BMC MINERALS (NO.1) LTD.
KUDZ ZE KAYAH PROJECT



WATER BALANCE MODEL REPORT

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EXECUTIVE SUMMARY

The Kudz Ze Kayah Project (the Project) is a proposed copper-zinc-lead-gold mine located approximately 250 km northeast of Whitehorse, Yukon Territory, Canada. The development of the project will be by open pit and underground mining methods, at a mill throughput rate of 5,500 tonnes per day over a mine life of approximately 9.5 years.

A prefeasibility design has been completed by Knight Piésold Ltd., which included a water balance modeling exercise. The water balance model was executed with average, wet, and dry climatic conditions. The main objectives of the water balance are as follows:

1. Estimate the volume of non-contact water diverted north to the outlet structure in Geona Creek
2. Estimate the volume of non-contact water diverted to the south of the Project
3. Estimate the annual surplus of Project-wide contact water

The main findings of the water balance model under average climatic conditions are as follows:

1. The volume of non-contact water diverted north of the project is estimated to be 1.42 Mm^3
2. The volume of non-contact water diverted south of the project is estimated to be 1.17 Mm^3
3. The annual surplus of Project-wide contact water is estimated to be 5.93 Mm^3

The main findings of the water balance model under 1 in 50 year wet climatic conditions are as follows:

1. The volume of non-contact water diverted north of the project is estimated to be 2.02 Mm^3
2. The volume of non-contact water diverted south of the project is estimated to be 1.66 Mm^3
3. The annual surplus of Project-wide contact water is estimated to be 7.7 Mm^3

The main findings of the water balance model under 1 in 10 year dry climatic conditions are as follows:

1. The volume of non-contact water diverted north of the project is estimated to be 1.13 Mm^3
2. The volume of non-contact water diverted south of the project is estimated to be 0.93 Mm^3
3. The annual surplus of Project-wide contact water is estimated to be 5.14 Mm^3

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ABBREVIATIONS

Kudz Ze Kayah Project	the project
BMC Minerals (No.1) Ltd.	BMC
Kudz Ze Kayah	KZK
Potentially Acid Consuming	PAC
pre-feasibility study	PFS
Strongly Potentially Acid Generating	SPAG
Weakly Potentially Acid Generating	WPAG

1 – INTRODUCTION

1.1 PROJECT DESCRIPTION

BMC Minerals (No.1) Ltd. (BMC) is currently developing the Kudz Ze Kayah Project (the Project), a proposed copper-zinc-lead-gold mine located approximately 250 km northeast of Whitehorse, Yukon Territory, Canada.

The development of the project will be by open pit and underground mining methods, at a mill throughput rate of 5,500 tonnes per day (tpd) over a mine life of approximately 9.5 years. The project has two open pits, referred to as the ABM Open Pit and the Krakatoa Phase. Underground portals are located in the ABM Open Pit.

The development of the deposit will produce the following materials:

- Class A material – Filtered tailings and Strongly Potentially Acid Generating (SPAG) waste rock
- Class B material – Weakly Potentially Acid Generating (WPAG) waste rock
- Class C material – Potentially Acid Consuming (PAC) waste rock, and
- Overburden and Topsoil material – Surficial material removed from the Open Pit area.

A prefeasibility study (PFS) design of the tailings, waste rock and water management facilities was completed by Knight Piésold Ltd. (KP), and is described in further detail below (KP, 2016).

The Class A Storage Facility is designed to contain filtered tailings and Class A waste rock material. Class A material is described as strongly potentially acid generating and therefore requires encapsulation to prevent contact with oxygen and water. The facility is located on the western hillside of Geona Creek, north of the Mill Site location. The Class B Storage Facility is designed to contain Class B material, which is described as weakly potentially acid generating. Class B material requires encapsulation to limit contact with oxygen and water. The facility is located north of the Open Pit, along the western slope of Geona Creek. The Run of Mine (ROM) Pad and Low Grade Ore (LGO) Stockpile are incorporated into the design of the Class B Storage Facility.

The Class C Storage Facility is designed to contain Class C material. Class C material is potentially acid consuming and therefore specific ARD management strategies are not required. The Class C Storage Facility is located in a small hanging valley along the east side of the project area.

Overburden from the Open Pit excavation will be excavated and stockpiled. Glacial till material will be selectively sourced from the stockpile and used for the low permeability foundation and closure cover layers of the Class A and Class B Storage Facilities, and for construction of the Water Management and Collection Ponds. The stockpile will be located north of the Class C Storage Facility, along the western slope of the project area. The overburden material is not anticipated to be potentially acid generating and therefore specific ARD management strategies are not required.

