EXECUTIVE SUMMARY

General

Pacific Booker Minerals (PBM) submitted an Application for an Environmental Assessment Certificate (EAC) on September 29, 2009 for the Morrison Copper/Gold Project. In response to requests from the BC Environmental Assessment Office (EAO) and the Canadian Environmental Assessment Agency (CEAA), additional information and assessment was provided in the EAC Addendum, May 27, 2010. Subsequent to the EAC Addendum, PBM has received the review observations from the Provincial and Federal Agencies and the Lake Babine Nation (LBN) and has had a number of meetings with the Working Group. In addition to providing direct responses to review comments, via a tracking table, this Review Response Report provides additional clarification and details, particularly with respect to project modifications.

The Review Response Report - Rev.1 was issued in November 2010 for discussion with the Working Group. After its review by the Agencies and discussions with CEAA and EAO, PBM agreed to consider suggested changes in the Project, with the view of reducing the long term environmental risk. PBM arranged technical Working Group meetings in January and February 2011 focused on Hydrogeology/Hydrology, Water Quality and Aquatic Habitat to further clarify the technical concerns and to ensure that the significant technical issues are both understood and addressed.

The Review Response Report Rev.2 addresses the major Review comments and questions which primarily relate to water quality, water balance, and effects of the project on the receiving streams and Morrison Lake, and provides design details of the project changes. An updated Effects Assessment is included in this report, which addresses, with respect to project changes, the project effects on water quality, water quantity, aquatic environment, wildlife and terrestrial environment. The Effects Assessment also includes

an additional rating methodology to screen effects as being "significant" or "not significant". The report also addresses, in more detail, the Adaptive Management Plan for the major areas of potential concern.

The Review Response Report Rev.2 is to be considered supplemental to all other previously submitted documents. Hence PBM intends that all the EAC Application documents will co-exist and PBM will provide an Application Information Key (AIK) identifying the order of precedence guiding how the documents should be considered. Effectively the order of precedence addresses any potential ambiguities between documents, such as variations in results or assessments, by identifying that more current documents take precedence over prior documents.

Project Changes

The main project changes are modifications to management of tailings placed in the tailings storage facility and to the closure phase for the TSF and disposal of waste rock into the open pit. An image of the Project area post-closure is included at the end of the Executive Summary.

The management plan for the Tailings Storage Facility (TSF) has been revised to reduce the risk of sulphide tailings in the beaches by discharging higher sulphide Cleaner tailings separately from lower sulphide Rougher tailings. This revised management plan removes the requirement to maintain a large water pond over the tailings on closure. Consequently, the closure plan has been modified from a large water pond with perimeter wetlands to a combination of water pond, with wetlands and forest cover for the remainder of the impoundment area. Further details on the TSF are provided in Section 4 of this report.

The closure and reclamation plan for the Waste Rock has been revised to eliminate the above ground waste rock dump. On closure the waste rock, will be re-handled and place in the open pit so that the potentially acid generating (PAG) waste rock is submerged within the open pit.

In addition, changes have been made to the construction phase with relocation of the overburden stockpile (away from Morrison lakeshore) and waste management controls for potential contaminated soils and runoff during construction.

Closure and Reclamation Plan

During the last few years of mining the low grade ore (LGO) will be milled and water in-flows from the mine area and the cleaner tailings from the process plant will be discharged into the open pit. At this time haulage and placement of PAG waste rock into the open pit will also begin. At the end of processing, any residual water in the TSF will be pumped to the open pit. The PAG rock placed in the open pit will be saturated to mitigate acid rock drainage and capped with a low permeability soil layer. The open pit area will be reclaimed with an interior wetland zone and a pit wall collection/water treatment pond zone. The waste rock dump area, after removal of the waste rock and low grade ore stockpile, will be cleaned, graded and re-vegetated with forest and grasslands.

Within the open pit, collection of acidic runoff from the remaining pit wall slopes will be directed towards the open pit pond where it will be pumped to the water treatment plant. The treated water will be discharged in Morrison Lake at depth via a pipeline with a diffuser.

Water Balance and Hydrogeology

The Expected Case (EC) water management is that the Project will operate with “zero” surface water discharge during operations. PBM is confident this case will be achieved

however, to provide increased confidence that higher volumes of water can be managed PBM has developed a water management plan for the Upper Bound (UB) case, as follows.

