycle water streams within the milling flowsheet:

- Flotation concentrate will be thickened ahead of the leach circuit with the thickener overflow recycled back to the grinding circuit; and

- Cyanide leach residue will be thickened and filtered with the majority (on average 70%) of the resultant barren solution recycled to the head end of the cyanide leach circuit.

The volume of these two internal recycle water streams has been accounted for in the mill process water consumption totals presented in the preceding sections.

6.0 RESIDUAL IMPACTS
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6.1 Tail Lake Discharge Strategy

The water management strategy for the Project entails an active managed discharge from Tail Lake beginning in Year 1 of operations and continuing until it can be shown that there is no adverse impact on downstream aquatic life from an unregulated discharge from Tail Lake. At the end of Year 9 (seven years after mining ceases) water quality in Tail Lake is predicted to be within the CCME Guidelines allowing for a complete “walk-away” closure scenario.

During the mine’s operating life (two years) and for an additional three years after mining and milling ceases the volume of water to be released from Tail Lake will exceed the natural inflow into Tail Lake. By the third year following the cessation of mining and milling the amount of water that needs to be released from Tail Lake is predicted to be equal to the natural inflow. However water will continue to be pumped from Tail Lake on a managed annual basis until the water level within Tail Lake has been drawn down to the pre-development water level of 28.3 meters above sea level. Prior to this time, MHBL will commission a human health and ecological risk assessment to determine at what point water can be released in an unregulated fashion through the former Tail Lake outflow into Doris Lake without resulting in an adverse impact to aquatic life downstream. This assessment will be based on prevailing water quality within Tail Lake at the time.

MHBL will continue to actively manage the annual discharge from Tail Lake by pumping this water to the discharge point in Doris Outflow Creek upstream of the waterfall until it can be demonstrated that no adverse impact on downstream aquatic life will occur with an unregulated discharge. At that time the North Dam will be breached and the outflow from Tail Lake will be restored to the pre-mine outflow channel into Doris Lake. Under this scenario no further management of water releases from Tail Lake will be required however monitoring will continue for a minimum of one more year to verify that water quality continues to meet CCME Guidelines.

6.2 Receiving Water Quality Estimates

In summary, the water quality modeling results (see supporting document S6 – SRK 2006e *Water Quality Model, Doris North Project* – Section 4) and discharge scenario evaluations indicate that:

- Water management strategies are available that will not cause exceedance of CCME guidelines in Doris Creek;
- Alternative strategies are also available that may cause marginal exceedances of CCME guidelines in Doris Creek, however, such exceedances would be of short duration and will significantly reduce the requirements (time and management) for active operation; and,

- The range of discharge conditions that remain protective of the receiving environment indicate that there is significant flexibility available to manage Tail Lake water to still meet CCME guidelines in Doris Creek.

The results indicate that adaptive management of the water in Tail Lake is possible. This means that while one strategy might be selected as a preferred strategy, it is not the only strategy that will be protective of the receiving environment. More importantly, if conditions or actual water quality in Tail Lake deviate from those predicted in the water quality modeling, then it will be possible to switch to an alternate strategy that would remain protective of the receiving environment without compromising the tailings deposition and overall water management for the site.

The discharge strategy selected by MHBL would see the discharge of approximately 1,000,000 m^3 per year starting in Year 1 of operations (as discussed in Section 6.2). The maximum concentrations both in Tail Lake and in the receiving environment in Doris Creek immediately downstream of the point of discharge based on an average runoff flow yield of 180 mm/year are presented in Table 6-1.

Table 6-1: Predicted Water Quality in the Receiving Environment

Parameter	Units	MMER Criteria	CCME Guidelines	Maximum Concentration in Tail Lake for Average Flow Conditons (180 mm/year Yield)	Maximum Concentration in Doris Creek for Average Flow Conditions (180 mm/year Yield)
Year of Occurrence				Year 2	Year 3
pH			6 to 9	7 to 8	7 to 8
TDS	mg/L			1583	216
TSS	mg/L	15		3.7	6.8
Free CN	mg/L		0.0050	0.0036	0.0002
Total CN	mg/L	1		0.035	0.004
WAD CN	mg/L			0.0048	0.0003
CNO	mg/L			4.0	0.22
SCN	mg/L			0.118	0.006
Sulphate	mg/L			109	9
Chloride	mg/L			1051	113
Total Ammonia	mg/L		0.97	1.31	0.08
Nitrate	mg/L		2.9	6.8	0.4
Nitrite	mg/L		0.02	0.53	0.032
Alkalinity	mg/L			64	29
Phosphate-P	mg/L			0.2183	0.0315
Org. Carbon	mg/L			4.8	7.3
Hardness CaCO3	mg/L			127	50
Total Metals					
Aluminium Al	mg/L		0.10	0.14	0.08
Antimony Sb	mg/L			0.0194	0.0035
Arsenic As	mg/L	0.5	0.005	< 0.005	<0.005
Barium Ba	mg/L			0.0125	0.0035
Cadmium Cd	mg/L		0.000038	0.000066	0.000007
Calcium Ca	mg/L			295	24
Chromium Cr	mg/L		0.0010	0.0078	0.0010
Cobalt Co	mg/L			0.0123	0.0013
Copper Cu	mg/L	0.3	0.0020	0.011	0.002
Iron Fe	mg/L		0.30	0.15	0.13
Lead Pb	mg/L	0.2	0.0020	0.00047	0.00008
Lithium Li	mg/L			0.0055	0.0029
Magnesium Mg	mg/L			10.6	7.5
Manganese Mn	mg/L			0.034	0.021
Mercury Hg	mg/L		0.00010	0.0000107	0.0000012
Molybdenum Mo	mg/L		0.073	0.0107	0.0007
Nickel Ni	mg/L	0.5	0.025	0.010	0.001
Potassium K	mg/L			49	5
Selenium - Se	mg/L		0.0010	0.00081	0.00089
Silver Ag	mg/L		0.00010	0.00013	0.00001
Sodium Na	mg/L			386	58
Thallium Tl	mg/L		0.00080	0.000048	0.000031
Tin Sn	mg/L			0.00296	0.00054
Zinc Zn	mg/L	0.5	0.030	0.027	0.004

Note: Shaded values exceed or are equal to CCME guidelines for the protection of Freshwater Aquatic Life

Under this strategy water quality below the discharge point in Doris Creek would be consistently below CCME guidelines for the protection of freshwater aquatic life with the following exceptions:

- Water quality may be at the CCME guideline concentration for Chromium in Year 3 only; and

Under this strategy water quality below the discharge point in Doris Creek would be consistently below CCME guidelines for the protection of freshwater aquatic life with the following exceptions:

- Water quality may be at the CCME guideline concentration for Chromium in Year 3 only; and

- Nitrite concentrations in Doris Creek may exceed CCME guidelines in years 2 and 3 only. However it should be noted that nitrite should quickly oxidize to nitrate in the downstream aquatic environment and should not present any harm to aquatic life.

6.3 Proposed Discharge Limits

MHBL suggests that for the monitoring of water license compliance, the water license discharge limits should be set at the discharge end of the discharge pipe line from Tail Lake into Doris Creek. MHBL suggests that these discharge limits be set at the limits set out in Table 6-2.

The proposed Tail Lake water discharge strategy provides a 16x dilution factor within the receiving aquatic environment (Doris Outflow Creek). To be conservative MHBL has proposed discharge limits for CN and Ammonia based on a 10x dilution ratio to ensure that CCME guideline values will be achieved within Doris Outflow Creek at these discharge levels. The metal concentrations will be regulated by the discharge flow control mechanism previously described in Section 3.6.4. For these metals MHBL has proposed discharge limits based on maximum allowable levels that, within the constraints of the discharge strategy, would still ensure protection of aquatic life in the receiving environment.

MHBL proposes that a site specific copper objective of 0.0041 mg/L be used for Doris Creek downstream of the waterfall in place of the CCME guideline of 0.002 to 004 mg/L (based on hardness of the receiving water) to recognize the bioavailability of background copper in the receiving environment. Approximately half of the background copper is complexed and thus not bioavailable. This site specific guideline value for copper was determined in accordance with published guidance provided CCME. The logic behind the selected value of 0.0041 mg/L Total Copper is presented in supporting document S11 (Golder 2004 – Site Specific Water Quality Objective for Copper for the Proposed Doris North Project).

While from a regulatory perspective setting discharge standards at the discharge point into Doris Creek is warranted to protect aquatic life, MHBL recognizes that regular monitoring of water quality within Tail Lake will be necessary to provide early warning of potential water quality problems. MHBL proposes regular monitoring of water quality within Tail Lake and comparing against the predictions made in the water quality model for Tail Lake. This

comparison will provide MHBL with an early warning of significant departures from the predicted levels and potential water quality problems in the coming discharge seasons allowing for the discharge strategy to be adaptively modified. MHBL is already proposing to control the volume of discharge to meet water quality objectives in Doris Creek. Additional adaptive management may include containment of water within Tail Lake, or installing a water treatment system to further reduce concentrations of specific parameters prior to discharge.

- Reduction in the amount of water discharged in the next open water season; or
- Additional water treatment for a targeted parameter.