The site incorporates diversion ditches, collection ditches, collection ponds, and sediment control ponds to manage surface runoff. Diversion ditching will be used to convey non-contact runoff to the north and south of the project area. Collection ditching will be used within the project footprint to collect and convey contact runoff to the various water management ponds, where the water will be used in the mill process or treated and released to the environment.

Fault Creek will be intercepted and diverted south away from the Open Pit areas and towards the North Lakes during operations.

Overburden dewatering in the Open Pit area will occur during the pre-production period to facilitate mining activity in the pit. The Pit Rim Pond will temporarily store water that is pumped from Open Pit Dewatering activies. Water from the Pit Rim Pond will either be used in the paste plant, pumped to the Water Treatment Plant, or routed to the Upper Water Management Pond, as required.

All water in contact with the mine facilities, including the Class A, Class B, Class C and Overburden Storage Facilities, the Open Pit, and the Mill Site and other infrastructure, will be collected and conveyed to the Upper and Lower Water Management Ponds and ultimately released to Finlayson Creek and Geona Creek.

1.2 SCOPE OF REPORT

This report provides a summary of the water balance scenarios modelled and the results obtained. This document is intended to provide an overview of the water management plan for the mine, to assist in planning the process operations, and to provide an assessment of the potential for surface water surplus or deficit conditions to occur during the mine operation.

The main objectives of the water balance exercise are as follows:

1. Estimate the volume of non-contact water diverted north to the outlet structure in Geona Creek
2. Estimate the volume of non-contact water diverted to the south of the Project, and
3. Estimate the annual surplus of Project-wide contact water.

1.3 MODELLED SCENARIOS

Three climatic scenarios were modelled as part of the PFS water balance exercise: average precipitation, 1 in 50 year wet precipitation, and 1 in 10 year dry precipitation, as requested by Alexco Environmental Group (Alexco) for use in the water quality model. The average annual precipitation was used for the average scenario, while the corresponding return period wet and dry annual precipitation values were used for the other two scenarios. The average monthly precipitation distribution (as a percentage of annual) was used for all three scenarios.

The catchment areas, applicable to all three scenarios, are shown on Figure 1.1.