The groundwater models for the TSF were reviewed and adjusted to meet the above described changes to the operating and closure plan for the TSF. The predicted seepage rates were then considered to provide Lower Bound (LB), Expected Case (EC) and Upper Bound (UB) seepage rates.

The potential for groundwater inflow from Morrison Lake into the open pit during operations was re-assessed using a 2-D SEEPW groundwater model and analog data from Bell and Granisle mines, and other porphyry copper mines in British Columbia. The Bell and Granisle mines both have open pits which are adjacent to Babine Lake and pit water inflows have been measured at several stages of the pit infilling. The potential total pit inflows were also reassessed, with consideration of the regional groundwater recharge and analog data from other mines. Additionally, the potential for groundwater gradients to transport the porewater of waste rock that is placed back into the open pit into Morrison Lake was assessed for the long term closure stage of the project. The predicted pit inflows were then considered to provide Lower Bound (LB), Expected Case (EC) and Upper Bound (UB) inflow rates.

A summary of the revised seepage and pit water inflow rates is provided in Table 1.

Table 1 Summary of Seepage and Groundwater Flows

COMPONENT	OPERATIONS (m^3/hr)			CLOSURE (m^3/hr)		
	LB**	EC	UB	LB	EC	UB
TSF seepage	50	100	150	30	60	100
Morrison Lake inflows into pit		100	150			
Total pit dewatering		0* - 150	0* - 250			
Pit pond inflows					10	15
Pit PAG porewater to Morrison Lake					20	40

*Indicates the range of flows over time as the pit is developed.
**LB-Lower Bound, EC-Expected Case, UB-Upper Bound

The Upper Bound water management scenario is based on the accumulation of excess water that cannot be discharged. The Upper Bound water management case is thus based on:

- Lower Bound seepage rates from the TSF,
- Upper Bound pit dewatering flows,
- Upper Bound tailings density and diversion efficiency, and
- Storage of an additional 10 year return period wet year.

The site wide water balance program was expanded to include life of mine monthly calculations for the Expected Case and the Upper Bound water management cases as shown in Appendix iii. The water balance summary results are shown in Table 2.

Table 2 Summary of Site Water Balance Volumes

Year	Volume of TSF Pond Water (Mm^3)		
	Expected Case	Upper Bound	Upper Bound – Managed*
Maximum	10	19.3	10
End of Mine Life	0.3	4.5	0.3
Initial closure	0.01	0.01	0.01

The Upper Bound water management plan, using established mitigation measures, may result in an additional stored water volume of approximately 9 Mm^3. If required this

volume of stored water can be stored by increasing the dam height of the TSF by approximately 2m. However, Adaptive Management options have been identified that can reduce the volume of stored water during the last ten years of mining. The Adaptive Management options include:

- Discharge of surplus groundwater from the pit dewatering into a land area application, provided the water quality is suitable for release;
- Construction of the water treatment plant earlier in the mine life and treatment of 70 m^3/hr to a maximum of 110 m^3/hr, with discharge via the diffuser in Morrison Lake.; and
- Seepage into the open pit from Morrison Lake could be mitigated with selective grouting of high hydraulic conductivity zones.

Water Quality

Water quality predictions for tailings process water, waste rock porewater, and pit wall drainage, have been made on the basis of empirical drainage chemistry models (EDCM) developed for the Bell and Granisle mines and with consideration of available humidity cell and field cube cell data from Morrison Mine. For prediction purposes, all three predictions methods were used and documented. For each parameter the highest predicted concentrations of the three methods was used as the Morrison prediction.

During operations, all contact water inflows from the mine area and open pit are directed via the process plant to the TSF and the tailings water will be limed to ensure pH=8 for processing. Initially water from the process plant will be that of the lock cycle tests. However over time some contaminants will accumulate and, therefore, tailings water degrades during operations; from the initial lock cycle test water quality to an EDCM pH=8 water quality at end of processing. The Expected Case TSF seepage water quality assumes the average of the two water qualities and the Upper Bound TSF seepage water quality assumes the EDCM pH=8 water quality.

On closure waste rock will be placed into the open pit. Approximately 50% of the potentially acid generating (PAG) waste rock may be acidic (pH=3) and will release metals, nutrients and oxyanions as it is submerged in the open pit. An assessment of the potential water quality was made with a bench scale test of Morrison water "spiked" to the EDCM pH=3 water quality, which was then limed to pH=8. The testing demonstrated that the predicted water quality can be achieved.