Table 6-2: Proposed Water License Discharge Standards

Parameter	Units	MMER Criteria	CCME Guidelines	Average Allowable Concentration at the end of the Discharge Pipe from Tail Lake
Year of Occurrence				
pH			6 to 9	6 to 9
TDS	mg/L			
TSS	mg/L	15		15
Free CN	mg/L		0.0050	0.03
Total CN	mg/L	1		0.3
WAD CN	mg/L			
CNO	mg/L			
SCN	mg/L			
Sulphate	mg/L			
Chloride	mg/L			
Total Ammonia	mg/L		0.97	5 (NH_3 - N)
Nitrate	mg/L		2.9	
Nitrite	mg/L		0.02	
Alkalinity	mg/L			
Phosphate-P	mg/L			
Org. Carbon	mg/L			
Hardness CaCO3	mg/L			
Total Metals				
Aluminium Al	mg/L		0.10	
Antimony Sb	mg/L			
Arsenic As	mg/L	0.5	0.005	0.04
Barium Ba	mg/L			
Cadmium Cd	mg/L		0.000038	
Calcium Ca	mg/L			
Chromium Cr	mg/L		0.0010	
Cobalt Co	mg/L			
Copper Cu	mg/L	0.3	0.0020 to 0.0040[2]	0.04
Iron Fe	mg/L		0.30	
Lead Pb	mg/L	0.2	0.0020	0.008
Lithium Li	mg/L			
Magnesium Mg	mg/L			
Manganese Mn	mg/L			
Mercury Hg	mg/L		0.00010	
Molybdenum Mo	mg/L		0.073	
Nickel Ni	mg/L	0.5	0.025	0.04
Potassium K	mg/L			
Selenium - Se	mg/L		0.0010	
Silver Ag	mg/L		0.00010	
Sodium Na	mg/L			
Thallium Tl	mg/L		0.00080	
Tin Sn	mg/L			
Zinc Zn	mg/L	0.5	0.030	0.04

Notes:

1) Shaded values exceed or are equal to CCME guidelines for the protection of Freshwater Aquatic Life

2) MHBL proposes that a site specific CCME Guideline of 0.0041 mg/L for copper be used at Doris North based on background work completed by Golder Associates as presented in supporting document S10, entitled Site Specific Water Quality Objective for Copper for the Doris North Project, Golder Associates, December 2004

7.0 MONITORING PROGRAMS

Taotutit Atogakhat

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MHBL has developed a Monitoring and Follow up Plan for the Doris North Project. This Plan forms a component of the Environmental Protection Plan for the Project and is attached as a sub-component of supporting document S10 to this application (S10m).

A follow-up monitoring program is used to verify the accuracy of the environmental assessment and/or to determine the effectiveness of mitigation. Typically, follow-up programs are focused on issues associated with potentially significant adverse environmental effects or negotiated mitigations, such as fisheries compensation to replace productive capacity of lost fisheries habitat due to the project. Monitoring data will be analyzed to help determine if there are any undesirable environmental effects as a result of project activities.

Monitoring programs have been developed in each of the following areas for the purpose of monitoring the ongoing environmental performance of the Doris North Mine and to verify the impact predictions made during the environmental assessment of the project:

- Climate;
- Hydrology;
- Air quality;
- Noise;
- Vegetation and soil quality;
- Site water quality;
- Tailings geotechnical;
- Waste rock characterization;
- Aquatic effects;
- Fish; and
- Wildlife.

In general, adaptive management is triggered when effects to the receptor exceed predictions determined in the Environmental Impact Statement (EIS).The following is a summary of the key elements of the Monitoring and Follow up Plan. The results from these monitoring programs will be used to manage ongoing operations at the mine; adjust and/or modify methods, procedures and/or equipment to mitigate any sub-standard performance and to prevent adverse environmental impacts associated with any such sub-standard performance from continuing.

All environmental monitoring programs are designed by qualified scientists using widely-accepted scientific standards. The monitoring and follow-up programs will be conducted by qualified and experienced professionals or technicians, with assistance, where practical, of Inuit hired from the region.

The following supporting documents contain detailed information regarding the monitoring programs summarized in this the Monitoring and Follow up Plan:

- Hydrology and Meteorology Report (S5)
- Water Quality Model (S6)
- Geochemical Characterization of Quarry Materials (S7)
- Geochemical Characterization of Portal Development Rock (S8)
- Noise Abatement Plan (S10c)
- Aquatic Effects Monitoring Program (S12-Golder 2003)
- Doris North Project No Net Loss Plan – Revision 5 (Golder 2005a)

Table 7-1 outlines the monitoring parameters, sampling location, and sampling frequency for each monitoring program

Table 7-1 Summary of Monitoring Programs

Category	Parameter	Location	Frequency	Mining Phase
Air Quality and Climate				
Doris North	Wind speed @ 3 m	Mill Site	Continuous	Construction, Operation, Closure, Post-closure
	Wind direction @ 3 m	Mill Site	Continuous	Construction, Operation, Closure, Post-closure
	Temperature @ 2 m	Mill Site	Continuous	Construction, Operation, Closure, Post-closure
	Relative humidity @ 2 m	Mill Site	Continuous	Construction, Operation, Closure, Post-closure
	Solar radiation @ 2.5 m	Mill Site	Continuous	Construction, Operation, Closure, Post-closure
	Precipitation (tipping bucket; summer)	Mill Site	Summer continuous	Construction, Operation, Closure, Post-closure
	Passive monitoring for SO_2, NO_2 and O_3	Mill Site	Monthly	Construction, Operation, Closure
	Particulate matter (TSP, PM_{10}, $PM_{2.5}$) PLANNED	Mill Site	Every 6^{th} day	Construction, Operation, Closure
Boston	Wind speed @ 10 m	Above the Portal	Continuous	Construction, Operation, Closure, Post-closure
	Wind direction @ 10 m	Above the Portal	Continuous	Construction, Operation, Closure, Post-closure
	Temperature @ 2 m	Above the Portal	Continuous	Construction, Operation, Closure, Post-closure
	Relative humidity @ 2 m	Above the Portal	Continuous	Construction, Operation, Closure, Post-closure
	Solar radiation @ 2.5 m	Above the Portal	Continuous	Construction, Operation, Closure, Post-closure
	Snow Depth	Above the Portal	Continuous	Construction, Operation, Closure, Post-closure
	Precipitation (tipping bucket; summer)	Above the Portal	Summer continuous	Construction, Operation, Closure
	Passive monitoring for SO_2, NO_2 and O_3	Above the Portal	Monthly	Construction, Operation, Closure

Soil and Vegetation Sampling	Metal concentrations in lichens[1]	Project site locations and reference locations throughout the Hope Bay Region	Once during Construction, annually during Operation and once during Closure	Construction, Operation, Closure
	Metal concentrations in plants and berries[1]	Project site locations and reference locations throughout the Hope Bay Region	Once during Construction, annually during Operation and once during Closure	Construction, Operation, Closure
	Metal concentrations in soils[1]	Project site locations and reference locations throughout the Hope Bay Region	Once during Construction, annually during Operation and once during Closure	Construction, Operation, Closure
Noise				
	L_{eq}, L_{min}, L_{max}, LFN, and any other that regulators require.	To be discussed with regulators.	To be discussed with regulators.	Construction, Operation, Closure
Hydrology				
	Water quantity (water level and/or discharge)	Tail Lake	Continuous	Construction, Operation, Closure, and Post-closure to end of treated tailings effluent discharge
		Doris Lake	Continuous	
		Tail Lake Outflow (upper)	Continuous during open water season including during discharge of treated tailings effluent	
		Doris Lake Outflow (upper)		
		Doris Lake Outflow (lower)		
		Roberts Lake Outflow	Continuous during open water season	Construction, Operation through verification of fisheries No Net Loss mitigation measures
		Little Roberts Lake Outflow		
	Snowcourse surveys	Doris Lake watershed	Annual in late winter	Construction, Operation, Closure and Post-closure to end of treated tailings effluent discharge

	Lake evaporation	Doris Lake watershed (calculated)	Continuous	Construction, Operation, Closure and Post-Closure to end of treated tailings effluent discharge
Site Water Quality				
Site Compliance Monitoring	Total suspended sediment/Turbidity	Roberts Bay jetty Doris Lake boat launch Doris Lake water intake	Hourly to daily during in-water construction activity	Construction, Closure
Site Compliance Monitoring	Water quality and quantity	Tail Lake end of discharge pipe to Doris Outflow Creek Doris Creek Outflow both upstream and downstream of discharge point	Every second day during annual discharge period	Operation, Closure, Post Closure (for up to nine years after cessation of mining)
Site Compliance Monitoring	Water quality and quantity	Water Quality within Tail Lake – Reclaim water	Every second day during annual discharge period Monthly at all other times during operational phase Monthly during closure phase only during open water period	Operation, Closure, Post Closure (for up to nine years after cessation of mining)
Site Compliance Monitoring	Water quality and quantity	Combined Tailings discharged to Tail Lake– water component	Daily initially, composited weekly thereafter	Operation
Site Compliance Monitoring	Water quality and quantity	Plant site storm water management pond	Weekly (during open water season) and prior to any planned discharge to the tundra	Operation, Closure