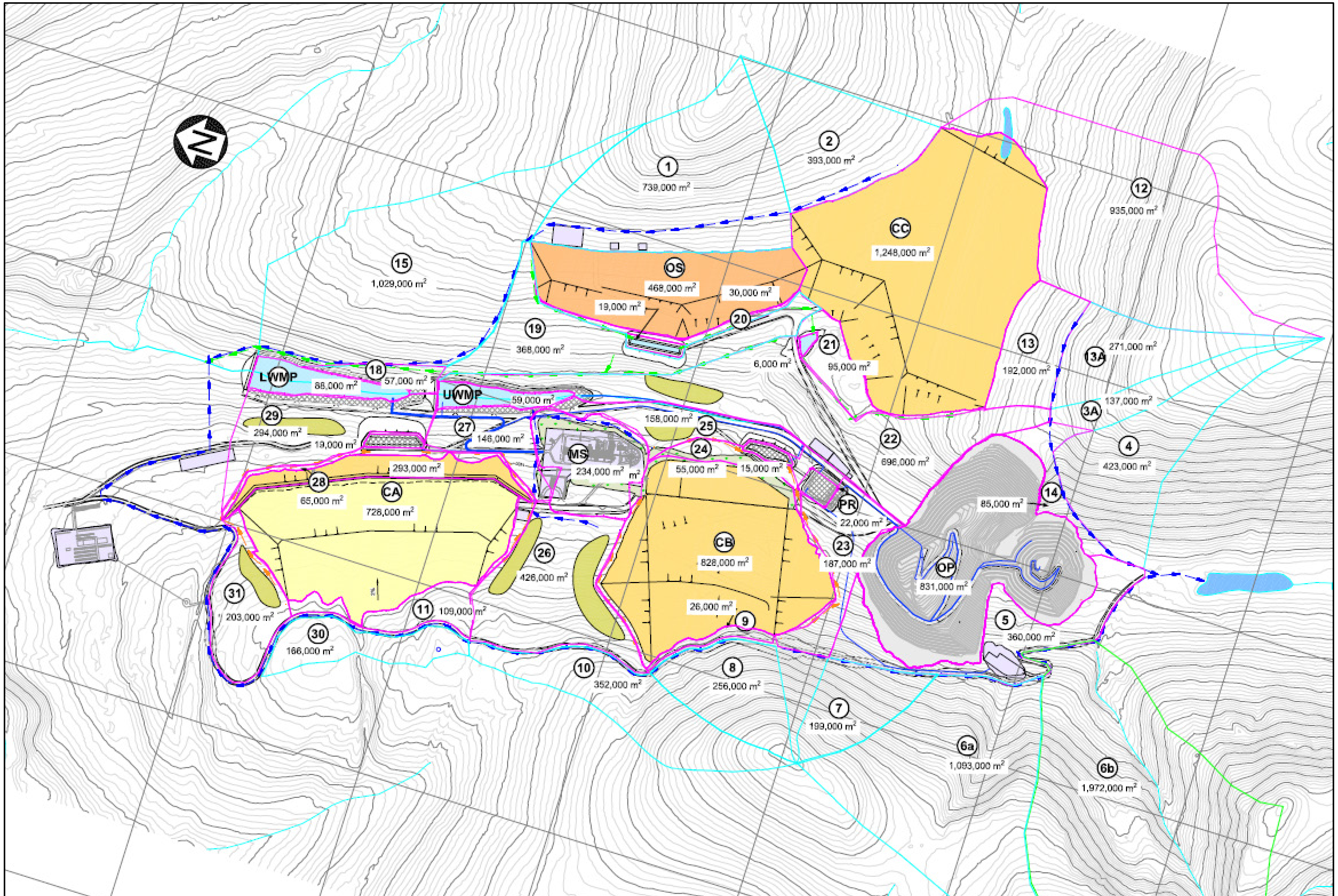

Figure 1.1 Catchment Area Map

2 – PARAMETERS AND ASSUMPTIONS

2.1 GENERAL

The modelling parameters for all scenarios are presented in Table 2.1 and are described in the following sections. The catchment areas were determined from the project topographic information as provided by BMC, and are summarized on Figure 1.1 and under Item 2.0 of Table 2.1.

Table 2.1 Water Balance Parameters

Parameter	Units	Value	Source
1.0 Hydrometeorology			
Mean Annual Precipitation	mm	612	Alexco
1 in 50 Year Wet Precipitation	mm	868	Alexco
1 in 10 Year Dry Precipitation	mm	489	Alexco
Mean Annual Pond Evaporation	mm	304	Alexco
Runoff Coefficient (Undisturbed Ground)	%	63	Mean annual runoff / Mean annual precipitation
Runoff Coefficient (Pond Surface)	%	100	KP Assumption
Runoff Coefficient (Overburden Stockpile)	%	70	KP Assumption
Runoff Coefficient (Waste Rock Stockpile)	%	80	KP Assumption
Runoff Coefficient (Open Pit Walls)	%	90	KP Assumption
Runoff Coefficient (Mill Site Area)	%	90	KP Assumption
Diversion Ditch Efficiency	%	50	KP Assumption
2.0 Catchment Areas (Final Year, full footprint)			
Class A Facility	km^2	0.73	Site topography
Area Reporting to Class A Facility	km^2	0.31	Site topography
Area Directly Reporting to Class A Facility Collection Pond	km^2	0.38	Site topography
Class B Facility	km^2	0.83	Site topography
Area Reporting to Class B Facility	km^2	0.03	Site topography
Area Directly Reporting to Class B Facility Collection Pond	km^2	0.07	Site topography
Class C Facility	km^2	1.25	Site topography
Area Reporting to Class C Facility	km^2	1.13	Site topography
Area Directly Reporting to Class C Facility Collection Pond	km^2	0.10	Site topography
Overburden Stockpile	km^2	0.47	Site topography
Area Directly Reporting to Overburden Stockpile Collection Pond	km^2	0.05	Site topography
Open Pit	km^2	0.83	Site topography

Area Reporting to Open Pit	km^2	0.45	Site topography
Area Directly Reporting Pit Rim Pond	km^2	0.02	Site topography
Area Directly Reporting to Upper Water Management Pond	km^2	1.06	Site topography
Area Directly Reporting to Lower Water Management Pond	km^2	0.44	Site topography
Area Diverted to the South of the Project	km^2	2.12	Site topography
Area Diverted to the North of the Project	km^2	3.30	Site topography
3.0 Process Plant			
Dry Ore Production	tpd	5,500	BMC
Tailings Solids Content	%	87	BMC
Tailings Specific Gravity	-	4.10	BMC
Tailings Dry Density	t/m^3	1.90	BMC
Water in Ore	m^3/hr	12.9	BMC
Minimum Fresh Water Required	m^3/hr	24.9	BMC

Estimates of the KZK groundwater inflows are provided in the Tetra Tech EBA (TTE) *Hydrogeological Model Report* (TTE, 2016), and are summarized in Table 2.2. Groundwater flux rates are provided from pre-mining through year 9 for the open pit and underground workings.