On closure, pit wall drainage will be collected and treated in a high density lime treatment plant. The design basis for the plant, assumed a starting water quality of pH=3. The treated water quality is discharged via a diffuser, at depth in Morrison Lake.

Effects Assessment

The revised effects assessment for the project considers: water quantity, water quality, aquatic habitat and terrestrial (wildlife and wetland) habitat.

Water Quantity Effects - Streams:

During operations non-contact water will be diverted around the mine facilities and contact water will be used in the process with some being stored in the voids of the tailings and waste rock. Reduction of approximately 50% of the flow, categorized as being of minor significance, occurs in Stream 7 which is the main stream in the TSF area. Other streams also have smaller flow changes categorized as being of negligible significance. The change in flow during operations results primarily in an effect on the aquatic habitat and this is addressed in the section describing aquatic habitat and with the Fish Habitat Compensation Plan. On closure, Stream 4, 6, 7 and 10 flows will be reinstated.

Water Quantity Effects – Morrison Lake:

The potential effect on Morrison Lake (e.g. due to accumulation of water in the TSF as pore and pond water and any losses such as evaporation) during operations will not be significant. Reductions in the volume of water reporting to Morrison Lake are predicted to be in the order of 1% to 2% of the average annual flow through Morrison Lake, which is well within the natural variability and should not have a measureable effect on flows or water levels in the lake.

Water Quality Effects - Streams:

The water quality of all seepage discharges meet MMER requirements for listed deleterious contaminants. Potential water quality exceedances are predicted for sulphate (3x's BC Water Quality Guidelines) and cadmium (3x's BC Water Quality Guidelines) are not deleterious. Other parameters, which are above the BC Water Quality Guidelines include: aluminum, arsenic, cobalt and selenium, however some of these elements are elevated due to the baseline groundwater and surface water quality. Further the predictions are conservative as the methodology used did not consider absorption, precipitation or ion exchange along the flow path, which would reduce concentrations for Al, As, Cd and Se. In addition, the seepage quantity and quality will vary with time:

- Initially seepage rates are low and seepage water quality is better,
- Near the end of mining seepage rates will be the highest and the water quality will likely be worse.
- After closure seepage rates will decline and water quality will improve.

An additional consideration is that the lag time for seepage through the tailings and overburden is in the order of 10 years to 20 years. Considering these variables the seepage effects may peak approximately Year 25 to 30 and then decrease with time.

Streams 7, 8 and 10 are predicted to be affected by seepage from the TSF, particularly during low flow periods. Site specific water quality objectives for cadmium and sulphate could be required for the receiving streams and will be developed during the permitting stage of the project.

Water Quality Effects - TSF Pond on Closure: The project changes result in a small pond of water remaining in the TSF a few months after closure. The TSF will then infill with precipitation and runoff water to establish a 17 ha permanent pond. At the same time the beach slopes inside the TSF will be covered with glacial till and a growth medium. The predicted water quality for the TSF pond filling has been computed using EDCM pH=8 water and loads that will derive from the beaches and the remaining water pond. The water quality prediction indicates that the discharge water quality will meet all guidelines after 3 years, with the exception of cadmium, which is approximately 4x's BC Water Quality Guidelines. The water quality will improve further as it is diluted over the years with runoff and precipitation.

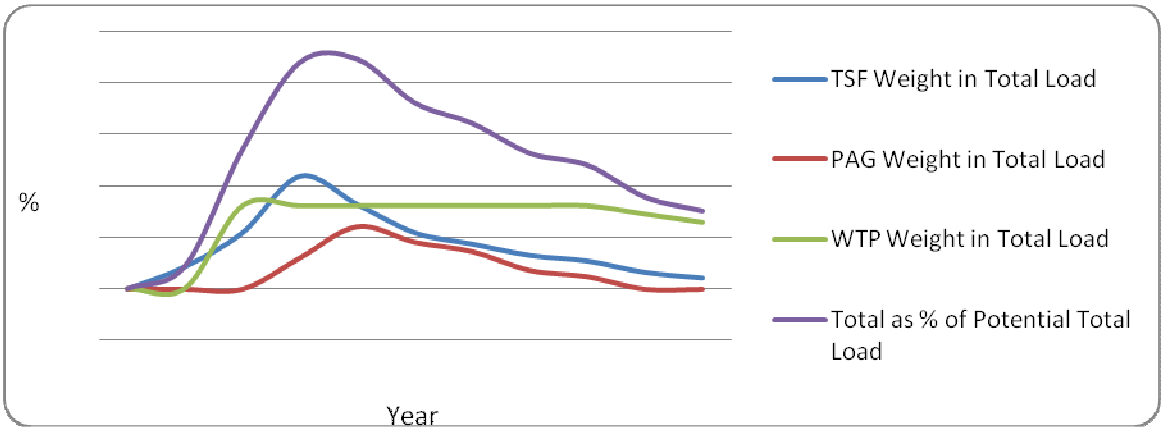
A site specific water quality objective could be required for the surface water discharge for the short period of time required before the cadmium concentration reduces to guideline levels.