Site Compliance Monitoring	Water quality	Fuel tank farm collection sump	Monthly (during open water season) and prior to any planned discharge to the tundra	Operation, Closure
Site Compliance Monitoring	Water quality	Roberts Bay Fuel tank transfer facility collection sump	Monthly (during open water season) and prior to any planned discharge to the tundra	Operation, Closure
Site Compliance Monitoring	Water quality	Landfarm collection sump	Monthly (during open water season) and prior to any planned discharge to the tundra	Operation, Closure
Site Compliance Monitoring	Water quality	Landfill collection sump	Monthly (during open water season) and prior to any planned discharge to the tundra	Operation, Closure
Site Environmental Management	Water quality	Doris Lake at freshwater pump intake	Monthly	Operation, Closure
Site Environmental Management	Water quality	Potable Water – taken at different spots each month	Monthly	Operation, Closure
Site Environmental Management	Water quality	Sewage Treatment Plant Effluent to Mill pump box	Monthly	Operation, Closure
Effluent Treatment Process Control	Water quality and quantity	Barren bleed solution	Every two hours	Operation
Tailings Geotechnical				
Thermal Monitoring	Ground Temperature	Thermistor strings at tailings dams, around Tail Lake shoreline	Monthly	Operation

Visual Inspections	Tailings containment system performance	Tailings and reclaim pipelines, dump catch basins, tailings discharge point, reclaim water pump, north and south dams and discharge system	Daily	Operation
Geotechnical Inspections	Tailings containment system performance and dam stability	Inspection by a qualified geotechnical engineer of all structures including the dams and Tail Lake shoreline	Annually during early summer	Operation, Closure, Post-Closure
Tail Lake Bathymetry	Tail Lake bathymetry to facilitate tailings deposition management	Survey of Tail Lake bathymetry	Annually during early summer	Operation
Waste Rock Characterization				
Quarried Rock Material	ABA Characterization	Check sampling of rock quarried for use in infrastructure (jetty, roads, airstrip, building pads, dams, etc.) to verify characterization ABA characterization work completed on quarry rock sources in 2006	Approximately 100 samples spread over construction quarrying	Construction
Underground Waste Rock	ABA Characterization	ABA characterization of any non-acid generating waste rock to be permanently left on surface to verify that such rock is non-acid generating	As required – contingent measure	Construction, Operations
Aquatic Effects				
Regional Water Quality	Water Quality	Doris Outflow Creek at confluence with Little Roberts Lake	Monthly during annual discharge period	Operations, Closure. Post-closure

Regional Water Quality	Water Quality	Little Roberts Lake Outflow	Monthly during annual discharge period	Operations, Closure, Post-closure
MMER Effluent Monitoring	pH, MMER deleterious substances	Tail Lake end of Discharge pipe to Doris Outflow Creek	Weekly during annual discharge period	Operations, Closure, Post-closure
	Acute Lethality Testing on rainbow trout and *Daphnia magna*	Tail Lake end of Discharge pipe to Doris Outflow Creek	Monthly during annual discharge period	Operations, Closure, Post-closure
EEM Effluent Characterization	pH, MMER deleterious substances	Tail Lake end of Discharge pipe to Doris Outflow Creek	Four times per year during EEM cycle	Operations, Closure, Post-closure
EEM Receiving Water Chemistry	pH, dissolved oxygen, temperature, MMER deleterious substances	Doris Creek Outflow both upstream and downstream of discharge point	Four times per year during EEM cycle	Operations, Closure, Post-closure
EEM Sublethal Toxicity Testing	Sublethal effects on growth and reproduction of Fathead minnows, *Ceriodaphnia dubia, Selenastrum capricornutum and Lemna minor*	End of Discharge pipe to Doris Outflow	Twice per year for three years, then once per year during discharge period	Operations, Closure, Post-closure
EEM Fish Population Survey	Fish survival, growth, condition and reproduction	Two control streams, two control lakes, one exposure lake and two exposure streams (near-field and far-field)	Monitoring frequency is dependent on results of previous cycle (minimum of two cycles)	Operations, Closure, Post-closure
EEM Fish Tissue Survey	Tissue mercury concentration			
EEM Benthic Invertebrate Community survey	Invertebrate density, taxa richness, diversity and similarity of community structure			
Fish				
Rearing habitat in Doris L.	Periphyton, benthos, and fish	Doris Lake sites and two reference sites	Annually during operation; plus Year-1 and Year-5 from decom-missioning.	Operation, Closure and Post-closure.

Jetty fish habitat structures	Periphyton, benthos, and fish	Jetty structure sites and two reference sites	Summer following jetty construction, plus Year-2 of operation and Year-2 of active post-closure (year prior to jetty lowering to below water)	Construction, Operation and Post-closure.
Rearing habitat in tributary to Roberts Lake	Use of habitat by fish (Arctic char, lake trout)	Tributary to Roberts Lake	Annually during operation; plus Year1 and Year-5 from decommissioning.	Operation, Closure and Post-closure.
Enhancement of stream channel in Roberts Creed	Success of upstream Arctic Char movement into Roberts Lake	Roberts Creek above and below enhancement area	Once in a low to moderate flow year during early years of operations or closure and again in Year-9 or Year-10 (depending on flow conditions) after decommissioning	Operation/Closure and Post-closure
	Arctic char smolt out-migration	Roberts Creek below Little Roberts Lake	Annually beginning in 2006 for 10 year period	Pre-construction, Construction, Operation, Closure, and Post-closure
	Arctic char and lake trout abundance (catch-per-unit-effort)	Roberts Lake and selected tributaries	Annually beginning in 2006 for 10 year period	Pre-construction, Construction, Closure, and Post-closure
Willow Habitat along Doris Lake at entrance of Tail Creek	Distribution of shoreline willow habitat	Doris Lake at entrance of Tail Creek	Once in summer of 2007 (pre-construction), once during operation and once during closure	Pre-construction, Construction, Closure
Tail Lake Fish Tissue Analyses	Metal contaminant levels in lake trout	Tail Lake	Once prior to conducting fish-out of Tail Lake	Construction

Wildlife				
VECS include: ➢ wildlife habitat; ➢ caribou; ➢ muskoxen; ➢ grizzly bears; ➢ wolverines; ➢ upland breeding birds; ➢ waterfowl; and ➢ raptors.	Habitat loss from Project footprint	Project footprint	Once during each mining phase	Construction, Operation, Closure
	Survey observations (individuals, density, species richness and sign) for all VECs	Wildlife Study Area	Annually according to species survey protocol	Construction, Operation, Closure and Post-closure
	Sightings log and encounters	Hope Bay Region	Annual summary of observations	Construction, Operation, Closure

7.1 Climate Monitoring

The climate monitoring program, or meteorological monitoring program, will continue as part of the air quality monitoring program and addresses NIRB Project Certificate Commitment #8 for the Doris North Project. A meteorological station was installed on the north shore of Doris Lake in May 2003, and measures hourly values of temperature, wind speed, wind direction, relative humidity, solar radiation and rainfall. The program will continue through all phases of the Doris North Project, and is used to support the air quality monitoring program and hydrology monitoring programs, among others. Further details on the air quality monitoring program can be found in Supporting Document S10b.

7.2 Hydrology Monitoring

The existing hydrology monitoring program will continue and be modified to meet regulatory requirements. The program will include annual snow course surveys, water level monitoring on Doris and Tail lakes, and discharge monitoring on Doris, Roberts, Little Roberts and Tail lake outflows. An additional station will be added on Doris Lake outflow to record discharges below the treated tailings discharge point (below the falls). Annual lake evaporation will continue to be calculated using data from the Doris Lake meteorological station.
Monitoring will continue as long as required to assess project effects and mitigation. Real time monitoring will be provided where required to meet operational requirements. Further details on the hydrology monitoring program can be found in Supporting Document S10m.

7.3 Air Quality Monitoring

The air quality monitoring program has been operating at the Doris North Project Site to measure baseline air quality conditions. The air quality monitoring program currently includes monitoring of total suspended particulates (TSP), dustfall, sulphur dioxide (SO_2), nitrogen dioxide (NO_2) and ozone (O_3), and is designed to address NIRB Project Certificate Commitment #30 for the Doris North Project. In addition, in the summer of 2007 the meteorological station will have the capability to measure ambient concentrations of particulate matter (PM), including PM_{10} and $PM_{2.5}$. This monitoring program is designed to determine the effects of the Project on air quality parameters, such as TSP, dustfall, NO_2, SO_2, O_3, PM_{10} and $PM_{2.5}$. Further details on the air quality monitoring program can be found in Supporting Document S10b.

7.4 Noise Monitoring

This noise abatement plan is designed to provide information on monitoring and mitigating noise as required under the NIRB Doris North Project Certificate Condition #29. Noise monitoring programs will be conducted three to four times in each of the following project stages: pre-construction (baseline), construction, operation and reclamation. Construction operations are scheduled to start in early 2008, therefore baseline monitoring can be conducted in 2007, when the Windy Camp reopens. A Noise Abatement Plan is provided in Supporting Document S10c as part of the Doris North Environmental Protection Plan to provide a basis for discussion with government regulators. Monitoring periods and dates will be determined, in consultation with government regulatory agencies, based on the Valued Ecosystem Components that may be affected. The following factors will be used to finalize

the scheduling of noise monitoring for baseline, construction, operations and reclamation phases:

- season;
- caribou migration;
- bird migration;
- the month before bear hibernation; and
- times when major wildlife events occur.

Locations will be selected based on the results of noise modelling for the EIA, location of project noise sources and infrastructure, and VEC factors. Type I or Type II integrating noise level meters capable of logging L_{eq}, L_{max} and L_{min} in both dBA and dBC units will be used for long term monitoring. In addition, sound recordings will be made in order to identify noise events and sources being measured. The abatement plan will also identify work procedures that Miramar can implement to control noise from the site, and action that will be taken if noise is not in compliance with criteria. The final noise abatement plan will be submitted to NIRB within six months of the issuance of the Project Certificate.

7.5 Vegetation and Soil Quality Monitoring

Monitoring of vegetation quality (i.e., collection of vegetation samples for chemical analysis) will be included as part of the environmental monitoring program for the Doris North Project. The purpose of the sample collection is to determine whether dust from the site is depositing onto nearby plants, and whether the plants are taking up metals (i.e., components of dust) as a result. Information on plants concentrations can then be used to judge the quality of food for wildlife in the area. Further details on the vegetation and soil quality monitoring program can be found in the Monitoring and Follow up Plan (Supporting Document S10m).

7.6 Site Water Quality Monitoring

Site water quality monitoring will be conducted for several purposes:

- Site Compliance Monitoring – sampling sites expected to be included within the Surveillance Network Program (SNP) that is expected to be included in the water license for the Doris North Project. These sites are to be sampled to allow MHBL mine site personnel to determine whether water from the mine facilities meets standards for discharge, how much water can be discharged and to verify compliance with the discharge standards set under the water license and by the MMER;
- Site Environmental Management Sampling – samples expected to be collected by MHBL to facilitate management of the site water management facilities and to provide data needed by mine operational staff to make operational decisions, such as if snow melt water collected within say the fuel tank containment berm meets all standards for discharge to the tundra or needs to be sent through a filter to separate hydrocarbons as one example;

- Effluent Treatment Process Control – samples taken within the mill to provide data to MHBL operating personnel that will tell them how the mill effluent treatment circuit is performing and to adjust operational controls accordingly to optimize treatment performance;
- Environmental Effects Monitoring of water quality in the downstream aquatic receiving environment to meet obligations under the MMER to monitor for potential mine related effects and to facilitate adaptive management programs to mitigate when adverse effects are found (covered in Section 8 of this Plan).

The primary objective of the Tail Lake water management strategy will be to meet CCME guidelines (Canadian Water Quality Guidelines) for parameters of concern to protect freshwater aquatic life in Doris Creek, downstream of the waterfall, with the possible exception of nitrite.

Monitoring of total suspended sediment (TSS) will be conducted during the construction of the water intake structure and boat dock in Doris Lake, the tailings dams, and the jetty in Roberts Bay. This will provide a review of the effectiveness of sediment control efforts and ensure compliance with regulatory requirements. Several site water quality commitments (Commitment #9, #10, #11, #12 and #13, among others) are outlined in the NIRB Project Certificate for the Doris North Project, and the proposed monitoring program addresses these commitments. The program will consist of periodic monitoring of TSS, or its surrogate, turbidity, at reference and test stations in the vicinity of the construction activities. The monitoring results will be compared to regulatory guidelines for protection of aquatic life (CCME), and if guidelines are being exceeded, appropriate mitigation measures will be implemented to reduce the input of suspended sediment into the water. Further details on the site water quality monitoring program can be found in the Monitoring and Follow up Plan (Supporting Document S10m).

Water quality and quantity will be monitored at a number of sites during the mine's operational life, during the closure phase and into post closure as shown in Table 7-2. It is expected that the specific water sampling requirements (locations, frequency and parameters) will be established during the water license permitting process and be incorporated as a Surveillance Network Program to be attached to the Doris North Mine Water License. MHBL has suggested the following water quality monitoring requirements for inclusion within the SNP.

Table 7-2: Suggested Water Quality Monitoring Sites

Category	Parameter	Location	Frequency	Mining Phase
Site Water Quality				
Site Compliance Monitoring	Water quality and quantity	Tail Lake end of Discharge pipe to Doris Outflow Creek Doris Creek Outflow both upstream and downstream of discharge point	Every second day during annual discharge period	Operation, Closure, Post Closure (for 9 Years after cessation of mining)
Site Compliance Monitoring	Water quality and quantity	Water Quality within Tail Lake – Reclaim water	Every second day during annual discharge period Monthly at all other times during operational phase Monthly during closure phase only during open water period	Operation Closure, Post Closure (for 9 Years after cessation of mining)
Site Compliance Monitoring	Water quality and quantity	Combined Tailings discharged to Tail Lake– water component	Daily initially, composited weekly thereafter	Operation
Site Compliance Monitoring	Water quality and quantity	Plant site storm water management pond	Weekly (during open water season) and prior to any planned discharge to the tundra	Operation, Closure
Site Compliance Monitoring	Water quality	Fuel tank farm collection sump	Monthly (during open water season) and prior to any planned discharge to the tundra	Operation, Closure
Site Compliance Monitoring	Water quality	Roberts Bay Fuel tank transfer facility	Monthly (during	Operation, Closure

		collection sump	open water season) and prior to any planned discharge to the tundra	
Site Compliance Monitoring	Water quality	Landfarm collection sump	Monthly (during open water season) and prior to any planned discharge to the tundra	Operation, Closure
Site Compliance Monitoring	Water quality	Landfill collection sump	Monthly (during open water season) and prior to any planned discharge to the tundra	Operation, Closure
Site Environmental Management	Water Quality	Doris Lake at freshwater pump intake	Monthly	Operations, Closure
Site Environmental Management	Water Quality	Potable Water – taken at different spots each month	Monthly	Operations, Closure
Site Environmental Management	Water Quality	Sewage Treatment Plant Effluent to Mill pump box	Monthly	Operations, Closure
Effluent Treatment Process Control	Water Quality and quantity	Barren bleed solution	Every two hours	Operation
Regional Water Quality	Water Quality	Doris Outflow Creek at confluence with Little Roberts Lake	Monthly during annual discharge period	Operations, Closure
Regional Water Quality	Water Quality	Little Roberts Lake Outflow	Monthly during annual discharge period	Operations, Closure

7.7 Tailings Geotechnical Monitoring

A geotechnical monitoring program has been included in the final tailings dam design report (SRK 2006a – Design of the Tailings Containment Area). The following is a summary of the proposed geotechnical monitoring and follow up for the tailings containment area.

The proposed monitoring program includes monitoring of the thermal regime, deformation, and seepage. The level of monitoring will be intensive during the early stages of operations since it is during this period that the dam performance against the design assumptions will be confirmed.

Given the importance of the frozen core for the performance of the dam, the ground temperature inside the dam will be monitored. The ground temperature measurements will determine the extent of the frozen region in the dam and should provide information on the rate of thawing or freezing fronts. Temperature sensors are located in sensitive areas, such as the upstream zone of the dam, the outer shell that will be subject to the fluctuations of the active zone, as well as the abutments. Temperature sensors will be installed both horizontally and vertically, and as much as possible, will be installed as the dams are being constructed.

Monthly readings will be manually taken from these sensors to depict the thermal regime in the dams however data loggers will be installed to collect continuous data at key locations. This frequency will be maintained until the dam reaches pseudo-steady state conditions. The frequency will then be reduced thereafter but the frequency will have to coincide with the peaks of the annual climatic cycles (i.e. low and high temperatures).

Settlement will be monitored by installing monuments along the crest and sloped faces of the dam. The monuments will be installed during the construction of the dam and will be surveyed on a regular basis to monitor the movement of the dam, both horizontally and vertically. The deformation will be monitored using settlement plates (or similar devices) and, possibly, inclinometers. The frequency of measurements will be higher during the initial stage of the operations and will be based on the rate at which the talik is developing along the upstream side of the dams. The frequency of the measurements may be decreased as the rate of deformation decreases.

Climatic data will be collected during the operation of the mine. The climatic data will include ambient air temperature, precipitation (rain and snow), wind speed and wind direction as a minimum. Surveys of snow cover would also be performed to complement the assessment of the thermal regime at the dams.

The dams will be inspected on a regular basis (weekly) to detect damage, deformation or any other anomalies. It is important that the inspections be frequent during the period the lake level is rising and the talik developing. The water level of Tail Lake will also be monitored as part of those regular inspections. Observations of potential seepage will be incorporated in the dam inspection requirements.

The data collected from the monitoring program will be compiled and assessed as part of the Annual Monitoring Program for the tailings containment area. The compiled data will be made available to the regulatory agencies as well as other parties that may have interest in such data. The frequency of reporting will be on an annual basis.

Annual Geotechnical Site Inspection

In addition to the regular site inspections of the tailings containment area, a suitably qualified professional engineer registered in the Nunavut Territory will make an annual inspection of the tailings dams each summer. The subsequent inspection report will summarize the observations and the review of the available monitoring data (described above). The report will be filed in a timely manner so that, if required, mitigation measures to these structures can be implemented prior to the next freshet.

Maintenance

The dams may require maintenance as the talik develops on the upstream face of the dams. The talik will induce settlements along the upstream face of the dams. The central frozen core is expected to remain frozen and is unlikely to be subject to significant settlement. The final design includes provisions to reduce or minimize these potential settlements along the upstream faces. Regardless of the outcome of the final design, the maintenance program should include placement of additional fill on the upstream face of the dams as settlement develops. The frequency of the maintenance should decrease over time as the thermal regime gradually reaches equilibrium. Regular inspection of the dams will identify any other maintenance issues.

7.8 Waste Rock Characterization Monitoring

Quarried Construction Rock Material

The proposed construction rock quarries have been characterized as having low acid generating and metal leaching potential. However there is always a small chance that some unexpected change in rock type will be encountered as the quarries are developed. To ensure that any such change is detected the quarry faces will be inspected by MHBL's field geologists as they are exposed and if sulphide mineralization is encountered quarrying will stop until additional testing is completed and the implications assessed. The objective is to ensure that no potentially acid generating rock is used in site construction.

In addition a program of check ABA (acid base accounting) testing will be conducted on the quarried rock used in site construction to verify that all rock used is non acid generating. A target of collecting 100 samples spread equally over the approximately 1 million tonnes of rock top be quarried has been established for this follow up program.

Underground Waste Rock

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.

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;
- 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 25 tonnes of rock to be used will be required to meet this requirement assuming that the 25 tonnes is all from one rock lithology and location; and
- The NPR value derived from the ABA test must exceed 4.0 and the NNP must be greater than +20 Kg/tonne $CaCO_3$ equivalent to meet the threshold of being classified as non-acid generating for this purpose.

7.9 Aquatic Effects Monitoring

The aquatic effects monitoring program follows the Metal Mining Effluent Regulations and addresses NIRB Project Certificate Commitments #15, #16 and #17 for the Doris North Project. The objective of the metal mining Environmental Effects Monitoring (EEM) is to evaluate the effects of mine effluent on fish, fish habitat, and the use of fisheries resources. The monitoring program includes sampling fish populations and tissues, benthic invertebrate communities, and effluent and water quality monitoring. The aquatic EEM consists of a series of monitoring and interpretation cycles, with the requirements of each cycle dependent upon the findings of the previous cycle such that adaptive management strategies can be implemented. Further details on the aquatic effects monitoring program can be found in the Monitoring and Follow up Plan (Supporting Document S10m).

7.10 Fish Monitoring

The fish monitoring portion of the overall aquatic monitoring program includes the monitoring and assessment of the fisheries compensation plan and fish tissue sampling prior to removal of fish from Tail Lake. The fisheries compensation program consists of the following:

- creation of rearing habitat in Doris Lake;
- creation of additional reef habitat in the vicinity of the Jetty in Roberts Bay;
- creation of rearing habitat in a tributary to Roberts Lake; and
- enhancement of the stream channel to facilitate fish migration in Roberts Outflow.

The performance of habitat creation measures will be determined by the establishment of primary and secondary productivity on the created habitat, and comparing these measures to reference (natural) areas. In addition, the use of these structures as rearing and feeding habitat for fish will also be used to determine success. The success measure of rearing habitat in the tributary to Roberts Lake will be determined by assessing the use of the tributary by Arctic char through electrofishing surveys. The success of the enhancement measures in Roberts Outflow will be determined through monitoring of smolt out migration from Roberts Lake, as well as by assessing the provision of nearly unrestricted passage of Arctic char into Roberts Lake. Further details on the determination of the efficacy of fish habitat compensation measures can be found in the Monitoring and Follow up Plan (Supporting Document S10m).

In addition to the follow-up programs associated with the fisheries compensation program, MHBL has agreed to potential changes to shoreline habitats along Doris Lake due to dewatering of Tail Lake outflow. The effects of dewatering may alter the natural plant community and therefore affect nine spine stickle habitat. Detailed mapping of the outflow will be conducted in 2007 and re-measured periodically throughout the operations and closure phase of the project. Further details on the Tail Lake outflow monitoring program can be found in Supporting Document S10m.

Fish tissue sampling will be conducted for lake trout in Tail Lake prior to the deposition of tailings. This sampling will commence prior to construction as part of the fish-out procedure. Further details on the fish tissue sampling program can be found in Supporting Document S10m.

7.11 Wildlife Monitoring

Monitoring of wildlife will be implemented to determine the direct and indirect effects of the Doris North Project on the following wildlife VECs:

- wildlife habitat
- caribou
- muskoxen
- grizzly bears
- wolverines
- upland breeding birds
- waterfowl
- raptors

Specific details can be found in the Wildlife Mitigation and Monitoring Program (WMMP) that will be submitted in final form in November 2006 as per NIRB Project Certificate Commitment #27 for the Doris North Project. Consultation with regulatory authorities including Environment Canada and the GNDoE, and with the KIA have been incorporated into the final WMMP as per NIRB Project Certificate Commitments #22 and #26. Data will be collected through appropriate field methods to determine if the Project infrastructure has any effect on wildlife distribution and relative abundance during all phases of operations as per Project Certificate Commitments #25. Information from the wildlife monitoring program can be used as a feedback loop into the adaptive management framework.

8.0 CLOSURE AND RECLAMATION
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MHBL has developed a detailed Mine Closure and Reclamation Plan for the Doris North Project. This Plan forms a component of the Environmental Protection Plan for the Project and is attached as a sub-component of supporting document S10 (S10l) to this application. The following is a summary of the key elements of the Mine Closure and Reclamation Plan.

This plan has been prepared using the guidance provided in the 2006 "Mine Site Reclamation Guidelines for the Northwest Territories" issued by Indian and Northern Affairs Canada. Additional detail can be found through reference to the Closure Plan. The cost of reclamation and post-closure monitoring and maintenance is estimated at $11.5 Million.

MHBL is committed to a program of progressive reclamation at the Doris North Project site. Consequently, MHBL intends to manage its reclamation liability at Doris North by initiating reclamation work at an early point in the mine life where practical, thereby limiting the expansion of overall liability over time.

The following sections provide a summary of reclamation activity proposed for each of the project components.

8.1 Jetty

The jetty will remain in operation for two years after mining ceases to support ongoing reclamation activity. At that time all mooring hardware will be dismantled and removed from the jetty. The jetty will then be partially removed. Partial removal will entail lowering the jetty surface to 30 cm below the LLWL (lower low water level). (50 cm below the mean water level). Complete removal is not possible without removal of a substantial volume of natural marine sediments. After reclamation there will be no above water evidence of the jetty.

8.2 Underground Mine

All potentially hazardous materials will be removed from the underground workings and shipped off site for recycle and/or disposal at a licensed disposal facility. The portal entrance to the underground mine will be filled with a rock-fill plug and sealed with a welded steel cover to ensure the underground workings remain inaccessible to people and large animals, in compliance with mine safety requirements. The raises will either be backfilled or covered over with a vented reinforced concrete cap to similarly prevent access into the mine. The underground workings are in permafrost and thus there is no local groundwater. Consequently the mine walls will remain frozen.

8.3 Surface Infrastructure and Facilities

All potentially hazardous materials will be removed from the buildings, packaged and shipped off site for recycle and/or disposal at an appropriate facility. The buildings will then be dismantled with the demolition materials disposed of in the site landfill in Quarry 2. Any

economically salvageable equipment will be removed prior to demolition and shipped off site to the point of sale. All above grade concrete floors and foundations will be broken up and removed to the non-hazardous landfill. The rock-fill building pads will remain in place. Any berms on the pads will be breached, and any areas that may collect surface water, will be graded to allow free drainage off the pads. Any contaminated pad surfaces will be excavated, treated where appropriate through land farming techniques and/or disposed in the underground mine or at the landfill site in Quarry 2. The selected option will be determined on the specific nature of the contaminant and following consultation with the KIA and GN DOE. In some circumstances contaminated material may have to be shipped off site for secure disposal.

The fuel tanks will be emptied, the tanks cleaned and dismantled, with the demolition debris disposed of in the solid waste landfill site in Quarry 2. The hydrocarbon sludge from cleaning of the tanks will be burned on site where possible or shipped off site for disposal at an appropriate facility where burning is not possible. The containment berms will be breached and recontoured to encourage natural drainage. The HDPE liner will be cut up, removed and disposed of in the landfill.

Waste oil will be burned on site in a dedicated waste oil burner specifically designed for that purpose. Unused explosives will be burned on site. Unused chemicals as well as any other hazardous waste material will be removed from site for recycle and/or disposal at an appropriate disposal facility in the south.

The permanent explosives storage magazines will be removed from site along with the explosives mixing plant. The safety berms will be graded level. The storage pads will be tested for contaminated soil with any contaminated soil assessed using risk management techniques and appropriately remediated following consultation with the land owner and applicable regulatory agencies. The rock fill pads and roads will then be scarified to promote reestablishment of native vegetation over the long term. The culverts in the access road will be removed and the edges of the excavation back bladed and armoured if necessary with coarse rock to allow for passage of natural drainage path with minimal risk of future erosion.

The temporary explosives storage facilities will be constructed on ice pads and will be removed at the end of the 2007/2008 winter construction period to be re-installed on the permanent explosives pads.

The boat and plane dock on Doris Lake will be removed. The wood pontoon structures will be removed and disposed of in the site landfill. The mooring bollards will be cut flush at the bottom of the lake and removed. A 0.1 meter of clean rockfill will be paced over the bollards left imbedded in the bottom of the lake. The rock fill approach ramp and laydown area will be reclaimed in the same manner as the site roads. Prior to final grading all anchor points, attached cables, wood cribbing, *etc.* will be removed.

The walls in the rock quarries will be stabilized at the end of the construction phase of the operation. All stockpiled rock material left within the quarries will be spread out or removed for use in closing out other facilities, such as the landfill site. The quarry floors will be channeled to allow precipitation runoff to drain onto the surrounding tundra.

8.4 Tailings Management System

The final closure for the Tail Lake tailings impoundment is a permanent water cover of 4.0 m above the highest tailings elevation in the impoundment. For the full design tailings volume over two years, the tailings surface is expected to be below 24.3 m, which implies that the minimum final water elevation in Tail Lake must be at 28.3 m. In actual fact, the existing
(*i.e.,* pre-mining elevation of Tail Lake is 28.3 m, which implies that once the water quality in Tail Lake returns to background concentrations, the North Dam can be breached to allow Tail Lake to return to its pre-mining elevation. Under this condition, there will be a 4.0 m water cover over the tailings. At that time the North Dam will be breached and the outflow from Tail Lake will be restored to the pre-mine outflow channel into Doris Lake.

The reclamation cost estimates includes a contingency allowance for the placement of geotextile and rock armouring over the remaining 60% of the shoreline considered vulnerable to erosion (due to thawing of permafrost resulting from the increased Tail Lake water level) that was not already armoured either during construction or during operation.

8.5 Roads and Airstrip

The all-weather roads and the airstrip will remain in place after closure. Peripheral equipment like lighting and signposting will be removed. Where culverts have been installed underneath the roads or runway, the roadway or runway will be breached, the culvert removed and the breached opening sloped and appropriately armoured with rock to ensure that natural drainage can pass through with no requirement for maintenance over the long term.

8.6 Landfill and Landfarm

Upon closure, the non-hazardous solid waste disposal site will receive a final cover of non-PAG rock (minimum of 1 meter), the surface will be re-graded to blend in with the surrounding terrain, and surface drainage will be directed away from the site. While it is expected that permafrost will form within the capped landfill within a short term, the closure or long term stability of the landfill does not depend upon or require the presence of permafrost within the landfill. Precipitation runoff will be directed away from the landfill by upslope berms. The landfill will not contain hazardous waste materials. The volume of seepage from the dump will be small and is not expected to be of poor quality.

Upon closure, hydrocarbon contaminated soils within the landfarm will be tested. Soils that do not meet CCME standards for use will be removed and placed in the underground mine where they will be permanently stored within the permafrost. Soils that have been remediated to meet CCME standards will also be removed and used to establish as a vegetative medium over reclaimed areas at the plant site. The underlying HDPE liner will then be removed, cut into pieces and disposed of within the site landfill. The underlying rockfill base and berms will be removed and used to help close out the landfill site.

8.7 Post Closure Water Management

The water management strategy for the Project entails an active managed discharge from Tail Lake beginning in Year 1 of operations and continuing until it can be shown that there is no adverse impact on downstream aquatic life from an unregulated discharge from Tail Lake. At the end of Year 9 (seven years after mining ceases) water quality in Tail Lake is predicted to be within the CCME Guidelines allowing for a complete “walk-away” closure scenario.

During the mine’s operating life (two years) and for an additional three years after mining and milling ceases the volume of water to be released from Tail Lake will exceed the natural inflow into Tail Lake. By the third year following the cessation of mining and milling, the water level in Tail Lake will reach the pre-development level of 28.3 m above sea level and the amount of water that needs to be released from Tail Lake is predicted to be equal to the natural inflow. Prior to this time, MHBL will commission a human health and ecological risk assessment to determine if the quality of the water contained in Tail Lake is suitable for release in an unregulated fashion through the former Tail Lake outflow into Doris Lake without resulting in an adverse impact to aquatic life downstream. In the event that the risks are shown to be unacceptable, MHBL will continue to actively manage the annual discharge from Tail Lake by pumping this water to the discharge point in Doris Outflow Creek upstream of the waterfall. Pumping would only cease if it can be demonstrated that no adverse impact on downstream aquatic life will occur with an unregulated discharge. At that time the North Dam will be breached and the outflow from Tail Lake will be restored to the pre-mine outflow channel into Doris Lake. Under this scenario no further management of water releases from Tail Lake will be required however monitoring will continue for a minimum of one more year to verify that water quality remains acceptable for discharge.

Under the water management strategy for the discharge of water from Tail Lake neither the primary (proposed strategy) nor the contingent strategies involve a requirement to treat the water in Tail Lake prior to discharge. It should be pointed out that the proposed management strategy involves treatment of the cyanide leach barren bleed solution residue through an effluent treatment circuit within the mill prior to the tailings being released into Tail Lake. This effluent treatment plant utilizes the Caro’s Acid treatment process to oxidize cyanide and remove metal contaminants from the liquid fraction of this tailings stream (cyanide barren bleed solution). The Tail Lake water management strategy includes a primary contingent measure that involves holding and managing water over an extended period of time within Tail Lake until water quality reaches suitable concentrations for discharge. Tail Lake has capacity to accommodate this contingent strategy.

During the two year active reclamation period site storm water will continue to be managed as it was during the mine’s operating life. At the plant site all runoff will be directed to the storm water sump, tested and if contaminated transferred into Tail Lake. Water quality monitoring will continue throughout this period.

After reclamation is complete and all sources of contamination have been removed or otherwise mitigated, storm water will be re-directed onto the surrounding tundra from the site roads, airstrip and plant site. Water quality monitoring will continue in summer months until it can be demonstrated that the storm water raining from the reclaimed facilities is consistently meeting water license discharge standards.

8.8 Post Closure Water Quality

During reclamation all mine related sources of contamination will be removed or mitigated so that within two years all storm water draining from the site is expected to be within water license discharge standards requiring no ongoing active management.

The annual discharge of water from Tail Lake will continue to be managed each summer for a period of nine years after cessation of mining that is through 2019. Water quality modeling indicates that water quality within Tail Lake will have naturally returned to levels consistent with current CCME guidelines for protection of freshwater aquatic life by 2020. At this point in time no further active management of the release of water from Tail Lake will be required.

8.9 Post Closure Monitoring

The Mine Closure and Reclamation Plan includes MHBL's commitment to ongoing environmental monitoring and maintenance of the Doris North Project site until it can be demonstrated that reclamation objectives have been achieved and that the site will not have any significant effects on the receiving environment into the future. A cost estimate and schedule for this post closure monitoring is included the Plan. The responsibility for implementing and paying for post closure monitoring and maintenance lies with MHBL and would be transferred to any new owner unless alternate arrangements were made that were acceptable to the land owner and other applicable regulatory agencies.

It is anticipated that a Surveillance Network Program (SNP) will be established as part of the water license for the project. MHBL will continue monitoring under this SNP into the post closure period. Allowance has been included in the reclamation cost estimate for continuing SNP monitoring at a frequency of 4 times per year from 2011 through 2016, with the frequency decreasing to twice per year through 2018 and then once per year through 2020.

During the closure period monitoring programs will continue in the following specific areas:

- Compliance Monitoring - monitoring to demonstrate compliance with all regulatory requirements and standards during the closure and reclamation period;

- Biophysical Monitoring - monitoring to ensure that the project is not resulting in adverse impacts to water, air, and environmental health (fish, wildlife, humans);

- Socio-economic Monitoring - socio-economic data relating to mine expenditures, worker health and recruitment will be made available to the appropriate agencies with appropriate proprietary considerations. MHBL will assist KIA and government agencies by providing mine-related information. If socio-economic variables related to the IIBA are required, this information will be provided to the appropriate parties, as agreed. Information sharing with possible future projects and activities in Nunavut will also be conducted with appropriate proprietary considerations; and

- Compliance with MHBL Policies and Standards - Hiring, training and termination will be undertaken with consideration for Inuit peoples, residents in adjacent communities, and gender equity.

MHBL will initiate programs at closure to help Inuit and other local people in obtaining new jobs and filling vacancies that may be created through other mining developments in Nunavut or elsewhere.

Physical reclamation of the project facilities is expected to be complete within two years of plant shutdown. Management of the annual release of supernatant from Tail Lake would continue for an additional seven years during the open water season (i.e., with a crew of two people camping on site during the annual release window each summer). Other on site activity will be minimal during this time. Environmental monitoring would continue. The level of monitoring required will be a function of environmental performance at the site. It has been assumed that post-closure environmental monitoring will continue for 10 years (2011 through 2020), with lesser degrees of effort required as it can be demonstrated that reclamation actions have achieved the stated objectives of preventing any ongoing degradation of the surrounding environment.

Initially it is expected that water quality monitoring of the same operational SNP stations will continue at the same frequency during the reclamation period (2011 and 2012). It was assumed that SNP monitoring would continue at a frequency of 4 times per year from 2011 through 2016, with the frequency decreasing to twice per year through 2018 and then once per year through 2020.

The types of environmental monitoring anticipated include:

- Monitoring of water quality in Doris Lake, Tail Lake, Tail Lake outflow and in Doris outflow below Tail Lake;

- Monitoring of surface runoff from the reclaimed plant area, fuel tank farm, closed out landfill and from the reclaimed fuel transfer areas;

- Program of aquatic effects monitoring, including sediment, benthos and fisheries studies to assess cumulative effects of the project on the aquatic environment; and

- Annual inspection by a qualified professional geotechnical engineer of the Tail Lake containment dam.

It is anticipated that water quality and other data will demonstrate that environmental conditions have essentially stabilized by the end of 2015 and that a reduction in frequency of environmental monitoring can be justified. The assumed changes for post closure years 6 through 10 are summarized as follows:

- Sampling of remaining applicable SNP stations, with the sampling visits scheduled during open water periods;

- Monitoring of surface runoff from reclaimed site facilities, with the sampling visit scheduled during open water periods;

- Annual inspection by a qualified professional geotechnical engineer of the Tail Lake containment dams.

Stabilization of environmental conditions by the end of year 10 is assumed to be sufficient to justify the cessation of further monitoring requirements by the end of 2020. However, this assumption will be revisited, assessed and modified as necessary based on measured environmental performance at that time.

8.10 Reclamation Schedule

With the completion of mining and ore processing (projected to be at the end of 2010), the mill and all processing circuits will be washed to recover the remaining gold and to remove any material containing cyanide and other milling reagents. All wash down water will be directed through the cyanide detoxification circuit prior to being discharged to Tail Lake.

The site will then be secured and held on a “care and maintenance” basis lasting for approximately five months (January to June) to await outdoor working temperatures more suitable for site disassembly. Over the following two summers (2011 and 2012), all buildings will be dismantled and the roads, building pads and other infrastructure remediated. Salvageable equipment and building material will be transported to the lay down area at Roberts Bay and shipped from site the year following closure (2011). Non-salvageable equipment and material will be cleaned of potentially hazardous material and then disposed of in the on-site landfill disposal area in Quarry 2. Given the remote location of the Doris North Project, it has been assumed that most equipment, buildings and materials will have no economic salvage value and will thus be demolished and disposed of on-site. Estimates of reclamation liability were made on this basis.

Part of the camp and other support facilities such as the sewage and potable water treatment plants and the shop will remain in place during most of the Closure Phase; a short period of approximately two years to provide support to the crews conducting the physical reclamation of the Doris North site. These facilities will be decommissioned and removed during the second year of reclamation (2012). The annual release of supernatant from Tail Lake will have to be actively managed for a period of nine years following the cessation of milling (through 2019). In the fall of 2019, the North Dam will be breached so that water can naturally flow from Tail Lake through the former Tail Lake discharge channel beginning with the spring freshet in 2020. At that time water quality in Tail Lake is predicted to be suitable for uncontrolled release.

In the seven year period (2013 through 2019) a two person team will be mobilized to site each summer to manage the pumped release of water from Tail Lake during the open water season. This crew will be housed in a two man exploration camp mobilized each year for this purpose.

The reclamation plan assumes the worst case scenario specifically that at the end of the Doris North reserve there is no ongoing exploration or mining activity on the remainder of the Hope Bay belt. In the more optimistic scenario, MHBL will continue to develop additional reserves on the Belt which would continue the life of the Doris North site. MHBL has indicated that where possible from a practical and economic standpoint, the Doris North mill

and camp would continue to be used as the centre for processing other reserves found on the belt. In this case the reclamation plan will be adjusted as needed to accommodate the extended facility life. MHBL will remove all of the Doris North buildings and facilities once all further activity on the Hope Bay Belt was completed.

8.11 Reclamation Security

MHBL is committed to providing suitable financial security and assurance to cover the cost of full reclamation of the Doris North project. MHBL expects that the estimates contained within the Mine Closure and Reclamation Plan will form the basis for future discussions between the NWB, KIA, DIAND and MHBL in establishing the appropriate level and form of financial security to be posted for the project. MHBL acknowledges the stated principles covering financial security enunciated in the *Mine Site Reclamation Policy for Nunavut*. It is MHBL's intent to enter into discussions with the responsible authorities to reach agreement on an appropriate form and amount of security to be posted for the project.

At this time MHBL has not developed or indicated any preference towards a specific format for the posting of security against reclamation liability. MHBL remains open to consideration of a wide range of options, including but not limited to the creation of a reclamation trust, cash, letter of credit, insurance bond or a combination of these mechanisms and others that may arise as a result of future discussions with the authorities.

9.0 LAND LEASES

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9.1 Confirmation of Ownership

The Doris North Project and components of the supporting infrastructure (other than the marine jetty on federal land) will be constructed on Inuit Owned Lands Parcel BB-60. Mineral rights for the Doris North Project area are administered by Nunavut Tunngavik Inc. ("NTI") on behalf of Inuit.

The Doris North Project is wholly within Exploration Agreement BB60-00-01, known as Tok 1, held between Miramar Hope Bay Ltd ("MHBL") and NTI. MHBL has exclusive rights to explore for minerals on TOK 1. MHBL and NTI are currently in negotiations for a Production Lease for the Doris North Project.

9.2 Surface Leases

Surface access rights for the Doris North Project area (other than the marine jetty on federal land) are administered by the Kitikmeot Inuit Association ("KIA"). MHBL intends to submit a lease application to the KIA in early 2007, and hopes to finalize the lease with KIA once the regulatory process has been completed.

9.3 Foreshore Lease at Jetty Site

An application for lease of Federal Crown Land was submitted to Indian and Northern Affairs Canada ("INAC") in March, 2003, record number 77A/3-1, for the land immediately surrounding the proposed marine jetty at Roberts Bay. MHBL hopes to receive this lease from INAC when the regulatory process is near completion.

10.0 COMPENSATION
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10.1 Inuit Impact Benefits Agreement

In September of 2006, the KIA and MHBL signed an Inuit Impact Benefits Agreement (IIBA) for the Doris North Project at a community ceremony held in Cambridge Bay. While the full text of the IIBA is confidential, the following is a summary of the IIBA contents:

10.1.1 Implementation Committee

- MHBL and KIA will establish an Implementation Committee to monitor and implement the IIBA 30 days after execution of the Agreement. A first meeting of this committee took place in October at Edmonton;
- Committee comprises four members: two from KIA and two from MHBL;
- Committee will meet regularly, at least twice annually face to face;
- Committee reports annually and evaluate progress under the Agreement.

10.1.2 MHBL-KIA Liaison

- MHBL will appoint a Liaison who will be the primary contact for KIA on issues relating to implementation issues (*e.g*., training, employment, contracts, *etc.*).

10.1.3 IIBA Coordinator

- KIA will hire and/or appoint an IIBA Coordinator who will be responsible for ensuring provisions of the IIBA are implemented.

10.1.4 Training and Education Opportunities

- MHBL will provide KIA funding for training and education initiatives that KIA may enter into with partners.

10.1.5 Employment Opportunities

- All positions at the Doris North Project shall be open to Inuit;
- Work rotation will generally be two weeks in, two weeks out;
- Points of Hire include: Kugluktuk, Cambridge Bay, Gjoa Haven, Taloyoak, and Kugaaruk;
  MHBL will provide Inuit employees free air transportation to and from the Point of Hire;
- Contractors and Subcontractors subject to provisions of the IIBA;

- Inuit who do not speak English will be provided reasonable opportunities for employment where lack of English language does not compromise safety of employee, safety of others or job performance;
- MHBL will take steps to establish an *Employee and Family Assistance Program*;
- MHBL will serve country food that meets government inspection standards;
- MHBL will prohibit possession and consumption of alcohol and illegal drugs at the Doris North Project; and
- MHBL will make summer employment opportunities available to eligible Inuit students.

10.1.6 Business and Contracting Opportunities

- For contracts covered by the IIBA, MHBL will make a 'bid adjustment' for Inuit content in order to provide preference for businesses achieving high levels of Inuit participation. The Inuit content factors include: Head Office in the Kitikmeot Region; Degree of Inuit Ownership; Degree of Inuit Employment; Proportion of Wages Accruing to Inuit; and Total Purchases/Inputs from Kitikmeot Based Businesses;
- Awarding of contracts will be monitored by the Implementation Committee and actual contract awards will be reviewed to track Inuit content;
- Large contracts will be broken down to encourage participation of Inuit; and
- Bonding requirements are not imposed until a successful contractor is selected.

10.1.7 Access to Facilities and Roads

- MHBL will provide to KIA access to those parts of the Doris North Project and its facilities that are on Inuit Owned surface lands upon reasonable notice;
- MHBL will establish operating practices and procedures relating to safety for those persons accessing leases held by MHBL; and
- MHBL will cooperate with KIA and Kitikmeot communities in search and rescue efforts in the Doris North Project area.

10.1.8 Closure and Reclamation

- MHBL recognizes KIA will issue surface leases and other land tenures for the Doris North Project, and these authorizations and tenures contain provisions for progressive reclamation.

10.1.9 Inuit Benefits

- MHBL will contribute funds to KIA over the life of the Doris North Project. KIA may at its sole discretion use the funding to establish programs or projects that the KIA deem necessary or desirous (*e.g.,* culture and/or community development initiatives).

The Doris North Project IIBA will mitigate the impacts of the Doris North development on Kitikmeot Inuit. It also sets in place a collaborative framework through which benefits will be provided to Inuit.

10.2 Inuit Water Rights Compensation

The IIBA also contains a water rights compensation agreement with the main points summarized as follows:

- The IIBA applies to the effects of the Doris North Project and addresses KIA's right of compensation under legislation and Article 20 of the NLCA;
- Compensation payments made address loss or damage to quality, quantity or flow of water in, on or flowing through IOL, for damage to Tail Lake and to Inuit values that result from the Doris North Project; and
- The IIBA does not relieve MHBL of any liability for the effects of its Doris North Project on IOL which are not related to compensation for KIA rights under Article 20 of the NLCA or under the *Nunavut Waters and Nunavut Surface Rights Act*.

10.3 Fish Habitat Not Net Loss Plan

MHBL submitted a *Doris North Project "No Net Loss" Plan Revision 5* (Golder Associates Ltd. 2005; EIS Supporting Document F4), which outlines the proposed fisheries mitigation and compensation developed in discussion with Department of Fisheries and Oceans and KIA.

The fisheries compensation program for the Doris North Project has been designed to ensure that "No Net Loss" in fish habitat productive capacity is achieved as it relates to the DFO policy for the management of fish habitat. The compensation program consists of four main components; these are as follows:

- creation of rearing habitat in Doris Lake;
- creation of additional reef habitat in the vicinity of the Jetty in Roberts Bay;
- creation of rearing habitat in a tributary to Roberts Lake; and,
- enhancement of the stream channel to facilitate fish migration in Roberts Outflow.

The fisheries compensation "No Net Loss Plan" is currently being updated to include detailed design drawings for the proposed compensation program as part of permitting requirements under the Fisheries Act.

11.0 WATER FEES

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MHBL has submitted the $30.00 application fee associated with a water license application of this nature in September of 2003 together with the Water License Application Form and Questionnaire.

Future water use fees are based on the Northwest Territories Waters Regulation (Section 9(1)(b) of the NWTWR), "…for the first 2,000 m^3 per day that is authorized by the license, $1 for each 100 m^3 per day".

The projected consumption of water from Doris Lake for both potable and process water use at the Doris North Project is 480,000 m^3 per year (maximum) or 1,315 m^3 per day. On this basis the annual water fees would be in the order of $13.15 per day ($4,800 per year) due on the final issue of the water use license and annually on the anniversary date of the license.

12.0 GLOSSARY
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Terms and Acronyms	Definition
ABA	Acid base accounting – a testing method to determine whether a rock, soil material may generate acidic water at some point in the future
Archaeology	The scientific study of the material remains of the cultures of historical or pre-historical peoples.
ARD	Acid rock drainage – acidic (and possibly metal containing) water resulting from the chemical weathering of rock or soil material primarily caused by the oxidation of sulphide minerals
Bioaccumulation	The uptake and retention of contaminants by an organism from its environment.
Biodiversity	A measure of the variety of plants and animals in a particular habitat or ecosystem.
Borrow pit	A pit from which material is taken for building roads and for similar activities.
CCME	Canadian Council for the Ministers of Environment. CCME is an organization that sets common guidelines for environmental protection across Canada. CCME is often used to refer to specific environmental protection guidelines such as the Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life
CWQG	Canadian Water Quality Guidelines
Cumulative effects	The effects of a development taken in combination with the effects of other past, current, or reasonably foreseeable future developments.
Demand	A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water. The greater the biochemical oxygen demand, the greater the degree of pollution.
DIAND	Department of Indian Affairs and Northern Development
DIO	Designated Inuit Organization
Ecosystem	The organisms of a natural community together with their environment.
EIS	Environmental Impact Statement
EMS	Environmental management system
Esker	A winding ridge made of sand and gravel deposited by a melting glacier.
Geochemistry	The study of the chemical composition of the earth and the physical and chemical processes responsible for it.
Geology	The study of Earth in terms of its development as a planet. Commonly thought of as the study of rocks.
Geomorphology	The scientific discipline that studies the surface features of the Earth, including land forms.
Gradient	The angle of a slope, or its steepness.
HSS	Health and Social Services

Terms and Acronyms	Definition
Hydrology	The science that deals with the occurrence, circulation, distribution, and properties of the waters of the Earth, including their reactions with the environment.
IIBA	Inuit Impact and Benefit Agreement.
INAC	Department of Indian and Northern Affairs Canada (formerly DIAND).
KIA	Kitikmeot Inuit Association
Leaching	The process by which a liquid (e.g., water) passes through a substance, picking up some of the material and carrying it to other places. Can occur underground in soil and rock, or above ground through piles of material.
Lithology	The description of the physical characteristics of a rock, often based on its colour, structure, mineral components, and grain size.
LSA	Local Study Area – local spatial boundaries determined for each VEC based on their respective characteristics and interactions with project components.
MAE-TSE	Miramar Mining Corporation
MHBL	Miramar Hope Bay Ltd.
MPA	Maximum potential acidity
NIRB	Nunavut Impact Review Board
Nitrate	A compound containing nitrogen that can exist in the atmosphere or as a dissolved gas in water, and that can have harmful effects on humans and animals.
Nitrite	A chemical compound produced when ammonia in wastewater is oxidized by bacterial or chemical reactions and ultimately becomes nitrate.
NLCA	Nunavut Land Claims Agreement.
NPC	Nunavut Planning Commission
NPR	Neutralization potential ratio, NPR = ratio of NP/MPA. The ratio of measured neutralization potential to maximum acid generating potential.
NTI	Nunavut Tunngavik
Nunavummiut	The indigenous inhabitants of Nunavut
NWB	Nunavut Water Board
Ore	A rock or mineral that contains a valuable constituent, such as diamonds or a metal, for which it is mined and processed.
Overburden	Material that must be removed to allow access to an ore body, particularly in a surface mining operation.
Permafrost	Permanently frozen ground.
Post-closure	The period of time, considered to be up to 30 years, following the shut-down of a mine or other facility, during which monitoring of its effects should be continued.
Proponent	The individual or organization that wishes to carry out a development project.
Raptor	A bird that hunts by snatching its prey.
Riparian	Living or located on a riverbank.

Terms and Acronyms	Definition
RSA	Regional Study Area – regional spatial boundaries determined for each VEC based on their respective characteristics and interactions with project components.
Sulphur dioxide	A gas formed when sulphur burns in the presence of oxygen, as for example in the burning of gasoline or diesel fuel in a vehicle engine. It is a major air pollutant that is corrosive and harmful to plants and animals, especially trees.
Talik	Permanently unfrozen ground in regions of permafrost. Usually applies to a layer that lies above the permafrost but below the active layer.
TSS	Total suspended solids.
VECs	Valued Ecosystem Components.

13.0 REFERENCES

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5. Golder 2004. Report on Site-Specific Water Quality Objective for Copper for the Proposed Doris North Project, prepared by EVS Environment Consultants Limited (Golder), December 2004

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18. SRK 2006b. Design of the Surface Infrastructure Components, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006

19. SRK 2006c. Technical Specification for Tailings Containment Area and Surface Infrastructure Components, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006

20. SRK 2006d. Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006

21. SRK 2006e. Water Quality Model, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006

22. SRK 2006f. Geochemical Characterization of Quarry Materials, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006

23. SRK 2006g. Geochemical Characterization of Portal Development Rock, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006

Appendices

Appendix A: Water License Application Form and the Water License Application Supplementary Questionnaire for Mine Development

List of Supporting Documents

S1 Design of the Tailings Containment Area, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – SRK 2006a

S2 Design of the Surface Infrastructure Components, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – SRK 2006b

S3 Technical Specification for Tailings Containment Area and Surface Infrastructure Components, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – SRK 2006c

S4 Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – 2006d

S5 Doris North Project Hydroclimatic Parameter Re-Evaluation 2006, prepared by Golder Associates, October 2006 – Golder 2006a

S6 Water Quality Model, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – SRK2006e

S7 Geochemical Characterization of Quarry Materials, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – SRK 2006f

S8 Geochemical Characterization of Portal Development Rock, Doris North Project, prepared by SRK Consulting (Canada) Inc., October 2006 – SRK 2006g

S9 Miramar Hope Bay Ltd. Environmental, Health and Safety Management System Outline, Golder 2006b

S10 Environmental Protection Plan for Doris North Mine Construction and Operational Activities

- S10a Doris North Project Emergency Response and Contingency Plans, prepared by Miramar Hope Bay Limited, October 2006a
- S10b Air Quality Management Plan, prepared by Golder Associates Limited, October 2006 – Golder 2006c
- S10c Noise Abatement Plan, prepared by Golder Associates Limited, October 2006 – Golder 2006d
- S10d Interim Waste Rock Storage Plan, prepared by Miramar Hope Bay Limited, October 2006
- S10e Hazardous Materials Management Plan, prepared by Miramar Hope Bay Limited, October 2006
- S10f Explosives Management Plan, prepared by AMEC, October 2006 – AMEC 2006a
- S10g Landfill Design and Management Plan, prepared by AMEC, October 2006 – AMEC 2006b

S10h Landfarm Design and Management Plan, prepared by AMEC, October 2006 – AMEC 2006c
S10i Tailings Management Plan, prepared by Miramar Hope Bay Limited, October 2006
S10j Water Management Plan, prepared by Miramar Hope Bay Limited, October 2006
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S12 Final Report on Effluent and Aquatic Monitoring Study Design for Doris North Project, prepared by Golder Associates Limited, November 2003 – Golder 2003