Table 2.2 Groundwater Inflow Rates

Year	Groundwater Inflow (US gpm)	
	Open Pit	Underground Workings
Pre-Mining	1,401	0
Year 1	664	0
Year 2	643	0
Year 3	384	459
Year 4	382	436
Year 5	337	489
Year 6	297	701
Year 7	322	665
Year 8	281	862
Year 9	263	847

2.2 HYDROMETEROLOGY

The climate in the Project area can be classified as a typical northern interior climate (Alexco, 2016), with cool short summers, and long cold winters. Annual mean temperatures range from approximately 0°C in warm years to -5°C in cold years.

The rainfall and evapotranspiration distributions used for the water balance are based on long-term records from regional stations as well as short-term data site specific data collected in 1995 and from a new station commissioned in August 2015. The mean annual precipitation and evaporation values used in the models are 612 mm and 304 mm, respectively. The mean monthly precipitation and evaporation are shown in Table 2.3. The wettest month is typically July, with an average precipitation of 84 mm, all of which falls as rain. The driest month is typically April, with an average precipitation of 21 mm. The highest evapotranspiration occurs in June and July, with 80 mm estimated to occur in each month.

Table 2.3 Monthly Hydrometeorological Parameters

Month	Total Precipitation (mm)	Rainfall (mm)	Snow Water Equivalent (mm)	Evapotranspiration (mm)
January	44.9	0	44.9	0.0
February	33.5	0	33.5	0.0
March	29.7	0	29.7	4.0
April	20.7	0	20.7	16.0
May	39.9	19.9	19.9	36.0
June	65.5	65.5	0	80.0
July	84.0	84.0	0	80.0
August	74.2	74.2	0	44.0
September	68.2	68.2	0	24.0
October	52.0	10.4	41.6	16.0
November	51.7	0	51.7	4.0
December	47.2	0	47.2	0.0
Annual	**612**	**322**	**289**	**304**

2.3 SEEPAGE CONSIDERATIONS

Seepage considerations are based on the assumed permeability of the foundation material, and were only accounted for in the Class A Facility at this time. The water balance model assumes that all the facilities have seepage collection systems. It was assumed that 5,000 m^3 of seepage is captured in the Class A Water Management Pond annually.

2.4 PROCESS PLANT

The tailings properties used in the water balance are listed in Table 2.1, Item 3.0.

The Open Pit will produce approximately 2.0 Mtonnes per year. The tailings slurry has a specific gravity of 4.10, and contains 87% solids. As such there is 302,000 m^3 of water in the slurry reporting to the Class A Facility each year. The assumed process water requirement was 276,000 m^3, sourced from the Open Pit, freshwater wells, and treated Class A runoff.

3 – WATER MANAGEMENT ASSUMPTIONS

3.1 GENERAL OPERATIONS

The PFS design for the tailings, waste rock, and water management systems includes the following facilities:

Class A Storage Facility and Collection Pond

- The Class A Storage Facility will be used to manage filtered tailings and Class A material. The waste rock will be co-disposed with the filtered tailings solids. The Class A Facility is located north of the Mill Site on the western hillside of Geona Creek.
- All surface runoff will be routed to the Class A Facility Collection Pond via appropriate grading of the Class A Storage Facility and collection ditches.
- Seepage from the facility will be collected in sumps and pumped to the Class A Collection Pond.
- All collected runoff and seepage will be stored in the Class A Collection Pond prior to being pumped to the Water Treatment Plant or used in the Mill as make-up water.

Class B Storage Facility and Collection Pond

- The Class B Storage Facility will be used to manage Class B material. The Class B Storage Facility is located on the western hillside of Geona Creek adjacent to the Open Pit.
- All surface runoff will be routed to the Class B Facility Collection Pond via appropriate grading of the Class B Storage Facility and collection ditches.
- Seepage from the facility will be collected in sumps and pumped to the Class B Collection Pond.
- The water required for dust suppression will be sourced from the Class B Collection Pond during the summer season from May through September, annually, assuming that the Class B runoff does not require treatment. Dust suppression may also be sourced from other collection ponds such as the Pit Rim Pond and the Lower Water Management Pond, if required.
- All collected runoff and seepage will be stored in the Class B Collection Pond prior to being routed to the Upper Water Management Pond.

Class C Storage Facility and Collection Pond

- The Class C Storage Facility will be used to manage Class C material. The Class C Storage Facility is located on the east side of Geona Creek in the East Creek drainage.
- All surface runoff from the facility will be routed to the Class C Storage Facility Collection Pond via appropriate grading of the Class C Storage Facility and collection ditches.
- Retention time in the pond will allow sediment to settle to an appropriate level before routing the water to Geona Creek.