Water Quality Effects- Morrison Lake:
Potential water quality effects on Morrison Lake could result from:

- TSF seepage;
- Water treatment plant discharges via the diffuser; and
- Seepage from the backfilled open pit.

Water quality modeling considering the three inflows has been carried out to determine potential changes in the water quality of the lake.

As discussed above, seepage quantity and quality from the TSF varies with time. In addition , the groundwater flow and quality from the open pit will vary with time and, over a period of approximately 50 years, the low quality water that will initially be present immediately after waste rock is placed into the open pit, will be flushed out would not contribute further to the effect on Morrison Lake. The result is that total contaminant loads in Morrison Lake will build up to a maximum in approximately Year 40, and then decrease with time. The following figure demonstrates the approximate temporal changes of the loads from TSF seepage, Open Pit Groundwater (PAG Waste Rock pore-water) and the water treatment plant.



Distribution of Loads from the TSF, Open Pit Groundwater (PAG Waste Rock Pore-water) and Water Treatment Plant to Morrison Lake with Time

The modeling indicates for the Expected Case, all parameters meet the guidelines. In the Upper Bound case cadmium is slightly elevated ((Steady State 2 nanograms and Maximum (100:1 diffuser) 7 nanograms over the BC Water Quality Guideline)). The load calculation also assumes no adsorption or ion exchanges of loads along the seepage flow paths. The water quality effects on Morrison Lake, therefore, are negligible and site specific water quality objectives are not required.

Aquatic Habitat Effects:

The Project effects on the aquatic habitat of the area occur through flow reductions in streams and the removal of barren pond and stream habitat (covered with the TSF and open pit). The effect on the aquatic habitat is documented in the Fish Habitat Compensation Plan. The fish bearing (i.e. HADD – harmful alteration, disruption or destruction) losses principally relate to the marginal fish habitat of Stream 7 and include:

- 1,242 m^2 of rearing habitat; and
- 9 m^2 of spawning habitat.

The non-fish bearing habitat loss is estimated to be equivalent to 12 million organisms per year. The fish bearing riparian losses are estimated to be 13,500 m^2.

To address the HADD's PBM has proposed a fish habitat compensation plan to DFO. The compensation plan includes construction of two "off-lake" channels, which will also provide compensation for loss of fish bearing riparian areas. The compensation plan for barren habitat includes upgrading of the Olympic Lake and Olympic Creek system, such that access to the estimated 50 million organisms/year could be made more available to fish and increase the productive capacity of the system.

Wetlands and Terrestrial Habitat Effects: The Project has an effect on wetlands and terrestrial habitat, principally within the TSF and the mine area. The project changes documented herein include a revised closure plan that allows for development of more wetland areas. This will include the shoreline and shallow waters of the TSF pond and wetlands within the closed open pit. Additionally, large areas of the TSF will be forested and the disturbed mine area will be reclaimed and forested.

Other Effects: The project changes result in revised water management and closure plans that either maintain or reduce the significance of adverse residual effects to sediment quality; aquatic resources; navigable waters; terrain, surficial materials, overburden and soils; terrain hazards; ecosystems and vegetation; wildlife and wildlife habitat; archaeology and heritage setting; land and resource use; socio-economic setting; visual resources and aesthetics; and human health.

In addition to considering the project changes the effects assessment methodology has been supplemented to include assessment descriptor criteria for determining Significance Ratings. All residual effects have been considered using these criteria such that in addition to a Significance Category a Significance Rating has been assigned for each residual effect. The resulting list of residual effects is intended to aid EAO and CEAA in answering the question "Is the Project Likely to cause significant adverse residual effects?"

Cumulative Effects: The revised water management and closure plan either maintains or reduces the cumulative effects on the project as described in the EAC.