Overburden Stockpile and Collection Pond

- The overburden stockpile will be used to manage the overburden material removed from the Open Pit area. The stockpile is located on the east side of Geona Creek to the north of the Class C Storage Facility. Runoff will be collected in the Overburden Collection Pond for sediment control prior to discharge to Geona Creek.
- All surface runoff from the facility will be routed to the Overburden Collection Pond via appropriate grading of the Overburden Stockpile and collection ditches.
- Retention time in the pond will allow sediment to settle to an appropriate level before routing the water to Geona Creek.

Mill Site

- The Mill Site is located on the western hillside of Geona Creek between the Class A and Class B Storage Facilities. The Run of Mine (ROM) pad and Low Grade Ore (LGO) stockpile are located at the base of the Class B Storage Facility, adjacent to the Mill. Runoff from the Mill Site area will be collected at the Mill Site and treated before discharge.
- All surface runoff from the ROM Pad and LGO Stockpile will be routed to the Mill Site via appropriate grading and collection ditches.

Upper and Lower Water Management Ponds

- Two Water Management Ponds are located in Geona Creek downstream of the Mill Site to manage contact runoff water and seepage. Site contact water will be routed to the Upper Water Management pond for settling of sediments, and then decanted to the Lower Pond for additonal storage prior to discharge. Water will be discharged seasonally to Finalyson Creek, and year round to Geona Creek.

Fault Creek Diversion

- Fault Creek will be diverted during operations to restrict flow into the project area and will be re-established at closure.

Pit Rim Pond

- The Pit Rim Pond will temporarily store water that is pumped from Open Pit Dewatering activies. Water from the Pit Rim Pond will be used in the paste plant, pumped to the Water Treatment Plant, or routed to the Upper Water Management Pond, as required.

Open Pit

- Open Pit dewatering will continue throughout the mine life with dewatering flows being directed to the Pit Rim Pond and then to the Mill Site for use, treatment, and/or discharge to the environment.
- Underground dewatering will be completed by others; however, the underground dewatering flows have been included in the design of the Pit Rim Pond.

Water Treatment Plant

- It was assumed that the water treatment plant (WTP) will operate at a maximum treatment rate of 41,500 m^3/month during the low flow months of November through April.
- It was assumed that the WTP will operate at a maximum treatment rate of 161,000 m^3/month during the high flow months of May through October.
- The WTP will preferentially treat runoff from the following facilities, up to the maximum treatment rate:
    - Class A Facility Collection Pond
    - Mill Site Runoff
    - Open Pit
    - Class B Facility Collection Pond (if required)
- The WTP will discharge treated flows to the Lower Water Management Pond.

The water management plan is shown schematically on Figure 3.1.

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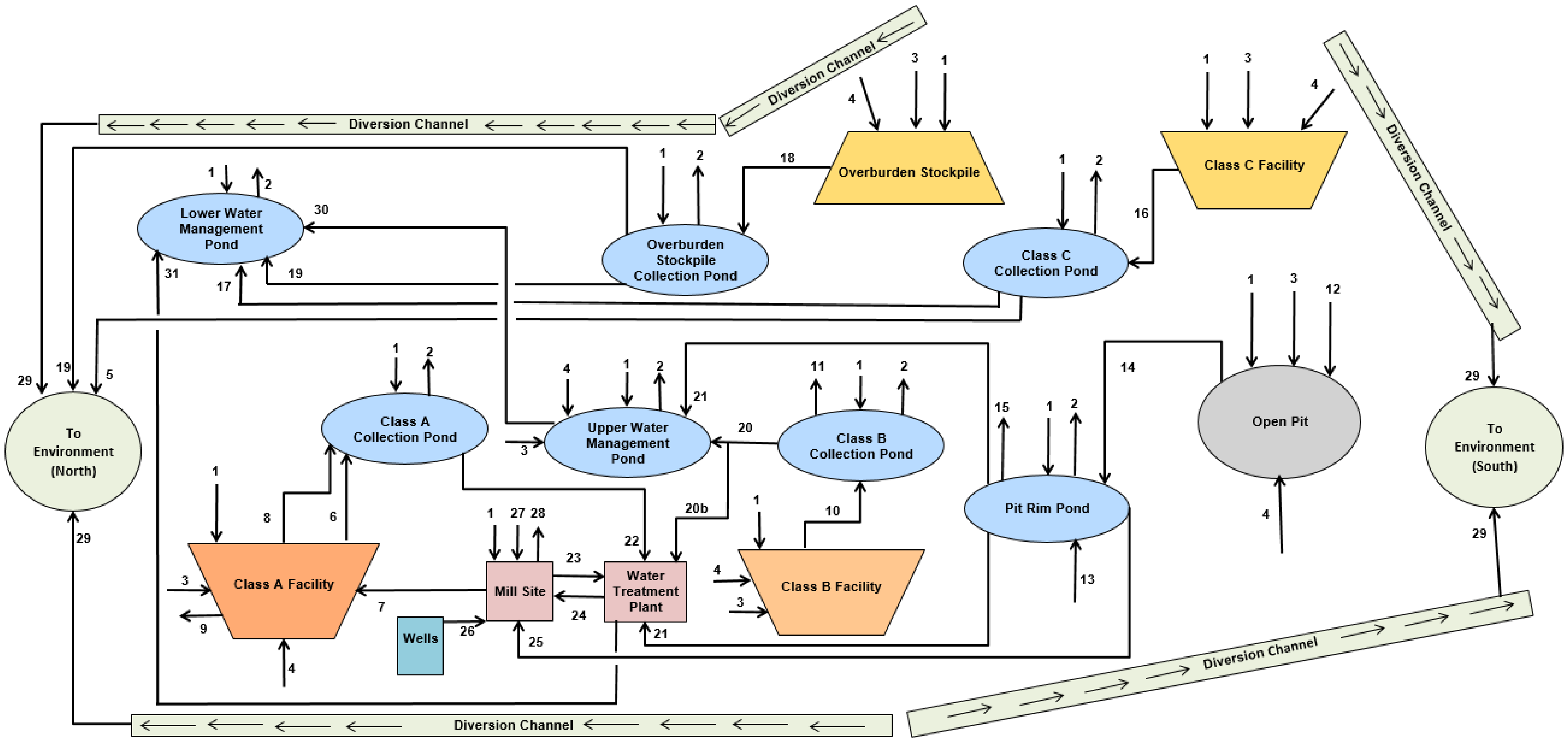

FLOW PATHS

1	Direct Precipitation
2	Evapotranspiration
3	Undiverted Runoff
4	Diversion Ditch Leakage
5	Collection Ditch Leakage
6	Seepage
7	Water in Tailings
8	Runoff from Class A Facility
9	Void Losses
10	Runoff from Class B Facility
11*	Dust suppression
12	Groundwater Inflow to Open Pit
13	Groundwater Inflow from Underground Workings
14	Open Pit Dewatering
15	Water to Paste Plant
16	Runoff from Class C Facility
17	Surplus from Class C Collection Pond
18	Runoff from Overburden Stockpile
19	Surplus from Overburden Stockpile Collection Pond
20	Surplus from Class B Collection Pond
20b	Surplus from Class B Collection Pond to WTP
21	Surplus from Pit Rim Pond
22	Surplus from Class A Collection Pond
23	Mill Site Runoff
24	Mill Reclaim
25	Freshwater Source 1
26	Freshwater Source 2
27	Water in Ore
28	Water in Concentrate
29	Diversions to Environment
30	Surplus from Upper Water Management Pond
31	Treated Runoff from Water Treatment Plant

* Water for dust suppression can be supplied from various sources, depending on water quality, if required (i.e. Class B Collection Pond, Pit Rim Pond, Lower Water Management Pond, etc.).

Figure 3.1 Water Balance Flow Schematic

4 – RESULTS

4.1 GENERAL

The preliminary water balance results, for all three climatic conditions considered, suggest that the site is in an annual water surplus. The water balance is sensitive to the input assumptions and the potential variability in the results should be considered when used for planning purposes. The input variables that have the greatest influence on the results are the water management assumptions, the diversion ditch efficiency, and the climatic values.

The water management plan could be optimized by staging the development of the mine site to potentially reduce contact water volume requiring treatment in the initial years of project development, and by additional progressive reclamation.

4.2 AVERAGE CLIMATIC CONDITIONS

The total annual surplus, under average climatic conditions, is 5.93 Mm^3, as summarized in Table 4.1. This surplus includes treated and untreated runoff. The treated portion of this total is 1.16 Mm^3, while the untreated portion is the remaining 4.77 Mm^3. The total volume of runoff diverted around the project site is 2.59 Mm^3, with 1.17 Mm^3 reporting south of the project site and 1.42 Mm^3 reporting north of the site.