Summary

The revised project design allows for early closure of the TSF and mine area and results in a significant reduction in the project effects, particularly on closure. The project has robust water management and waste management plans that are flexible to foreseeable variations in inputs and actual site conditions.

The residual effects of the project are principally negligible to minor, with a moderate effect to receiving streams.

Adaptive Management Plans have been identified as having capacity for more mitigation to respond to Upper Bound conditions.

PBM is committed, throughout the detailed design and permitting stages, and continuing into operations and closure, to plan, construct, operate and close the Morrison Copper/Gold Project to minimize the environmental effect and enhance post-closure land use.

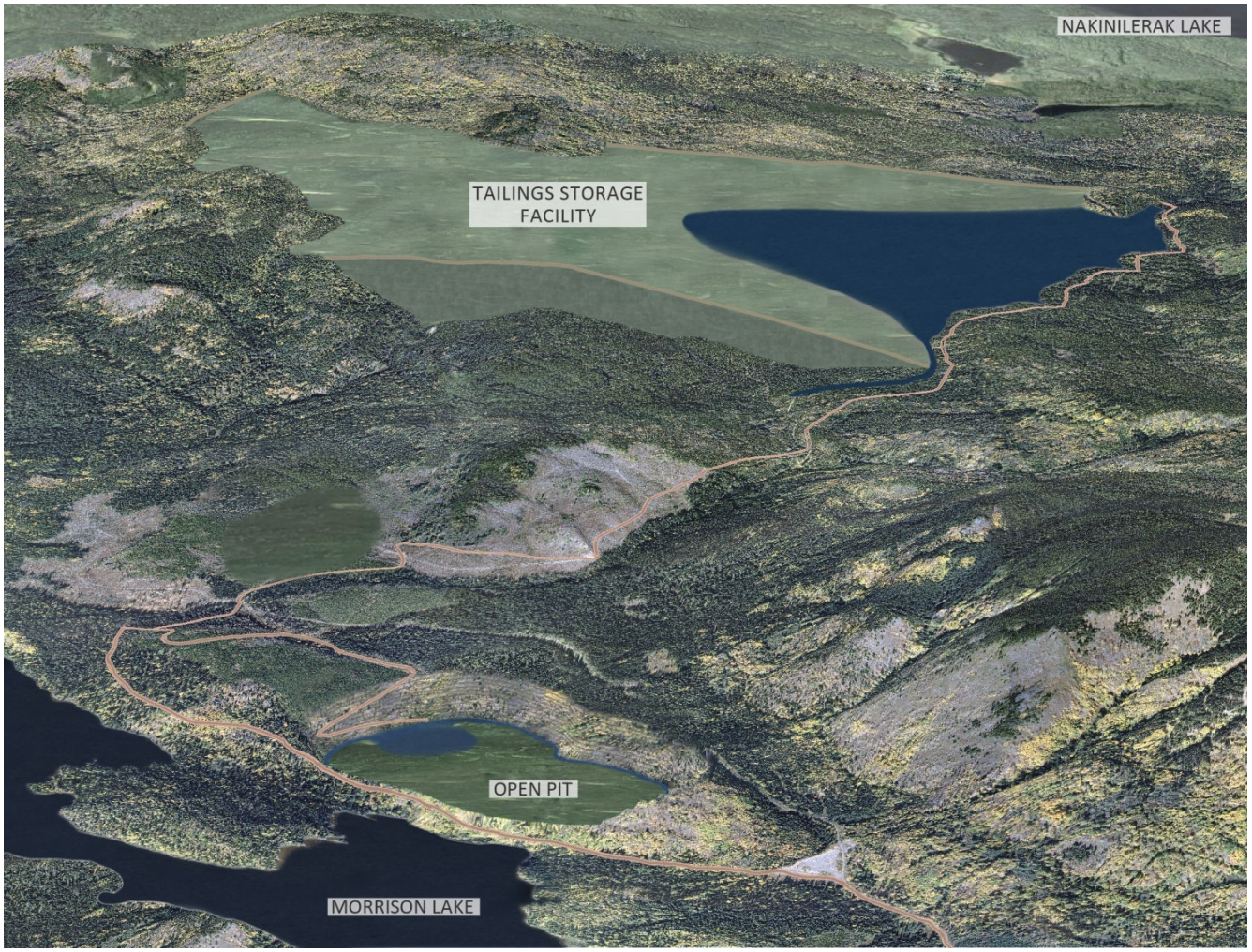


Figure 2 Morrison Copper/Gold Project - Post-Closure