Table 4.1 Results from Average Climatic Conditions (Mm^3/month)

Month	Diverted Runoff		Collection Pond Surplus							Post Water Treatment Plant	Total Site Surplus
	North	South	Pit Rim	Class A	Class B	Class C	Overburden Stockpile	Upper WMP	Lower WMP		
Jan	0.023	0.025	0.140	0.000	0.007	0.014	0.003	0.011	0.016	0.037	0.211
Feb	0.017	0.020	0.137	0.000	0.006	0.011	0.003	0.009	0.012	0.037	0.201
Mar	0.017	0.020	0.137	0.000	0.006	0.011	0.003	0.009	0.012	0.037	0.201
Apr	0.038	0.023	0.172	0.000	0.024	0.039	0.013	0.011	0.034	0.037	0.278
May	0.321	0.247	0.399	0.007	0.165	0.287	0.089	0.119	0.270	0.156	1.116
Jun	0.334	0.248	0.412	0.022	0.175	0.303	0.094	0.118	0.278	0.156	1.161
Jul	0.186	0.150	0.233	0.000	0.086	0.159	0.047	0.068	0.146	0.156	0.689
Aug	0.156	0.123	0.199	0.000	0.073	0.136	0.041	0.057	0.126	0.156	0.611
Sep	0.164	0.135	0.196	0.000	0.073	0.137	0.041	0.064	0.132	0.156	0.621
Oct	0.089	0.094	0.065	0.000	0.032	0.059	0.016	0.042	0.064	0.156	0.359
Nov	0.044	0.051	0.152	0.000	0.014	0.026	0.007	0.023	0.031	0.037	0.257
Dec	0.030	0.034	0.143	0.000	0.009	0.018	0.004	0.015	0.021	0.037	0.225
Annual (m^3/yr)	**1.42**	**1.17**	**2.39**	**0.03**	**0.67**	**1.20**	**0.36**	**0.55**	**1.14**	**1.16**	**5.93**

NOTES:

1. THE UPPER WATER MANAGEMENT POND VOLUME DOES NOT INCLUDE SURPLUS RUNOFF FROM THE PIT RIM POND OR CLASS B COLLECTION POND. IT ONLY REPRESENTS DIRECT RUNOFF FROM ITS REPORTING CATCHMENT AREAS.
2. THE LOWER WATER MANAGEMENT POND VOLUME DOES NOT INCLUDE SURPLUS RUNOFF FROM THE CLASS C COLLECTION POND, OVERBURDEN STOCKPILE POND, UPPER WATER MANAGEMENT POND OR WATER TREAMENT PLANT. IT ONLY REPRESENTS DIRECT RUNOFF FROM ITS REPORTING CATCHMENT AREAS..

4.3 1 IN 50 YEAR WET CLIMATIC CONDITIONS

The total annual surplus, under wet climatic conditions, is 7.70 Mm^3, as summarized in Table 4.2. This surplus includes treated and untreated runoff. The treated portion of this total is 1.16 Mm^3, while the untreated portion is the remaining 6.54 Mm^3. The total volume of runoff diverted around the project site is 3.67 Mm^3, with 1.66 Mm^3 reporting south of the project site and 2.02 Mm^3 reporting north of the site.

Table 4.2 Results from 1 in 50 Year Wet Climatic Conditions (Mm^3/month)

Month	Diverted Runoff		Collection Pond Surplus							Post Water Treatment Plant	Total Site Surplus
	North	South	Pit Rim	Class A	Class B	Class C	Overburden Stockpile	Upper WMP	Lower WMP		
Jan	0.031	0.035	0.145	0.000	0.011	0.020	0.005	0.016	0.022	0.037	0.231
Feb	0.025	0.028	0.141	0.000	0.008	0.015	0.004	0.013	0.017	0.037	0.216
Mar	0.025	0.028	0.141	0.000	0.008	0.016	0.004	0.013	0.017	0.037	0.216
Apr	0.055	0.033	0.199	0.000	0.035	0.056	0.018	0.016	0.048	0.037	0.335
May	0.458	0.350	0.496	0.088	0.238	0.407	0.126	0.170	0.384	0.156	1.532
Jun	0.475	0.352	0.514	0.109	0.253	0.431	0.134	0.170	0.399	0.156	1.601
Jul	0.263	0.213	0.338	0.000	0.126	0.227	0.068	0.098	0.211	0.156	0.929
Aug	0.221	0.174	0.289	0.000	0.107	0.193	0.059	0.082	0.181	0.156	0.815
Sep	0.232	0.192	0.285	0.000	0.107	0.195	0.058	0.091	0.188	0.156	0.827
Oct	0.126	0.133	0.095	0.000	0.046	0.084	0.022	0.060	0.091	0.156	0.448
Nov	0.063	0.072	0.162	0.000	0.020	0.037	0.009	0.032	0.044	0.037	0.295
Dec	0.041	0.048	0.150	0.000	0.013	0.025	0.006	0.022	0.029	0.037	0.251
Annual (m^3/yr)	**2.02**	**1.66**	**2.96**	**0.20**	**0.97**	**1.71**	**0.51**	**0.78**	**1.63**	**1.16**	**7.70**

NOTES:

1. THE UPPER WATER MANAGEMENT POND VOLUME DOES NOT INCLUDE SURPLUS RUNOFF FROM THE PIT RIM POND OR CLASS B COLLECTION POND. IT ONLY REPRESENTS DIRECT RUNOFF FROM ITS REPORTING CATCHMENT AREAS.
2. THE LOWER WATER MANAGEMENT POND VOLUME DOES NOT INCLUDE SURPLUS RUNOFF FROM THE CLASS C COLLECTION POND, OVERBURDEN STOCKPILE POND, UPPER WATER MANAGEMENT POND OR WATER TREAMENT PLANT. IT ONLY REPRESENTS DIRECT RUNOFF FROM ITS REPORTING CATCHMENT AREAS.

4.4 1 IN 10 YEAR DRY CLIMATIC CONDITIONS

The total annual surplus, under dry climatic conditions, is 5.14 Mm^3, as summarized in Table 4.3. This surplus includes treated and untreated runoff. The treated portion of this total is 1.16 Mm^3, while the untreated portion is the remaining 3.98 Mm^3. The total volume of runoff diverted around the project site is 2.07 Mm^3, with 0.93 Mm^3 reporting south of the project site and 1.13 Mm^3 reporting north of the site.

Table 4.3 Results from 1 in 10 Year Dry Climatic Conditions (Mm^3/month)

Month	Diverted Runoff		Collection Pond Surplus							Post Water Treatment Plant	Total Site Surplus
	North	South	Pit Rim	Class A	Class B	Class C	Overburden Stockpile	Upper WMP	Lower WMP		
Jan	0.018	0.020	0.137	0.000	0.006	0.011	0.003	0.009	0.013	0.037	0.202
Feb	0.014	0.016	0.135	0.000	0.005	0.009	0.002	0.007	0.010	0.037	0.194
Mar	0.014	0.016	0.135	0.000	0.005	0.009	0.002	0.007	0.010	0.037	0.194
Apr	0.031	0.018	0.163	0.000	0.019	0.031	0.010	0.009	0.027	0.037	0.255
May	0.257	0.197	0.350	0.000	0.130	0.229	0.071	0.095	0.215	0.156	0.946
Jun	0.266	0.198	0.363	0.000	0.138	0.243	0.075	0.093	0.221	0.156	0.971
Jul	0.148	0.120	0.183	0.000	0.067	0.127	0.038	0.053	0.116	0.156	0.575
Aug	0.123	0.098	0.156	0.000	0.056	0.109	0.033	0.045	0.100	0.156	0.513
Sep	0.130	0.108	0.154	0.000	0.056	0.110	0.033	0.051	0.105	0.156	0.522
Oct	0.071	0.075	0.054	0.000	0.026	0.047	0.012	0.033	0.051	0.156	0.320
Nov	0.036	0.041	0.147	0.000	0.011	0.021	0.005	0.018	0.024	0.037	0.237
Dec	0.024	0.027	0.140	0.000	0.007	0.014	0.004	0.012	0.017	0.037	0.213
Annual (m^3/yr)	**1.13**	**0.93**	**2.12**	**0.00**	**0.53**	**0.96**	**0.29**	**0.43**	**0.91**	**1.16**	**5.14**

NOTES:

1. THE UPPER WATER MANAGEMENT POND VOLUME DOES NOT INCLUDE SURPLUS RUNOFF FROM THE PIT RIM POND OR CLASS B COLLECTION POND. IT ONLY REPRESENTS DIRECT RUNOFF FROM ITS REPORTING CATCHMENT AREAS.
2. THE LOWER WATER MANAGEMENT POND VOLUME DOES NOT INCLUDE SURPLUS RUNOFF FROM THE CLASS C COLLECTION POND, OVERBURDEN STOCKPILE POND, UPPER WATER MANAGEMENT POND OR WATER TREAMENT PLANT. IT ONLY REPRESENTS DIRECT RUNOFF FROM ITS REPORTING CATCHMENT AREAS.

Knight Piésold
CONSULTING

5 – REFERENCES

Alexco Environmental Group (Alexco). 2016. Hydrometeorology Baseline Report – Kudz Ze Kayah Project. Prepared for BMC Minerals (No.1) Ltd. Ref. No.: BMC-16-01-530_001_Hydrometeorology Baseline Report_RevA_160923. Revision A.

Knight Piésold, 2016. Prefeasibility Design Report. Ref. No.: VA101-640/2-3 Rev 0. October 24, 2016.

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6 – CERTIFICATION

This report was prepared and reviewed by the undersigned.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
M. HODZIC
39224
Dec 16, 2016

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Approval that this document adheres to Knight Piésold Quality Systems: