



# Blackwater Mine



## Air Quality and Fugitive Dust Management Plan

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# Work Instructions

## Air Quality and Fugitive Dust Management Plan

<b>Version:</b>	H.1
<b>Replaces:</b>	G.1
<b>Creation Date:</b>	09/01/2023
<b>Scheduled Review Date:</b>	
<b>Review Date:</b>	
<b>Document Team Members:</b>	
<b>Document Owner:</b>	
<b>Document Approver:</b>	
<b>Related Documents:</b>	
<b>Key Contacts:</b>	
<b>Change Requests:</b>	



## Acronyms and Abbreviations

<b>Indigenous nations</b>	Lhoosk'uz Dené Nation, Ulkatcho First Nation, Nadleh Whut'en First Nation, Stellat'en First Nation, Saik'uz First Nation, and Nazko First Nation (as defined in the Project's Environmental Assessment Certificate #M19-01)
<b>AAQO</b>	Ambient Air Quality Objective
<b>Application or Joint MA/EMA Application</b>	Joint <i>Mines Act</i> / <i>Environmental Management Act</i> Permits Application
<b>AQDMP</b>	Air Quality and Fugitive Dust Management Plan
<b>AQO</b>	Air Quality Objective
<b>Artemis</b>	Artemis Gold Inc.
<b>BC</b>	British Columbia
<b>BW Gold or Proponent</b>	BW Gold LTD.
<b>CAAQs</b>	Canadian Ambient Air Quality Standards
<b>CCME</b>	Canadian Council of Ministers of the Environment
<b>CEA Agency</b>	Canadian Environmental Assessment Agency
<b>CEO</b>	Chief Executive Officer
<b>CO</b>	Carbon monoxide
<b>COO</b>	Chief Operating Officer
<b>CFMP</b>	Country Foods Monitoring Plan
<b>CM</b>	Construction Manager
<b>COO</b>	Chief Operating Officer
<b>DS</b>	Decision Statement
<b>EAC or Certificate</b>	Environmental Assessment Certificate
<b>EC</b>	Environment Canada
<b>ECCC</b>	Environment and Climate Change Canada
<b>ECD</b>	Environmental Control Dam
<b>ELoMC</b>	Environmental Life of Mine Committee

<b>EM</b>	Environmental Manager
<b>EMLI</b>	Ministry of Energy, Mines and Low Carbon Innovation
<b>EMP</b>	Environmental Management Plan
<b>EMPR</b>	Ministry of Energy, Mines and Petroleum Resources
<b>ENV</b>	Ministry of Environment and Climate Change Strategy
<b>EPCM</b>	Engineering, Procurement and Construction Management
<b>FLNRORD</b>	Ministry of Forests, Lands, Natural Resource Operations and Rural Development
<b>FSR</b>	Forest Service Road
<b>FUP</b>	Follow-up Program
<b>GM</b>	General Manager
<b>h</b>	Hour
<b>ha</b>	Hectares
<b>HHRA</b>	Human Health Risk Assessment
<b>HQ</b>	Hazard quotient
<b>HVAC</b>	Heating, ventilation and air conditioning
<b>Indigenous groups or Aboriginal Peoples</b>	Lhoosk'uz Dené Nation, Ulkatcho First Nation, Nadleh Whut'en First Nation, Saik'uz First Nation, Stelat'en First Nation, Nazko First Nation, Skin Tyee Nation, Tšilhqot'in Nation, Métis Nation British Columbia, and Nee-Tahi-Buhn Band (as defined in the Project's federal Decision Statement)
<b>km</b>	Kilometre
<b>KP</b>	Knight Piésold Ltd.
<b>LGO</b>	Low grade ore
<b>MAR</b>	Mine Access Road
<b>MOE</b>	Ministry of Environment
<b>MOH</b>	Ministry of Health
<b>MP</b>	Management plan
<b>Mtpa</b>	Million tonnes per annum

<b>New Gold</b>	New Gold Inc.
<b>NOx</b>	Nitrogen oxides
<b>OVB</b>	Overburden
<b>PASS</b>	Passive Air Sampling System
<b>PM</b>	Particulate matter
<b>POC</b>	Parameter of concern
<b>POPC</b>	Parameter of potential concern
<b>Project</b>	Blackwater Gold Project
<b>QA/QC</b>	Quality control/quality assurance
<b>QRP</b>	Qualified Registered Professional
<b>SO<sub>2</sub></b>	Sulphur dioxide
<b>SOP</b>	Standard operating procedure
<b>t</b>	Tonne
<b>Tatelkus Lake 28</b>	Tatelkus Lake Indian Reserve 28
<b>TSF</b>	Tailings Storage Facility
<b>µm</b>	Microns
<b>WMMP</b>	Wildlife Management and Monitoring Plan
<b>VP</b>	Vice President

## 1.0 Purpose and Scope

The purpose of the Air Quality and Fugitive Dust Management Plan (AQDMP) is to identify measures to minimize the effects of the Project's air emissions on human health and the natural environment. The AQDMP identifies the Project's fugitive dust-emitting sources and mitigation and contingency measures aimed at effectively controlling dust emissions.

Pursuant to Part 2, Section 14 of the *Environmental Management Act*, BW Gold has received an authorization (#110650) on (May 2, 2023) for air discharges during the Construction and Operation phases of the Blackwater mine as follows:

- Discharge of fugitive dust generated at the mine site during the Construction and Operations phases; and
- Discharge of air emissions from the processing plant and assay lab during the Operations phase.

The AQDMP was developed to meet the Joint Application Information Requirements for *Mines Act/Environmental Management Act* Permits (BC EMPR & ENV 2019). It also addresses the requirements of Environmental Assessment Certificate (EAC) #M19-01 Condition 20 and federal Decision Statement (DS) Conditions 6.1, 6.3, 6.12 and 6.15. The AQDMP also includes the information requested in Developing a Fugitive Dust Management Plan for Industrial Projects (Guidance; EMPR & ENV 2018).

Concordance tables identify where the requirements in EAC Condition 20 and DS conditions are met, and are provided in Appendix A and Appendix B respectively. A concordance table identifying where the requirements in the Guidance (EMPR & ENV 2018) are met is provided in Appendix C. The concordance tables have been developed for the purposes of compliance determination for each agency (e.g., ENV, EMLI, IAAC, and EAO) understanding where the specific authorization requirements are documented. For example, BW expects that IAAC would determine BW's compliance with NO<sub>x</sub> and SO<sub>x</sub> monitoring and not BC ENV. The AQDMP for the Transmission Line is provided in Appendix D.

## 1.1 Company Information

BW Gold LTD. (BW Gold) is a wholly owned subsidiary of Artemis Gold Inc., a publicly traded company listed on the TSX Venture Exchange (TSX-V: ARTG; <https://www.artemisgoldinc.com>). Artemis and BW Gold are incorporated in BC (#71616 9511 and #73237 6876 respectively).

The BW Gold corporate office is in Vancouver, BC:

Physical Mailing Address:	Suite 3083 – 595 Burrard Street, Vancouver BC V7L 1L3
Telephone:	(604) 558-1107
General Email:	<a href="mailto:info@artemisgoldinc.com">info@artemisgoldinc.com</a>

The Blackwater community office is in Vanderhoof, BC:

Physical Mailing Address:	139 – 1st Street, P.O. Box 440
Mailing Address:	P.O. Box 440, Vanderhoof BC V0J 3A0
Telephone:	(250) 567-3276
General Email:	<a href="mailto:office.blackwater@artemisgoldinc.com">office.blackwater@artemisgoldinc.com</a>



## 1.2 Existing Permits

BW Gold has a permitted diesel-fired putrescible waste incinerator (*Environmental Management Act* Authorization #106530), which is located near the exploration camp. The Authorization allows a maximum discharge rate of 110 m<sup>3</sup>/minute and maximum waste feed of 1.1 tonnes/day. Authorized waste for incineration includes putrescible camp waste, paper, cardboard and lumber scraps that cannot be recycled. Condition 2.1.3 of Authorization #106530 requires that every effort be made to minimize incineration of plastics.

BW Gold has an air discharge permit (*Environmental Management Act* Authorization #110650) that authorizes discharges from 12 sources. The Permit also requires the development of an incinerator operating plan and this AQDMP that includes a trigger plan. The Plan also details the monitoring and reporting requirements.

## 1.3 Exclusions

Consistent with the Guidance (EMPR & ENV 2018), the AQDMP does not address occupational health and safety requirements pertaining to workplace exposures to dust. Worker health and safety at mine sites is regulated by the Health, Safety and Reclamation Code for Mines in British Columbia (EMLI 2022). The Project's Occupational Health and Safety Program is provided under a separate cover.

Offsite infrastructure such as the FSR and Transmission Line are also excluded from the AQDMP.

## 1.4 Related Documents

Environmental Assessment Certificate M#19-01 Condition 20 requires the AQDMP to indicate how this plan informs the Country Foods Monitoring Plan (CFMP) and the Wildlife Mitigation and Monitoring Plan (WMMP).

The CFMP and WMMP will be evaluated for updates and revisions if corrective actions to reduce contaminant concentrations to avoid adverse health effects to receptors are implemented, based on exceedances of contaminants of potential concern (COPC) and corresponding concentrations (triggers) based on monitoring data from implementing the AQDMP, when compared to BC objectives (Entia 2021).

Fugitive dust deposition monitoring is not recommended by the Ministry of Environment and Climate Change Strategy (ENV) for the purposes of wildlife and human health protection (ENV 2020) and is not included in the AQDMP. However, as required by EAC Condition 41, analysis of dust for metal concentrations will be included in the CFMP and data collected under the CFMP can be used to inform the WMMP.

Monitoring of trace element (metals) uptake in vegetation and soils is considered in the Reclamation and Closure Plan and the CFMP. Plant tissue can be affected by the deposition of dust (particulate matter) containing metals generated by Project activities. Plants can also accumulate metals from the soil through uptake of metals through the root. Monitoring under the CFMP will determine whether concentrations of metals have changed in soil or in vegetation tissue because of Project activities. The results of trace metals monitoring and potential implications for wildlife based on results from monitoring under the CFMP will be addressed in the WMMP.

Results of the AQDMP for monitoring of particulate matter (Section 8.3.3) will inform the CFMP, as this monitoring is required by EAC Condition 41 for the CFMP.

## 2.0 Project Overview

The Blackwater Gold Project (the Project) is a gold and silver open pit mine located in central British Columbia (BC), approximately 112 kilometres (km) southwest of Vanderhoof, 160 km southwest of Prince George, and 446 km northeast of Vancouver.

The Project is presently accessed via the Kluskus Forest Service Road (FSR), the Kluskus-Ootsa FSR and a new mine access road which connects to the Kluskus-Ootsa FSR at km 142. The Kluskus FSR joins Highway 16 approximately 10 km west of Vanderhoof. The new, approximately 13.8 km road (Mine Access Road) was built to replace the existing exploration access road, which will be decommissioned. The new mine access road is at km 124.5. Driving time from Vanderhoof to the mine site is about 2.5 hours.

Major mine components include a tailings storage facility (TSF), ore processing facilities, waste rock, overburden and soil stockpiles, borrow areas and quarries, water management infrastructure, water treatment plants, accommodation camps and ancillary facilities. The gold and silver will be recovered into a gold-silver doré product and shipped by air and/or transported by road. Electrical power will be supplied by a new approximately 135 km, 230 kilovolt overland transmission line that will connect to the BC Hydro grid at the Glenannan substation located near the Endako mine, 65 km west of Vanderhoof.

The Blackwater mine site is located within the traditional territories of Lhoosk'uz Dené Nation (LDN), Ulkatcho First Nation (UFN), Skin Tyee Nation, and Tsilhqot'in Nation. The Kluskus and Kluskus-Ootsa FSRs and Project transmission line cross the traditional territories of Nadleh Whut'en First Nation (NWFN), Saik'uz First Nation (SFN), and Stellat'en First Nation (StFN; collectively, the Carrier Sekani First Nations) as well as the traditional territories of the Nazko First Nation (NFN), Nee Tahi Buhn Band, Cheslatta Carrier Nation, and Yekooche First Nation (BC EAO 2019a, 2019b).

Project construction is anticipated to take two years. Mine development will be phased with an initial milling capacity of 15,000 tonnes per day (t/d) for the first five years of operation. After the first five years, the milling capacity will increase to 33,000 t/d for the next five-years, and to 55,000 t/d in Year +11 until the end of the 23-year mine life. The Closure phase is Year +24 to approximately Year +36 and is defined by the duration required to fill the Open Pit to the target closure level and the TSF is allowed to passively discharge to Davidson Creek via a closure spillway. The Closure phase is shorter than that what was presented in the *Joint Mines Act / Environmental Management Act* Permits Application (March 2022) as a result of optimizations to the Project. The Post-closure is now estimated to begin in Year +37.

New Gold Inc. received Environmental Assessment Certificate #M19-01 (EAC) on June 21, 2019 under the 2002 *Environmental Assessment Act* (BC EAO 219c) and a Decision Statement (DS) on April 15, 2019 under the Canadian *Environmental Assessment Act*, 2012 (CEA Agency 2019). In August 2020, Artemis Gold Inc. (Artemis) acquired the mineral tenures, assets, and rights in the Blackwater Project that were previously held by New Gold Inc. On August 7, 2020, the Certificate was transferred to BW Gold LTD. (BW Gold), a wholly owned subsidiary of Artemis, under the 2018 *Environmental Assessment Act*. The Impact Assessment Agency of Canada notified BW Gold on September 25, 2020 to verify that written notice had been provided within 30 days of the change of proponent as required in Condition 2.16 of the DS, and that a process had been initiated to amend the DS.

BW Gold received *Mines Act* Permit M-246 on June 22, 2021, and *Environmental Management Act* Permit PE-110602 on June 24, 2021, authorizing early construction works for the Project. These works include clearing, grubbing ditching, and site levelling at the Plant Site location and sediment and erosion controls, including construction of ditches, diversions, and a sediment control pond (SCP). BW Gold received *Environmental Management Act* Permit PE-110652 on May 2, 2023, authorizing discharge of effluent to surface water and groundwater from the Blackwater mine. BW Gold received *Environmental Management Act* Permit PE-110650 on May 2, 2023 authorizing the discharge of air contaminants to the atmosphere from the Blackwater Mine.

### 3.0 Roles and Responsibilities

BW Gold has the obligation of ensuring that all commitments are met and that all relevant obligations are made known to mine personnel and site contractors during all phases of the mine life. A clear understanding of the roles, responsibilities, and level of authority that employees and contractors have when working at the mine site is essential to meet Environmental Management System (EMS) objectives.

Table 3-1 provides an overview of general environmental management responsibilities during all phases of the mine life for key positions that will be involved in environmental management. Other positions not specifically listed in Table 3-1 but that will provide supporting roles include independent environmental monitors, an Engineer of Record for tailings storage facilities and dams as required, an Independent Tailings Review Board, TSF qualified person, geochemistry Qualified Registered Professional (QRP), and other qualified persons and QRPs as required.

**Table 3-1: Blackwater Gold Roles and Responsibilities**

Position	Responsibility
Chief Executive Officer (CEO)	The CEO is responsible for overall Project governance. Reports to the Board.
Chief Operating Officer (COO)	The COO is responsible for engineering and Project development and coordinates with the Mine Manager to ensure overall Project objectives are being managed. Reports to the CEO.
Vice President (VP) Environment & Social Responsibility	The VP is responsible for championing the Environmental Policy Statement and EMS, establishing environmental performance targets and overseeing permitting. Reports to the COO.
General Manager (GM) Development	The GM Development is responsible for managing project permitting, the Project's administration services and external entities, and delivering systems and programs that ensure Artemis's values are embraced and supported: Putting People First, Outstanding Corporate Citizenship, High Performance Culture, Rigorous Project Management and Financial Discipline. Reports to the COO.
Mine Manager	The Mine Manager, as defined in the <i>Mines Act</i> , has overall responsibility for mine operations, including the health and safety of workers and the public, EMS implementation, overall environmental performance and protection, and permit compliance. The Mine Manager may delegate some of their responsibilities to other qualified personnel. Reports to the GM.
Construction Manager (CM)	The CM is accountable for ensuring environmental and regulatory commitments/ and obligations are being met during the construction phase. Reports to the GM.
Environmental Manager (EM)	The EM is responsible for the day-to-day management of the Project's environmental programs and compliance with environmental permits, updating EMS and Management Plans. The EM or designate will be responsible for reporting non-compliance to the CM, and Engineering, Procurement and Construction Management (EPCM) contractor, other contractors, the Company and regulatory agencies, where required. The EM informs the Environmental Monitors of current site conditions that may influence monitoring programs. Supports the CM and reports to the Mine Manager.

<b>Position</b>	<b>Responsibility</b>
Departmental Managers	Departmental Managers are responsible for implementation of the EMS relevant to their areas. Report to the Mine Manager.
Indigenous Relations Manager	Indigenous Relations Manager is responsible for Indigenous engagement throughout the life of mine. Also responsible for day-to-day management and communications with Indigenous groups. Reports to the VP Environment & Social Responsibility.
Community Relations Advisor	Community Relations Advisor is responsible for managing the Community Liaison Committee and Community Feedback Mechanism. Reports to the Indigenous Relations Manager.
Aboriginal Monitors	Aboriginal Monitors are required under EAC #M19-01 Condition 17 and will be responsible for monitoring for potential effects from the Project on the Indigenous interests. Aboriginal Monitors will be involved in the environmental monitoring, adaptive management and follow-up monitoring programs. Report to the EM.
Employees and Contractors	Employees and contractors are responsible for being aware of permit requirements specific to their roles and responsibilities. Report to Departmental Managers.
Qualified Registered Professionals or Qualified Persons	Qualified registered professionals and qualified persons will be retained to review objectives and conduct various aspects of environmental and social monitoring as specified in Environmental and Social Management Plans.

BW Gold will employ a qualified person as an EM who will ensure that the EMS requirements are established, implemented and maintained, and that environmental performance is reported to management for review and action. The EM is responsible for retaining the services of qualified persons or QRP's with specific scientific or engineering expertise to provide direction and management advice in their areas of specialization. The EM will be supported by a team of Environmental Monitors that will include Environmental Coordinators and Technicians and by a consulting team of subject matter experts in the fields of environmental science and engineering.

During the Construction phase, BW Gold will be entering into multiple Engineering, Procurement and Construction contracts, likely for the Transmission Line, Process Plant, Tailings and Reclaim System, and 25 kV Power Distribution. Each engineer/contractor will have their own CM and there will be a BW Gold responsible project manager and/or Superintendent who ultimately reports to the GM Development. Some of the scope, such as the TSF and Water Management Structures will be self-performed by BW Gold, likely using hired equipment. Other smaller scope packages may be in the form of Engineering, Procurement and Construction Management (EPCM) contracts. The EPCM contractors will report to the CMs who will ultimately be responsible for ensuring that impacts are minimized, and environmental obligations are met during the Construction phase. For non-EPCM contractors, who will perform some of the works on site, the same reporting structure, requirements, and responsibilities will be established as outlined above. BW Gold will maintain overall responsibility for management of the construction and operation of the mine site and will therefore be responsible for establishing employment and contract agreements, communicating environmental requirements, and conducting periodic reviews of performance against stated requirements.

The CM is accountable for ensuring that environmental and regulatory commitments/obligations are being met during the construction phase. The EM will be responsible for ensuring that construction activities are proceeding in accordance with the objectives of the EMS and associated management plans. The EM or designate will be responsible for reporting non-compliance to the CM and EPCM contractor, other contractors, and regulatory agencies, where required. The EM or designate will have the authority to stop



any construction activity that is deemed to pose a risk to the environment; work will only proceed when the identified risk and concern have been addressed and rectified.

Environmental management during operation of the Project will be integrated under the direction of the EM, who will liaise closely with Departmental Managers and will report directly to the Mine Manager. The EM will be supported by the VP of Environment and Social adhere adherence to corporate environmental standards. The EM will be accountable for implementing the approved management plans and reviewing them periodically for effectiveness. Departmental area managers (e.g., mining, milling, and plant/site services) will be directly responsible for implementation of the EMS, management plans, and standard operating procedures relevant to their areas. All employees and contractors are responsible for daily implementation of the practices and policies contained in the EMS.

During closure and post-closure staffing levels will be reduced to align with the level of activity associated with these phases. Prior to initiating closure activities, BW Gold will revisit environmental and health and safety roles and responsibilities to determine resources needed to meet permit monitoring and reporting requirements. The Mine Manager will maintain overall responsibility for management of Closure and Post-closure activities.

Pursuant to Condition 19 of the EAC #M19-01, Conditions A(10)(a-c) of the M-246 *Mines Act* Permit, Condition 3.7 of *Environmental Management Act* Permit #110652, BW Gold has established an Environmental Life of Mine Committee (ELoMC) to facilitate information sharing and provide advice on the development and operation of the Project, and the implementation of ELoMC conditions, in a coordinated and collaborative manner. Committee members include representatives of the BC EAO, UFN, LDN, NWFN, StFN, SFN, NFN, BC EMLI, BC ENV, and BC MOF/WLRS.

Pursuant to Condition 17 of the EAC #M19-01, Aboriginal Group Monitor and Monitoring Plan, BW Gold will retain or provide funding to retain a monitor for each Indigenous nations defined in the EAC #M19-01 prior to commencing construction and through all phases of the mine life. The general scope of the monitor's activities will be related to monitoring for potential effects from the Project on Indigenous nations' interests.

Pursuant to Part A. General, Section 10 of the *Mines Act* Permit M-246, BW Gold will establish a "Life of Mine Committee" by May 31, 2023. BW Gold will offer membership annually in the Life of Mine Committee to the Indigenous Communities referred to Condition A.8 and to Provincial Agencies, including but not limited to the Ministry of Energy, Mines and Low Carbon Innovation, Ministry of Environment and Climate Change Strategy, and the Ministry of Forests. Condition 10(b) states that the Permittee must ensure that the Life of Mine Committee scope of work includes: (i) review of existing and proposed environmental management activities; (ii) review of existing and proposed environmental monitoring activities; (iii) review of implemented and proposed reclamation and closure activities, in addition to other conditions.

## 4.0 Adaptive Management Framework

The AQDMP is a living document that will evolve over time in response to monitoring results and regulatory changes. The AQDMP incorporates adaptive management as follows:

- **Plan**

- Identify and characterize fugitive dust sources;
- Identify composition and size distribution of particulate emissions;
- Identify contributing factors to dust generation;
- Identify areas with potential air quality and dustfall impacts;
- Describe fugitive dust control for each source; and
- Prepare schedule for implementation and operation of control measures.

- **Do**

- Implement mitigation measures;
- Identify maintenance and record keeping procedures for control and monitoring equipment; and
- Develop training procedures.

- **Monitor**

- Conduct inspections and maintenance; and
- Complete and maintain monitoring records.

- **Adjust**

- Follow up on the evaluation of monitoring results;
- Review of the monitoring program in terms of effectiveness in detecting effects;
- Recommendations provided by a qualified professional for changes to the monitoring plan, objectives, frequency, methods, or timing;
- Engagement tracking to record input from Indigenous groups and regulators such as the EAO, ENV and Canada Impact Assessment Agency; and
- Revise the AQDMP as new and/or altered measures are introduced.

## 5.0 Facility Description and Setting

### 5.1 Physical Location and Access

The Project is an open pit gold and silver mine located approximately 112 kilometres (km) southwest of Vanderhoof and 160 km southwest of Prince George, BC. The Project falls within NTS map sheet 93F/02, centred at 5893000 N and 375400 E (UTM Zone 10 NAD83). The mine site is centred at 53°11'22.872" N and 124°52'0.437" W. The Project is accessed via the Kluskus Forest Service Road (FSR), the Kluskus-Ootsa FSR and a mine access road, which will connect to the Kluskus-Ootsa FSR at km 124.5.

Figure 5.1-1 and Figure 5.1-2 identifies the Project location and the access route from Vanderhoof in relation to nearby communities. The mine site is located within the traditional territories of LDN and UFN and downstream of the traditional territories of NWFN, SFN, and StFN (collectively, the Carrier Sekani First Nations).

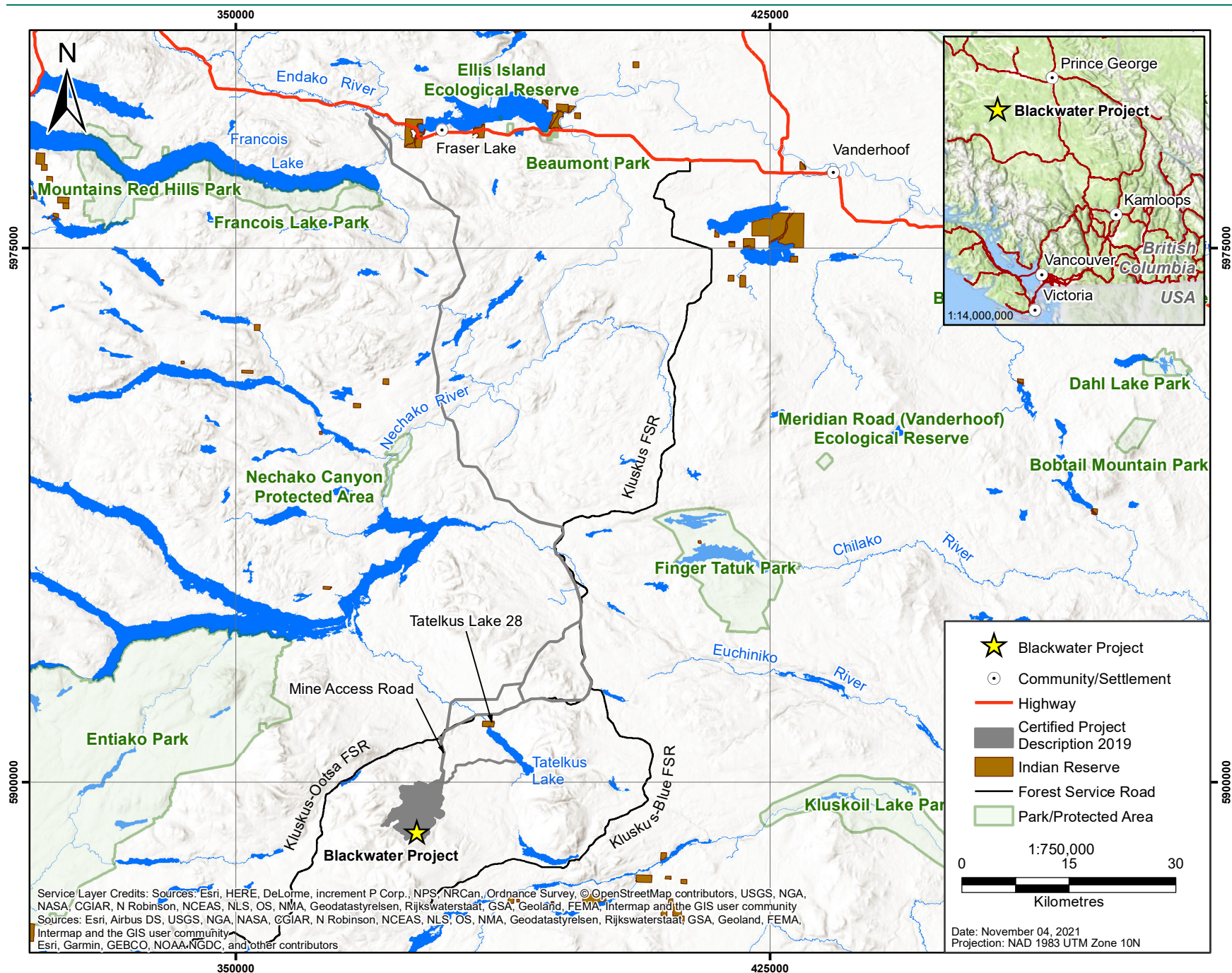
BW Gold holds a 100% recorded interest in 328 mineral claims covering an area of 148,688 hectares (ha) distributed among the Blackwater, Capoose, Auro, Key, Parlane, and RJK claim blocks (Artemis 2020). The Blackwater mine site is located within the Blackwater claim block. Figure 5.1-2 identifies the mineral tenures within the proposed *Mines Act* permit boundary.

### 5.2 Environmental Setting

The Project is located on the Nechako Plateau, a region of flat to gently rolling terrain on the northern slope of Mount Davidson. The Project maintains two meteorological stations referred to as the Blackwater Low, and Blackwater High (discussed in Section 8.3.1). The mean annual wind speed at the Blackwater low elevation (1,050 masl) meteorological station (Blackwater Low) is approximately 2.2 m/s (7.9 km/h), with the wind direction being predominantly from the west and southwest. Strong southeast winds were also evident in the fall and winter at the Blackwater Low station (Figure 5.2-1). At the Blackwater high elevation (1,470 masl) station (Blackwater High) the wind direction is predominately from the west with strong southwest gusts during the fall and winter (Figure 5.2-2). The mean annual wind speed at the Blackwater High station is approximately 3.0 m/s (10.8 km/h). Meteorological baseline reports are provided in KP (2021a,b).

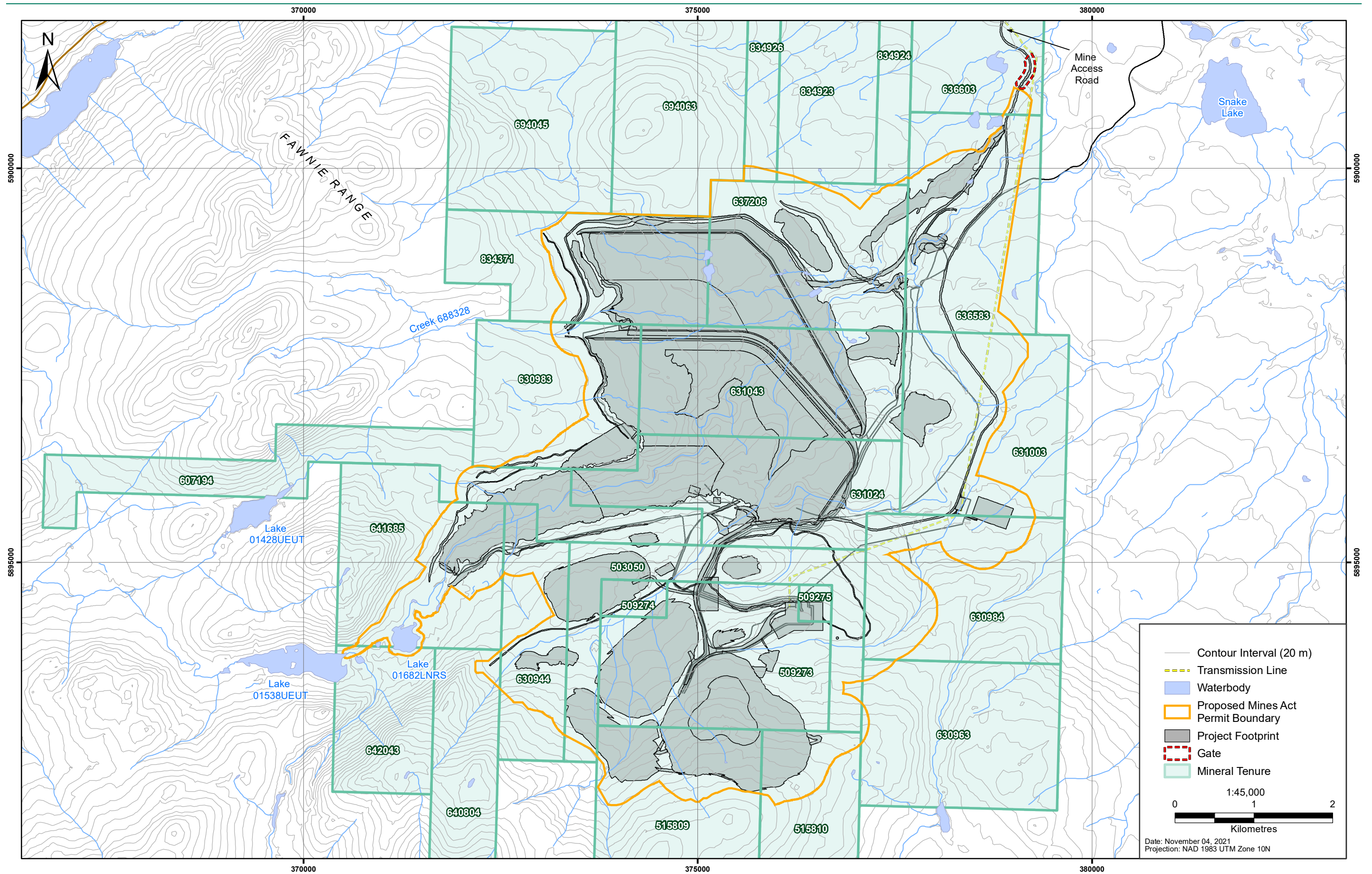
### 5.3 Facility and Process Description

The Project includes an open pit, Plant Site and processing plant, waste and topsoil stockpiles, borrow areas and TSF. The general arrangement of the proposed mine site at Year +23 (full mine buildout) is shown in Figure 5.3-1. Section 6 (Table 6-1) provides a list of site activities that could result in the generation of fugitive dust.

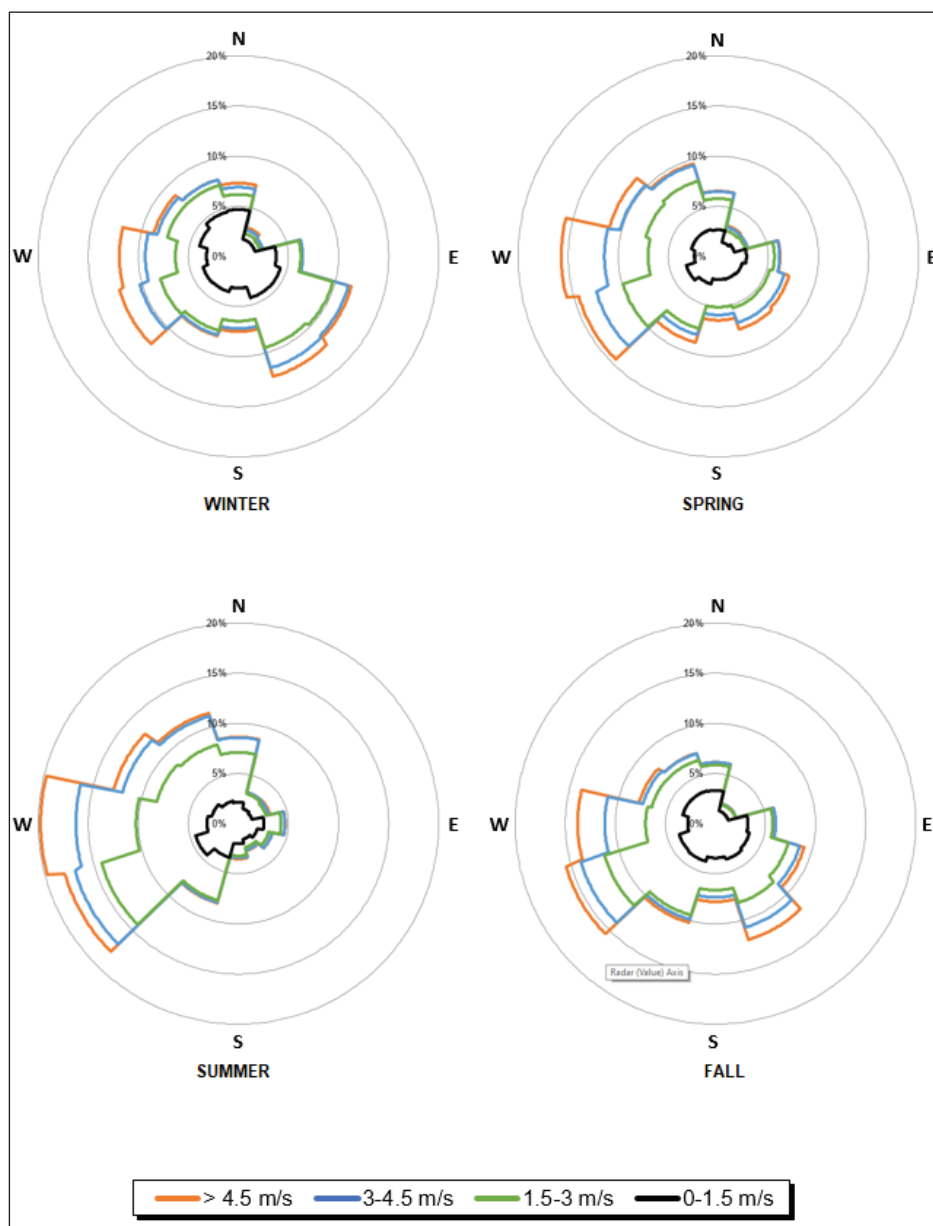


**Figure 5.1-1: Blackwater Project Location**





**Figure 5.1-2: Blackwater Mineral Tenures within Proposed Mines Act Permit Boundary**

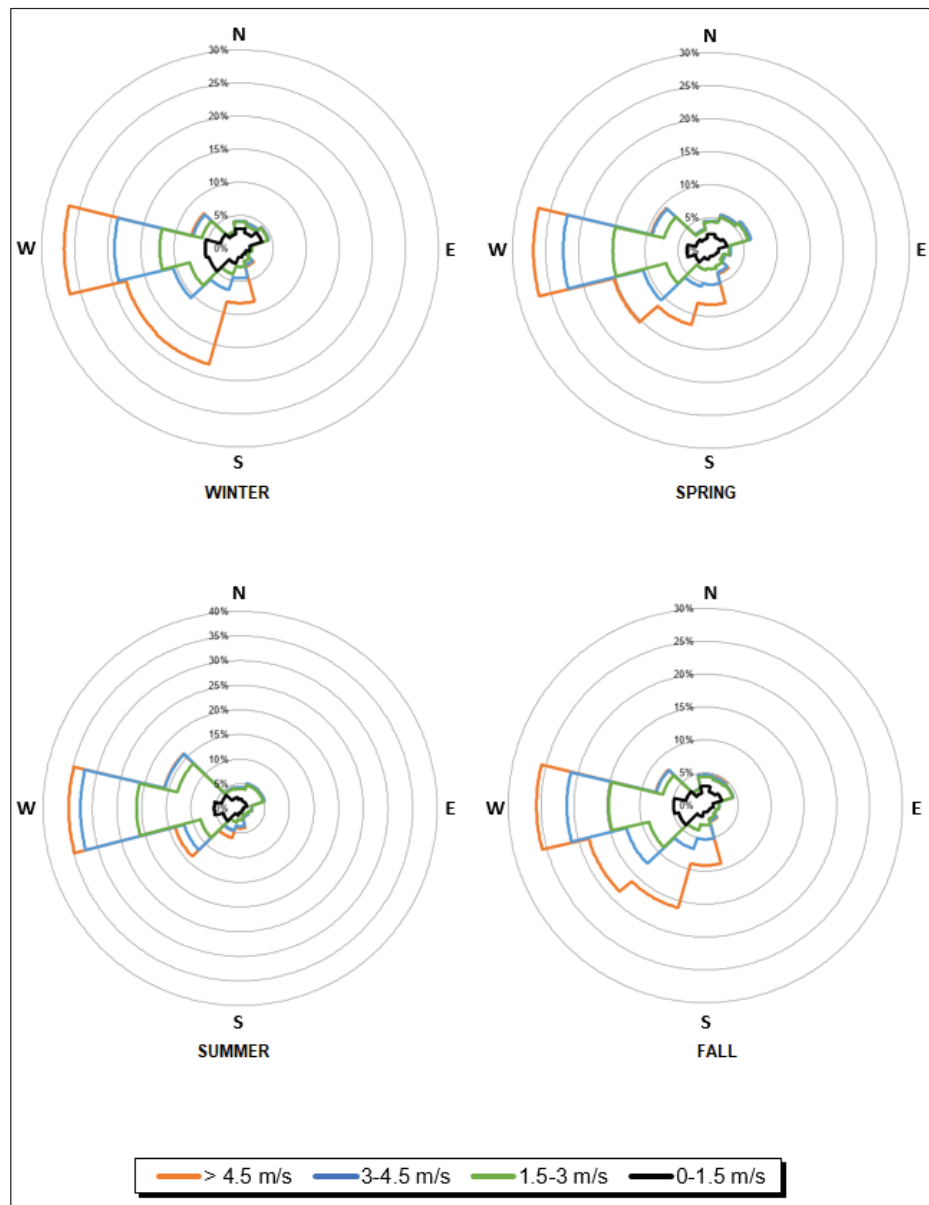


NOTES:

1. WINTER CONSISTS OF DECEMBER TO FEBRUARY, SPRING CONSISTS OF MARCH TO MAY, SUMMER CONSISTS OF JUNE TO AUGUST, AND FALL CONSISTS OF SEPTEMBER TO NOVEMBER.
2. THE PREVAILING WIND DIRECTION IS THE ONE WITH THE LONGEST SPOKE (HIGHEST PERCENTAGE).

**Figure 5.2-1: Blackwater Low Station Wind Roses**

Source: Knight Piésold Consulting (2021).



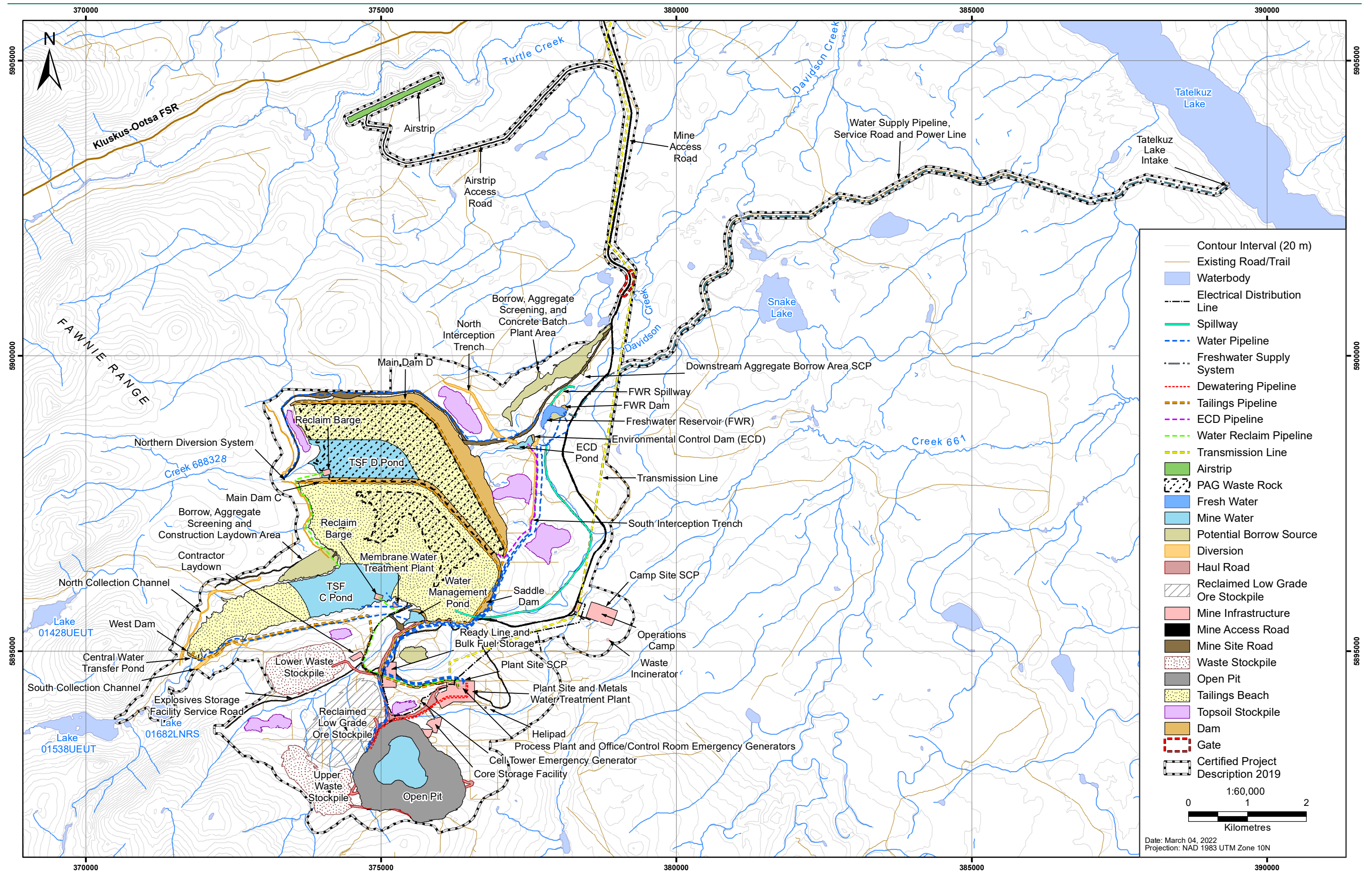
NOTES:

1. WINTER CONSISTS OF DECEMBER TO FEBRUARY, SPRING CONSISTS OF MARCH TO MAY, SUMMER CONSISTS OF JUNE TO AUGUST, AND FALL CONSISTS OF SEPTEMBER TO NOVEMBER.
2. THE PREVAILING WIND DIRECTION IS THE ONE WITH THE LONGEST SPOKE (HIGHEST PERCENTAGE).

**Figure 5.2-2: Blackwater High Station Wind Roses**

Source: Knight Piésold Consulting (2021).





**Figure 5.3-1: Mine Site General Arrangement (Year +23)**



### 5.3.1 Open Pit

Ore will be extracted using drilling and blasting from the Open Pit located in the southern portion of the proposed mine site. At its greatest extent, the Open Pit will be 228 ha, approximately 2.0 km long on the east to west axis and 1.8 km long on the north to south axis. When fully developed, the anticipated depth of the pit will range between 350 m to 550 m below the surrounding ground surface (masl). The initial production ramp up (Year +1 to Year +5) will be undertaken using 400 t class hydraulic shovels and 190 t payload class haul trucks. As production increases, the load and haul fleet will be expanded with 550 t class hydraulic shovels and 220 t payload class haul trucks. The initial drill and loading fleets are planned to be diesel drive, with expansion of the fleet to include electric drills and shovels after Year +5.

### 5.3.2 Processing Plant

The processing plant, located north of the Open Pit, will utilize a carbon in leach gold recovery process, with gold doré produced on-site. The plant will operate on a 5,500 kt per annum throughput from Year +1 to Year +5, 12,000 kt per annum throughput from Year +6 to Year +10, and a 20,000 kt per annum throughput from Year +11 to Year +23, the end of operations. The general arrangement for the processing plant at Year +1 is shown in Figure 5.3-2. An ore process flow diagram is presented in Figure 5.3-3.

BW Gold has integrated engineering controls to mitigate fugitive dust emissions from the processing plant, which includes active dust collection, wet grinding, enclosures, and stack emissions (Ausenco 2021). These controls are outlined below.

#### Active Dust Collection

Active dust collection systems will be installed in the following areas:

- Primary crusher – baghouse collector including blower and ducting with pickups at jaw crusher feeder and vibrating grizzly discharge;
- Secondary and tertiary crusher – baghouse collector including fan and ducting with pickups at screen feed and discharge chutes and cone crusher feeder head;
- Reclaim tunnel – cartridge style collector including fan and ducting with pickups at each reclaim feeder discharge;
- Fire Assay Main Lab – cartridge style dust collector – dust collection system services the electric cupellation and diesel-fired fusion furnace;
- Fire Assay Lab Sample Preparation – cartridge style sample preparation dust collector; and
- Lime Silo – cartridge style dust collector baghouse exhaust will contain lime dust and ambient air.

#### Wet Grinding

Wet grinding will be utilized for the grinding circuit. This medium is more energy efficient than dry grinding and eliminates dust associated with the ore grinding process.







## Enclosures

Most handling and processing equipment at the Plant Site will be contained in enclosures to limit fugitive dust emissions. These enclosures and associated heating, ventilation and air conditioning (HVAC) considerations include:

- Primary crusher (parts of the building will be enclosed, cladded, insulated and heated);
- Secondary and tertiary crusher (building will be enclosed, cladded, insulated, and heated);
- Reclaim tunnel (will be enclosed, without insulation or heating [HVAC – ventilation only]); and
- Mill building/ wet process plant (will be enclosed, cladded and insulated [HVAC – heated to 10 °C minimum and ventilated]).

### 5.3.3 Tailings Storage Facility

The TSF comprises two adjacent sites, TSF Site C and TSF Site D and four embankments (Site C Main Dam, Site D Main Dam, Site C Saddle Dam, and Site C West Main Dam). The TSF is designed to permanently store tailings and potentially acid generating waste rock, provide water for processing, and support mine site water balance management. During operations, tailings will be delivered by gravity via a pipeline from the processing plant to either TSF Site C or TSF Site D.

Tailings beaches will be developed and maintained if and as required at the direction of the EoR throughout the life of mine for each dam. Tailings beaches prevent direct contact of the pond supernatant with dam embankments and limits the infiltration of seepage into the embankment. The particle size distribution of the tailings samples were approximately 44% fine sand, 46% silt, and 10% clay. The tailings are fairly coarse with good packing density and low rheology.

### 5.3.4 Stockpiles

#### Upper and Lower Waste Stockpiles

Two stockpiles will store NAG overburden (OVB) and NAG waste rock from stripping and open pit mining. The Upper Waste Stockpile will be located west of the Open Pit and has a planned maximum capacity of 31 Mt. The Lower Waste Stockpile will be located between the TSF and explosives storage road and has a planned maximum capacity of 29 Mt.

#### Low Grade Ore Stockpile

The Low Grade Ore (LGO) Stockpile will store ore prior to processing. The stockpile will be located northwest of the open pit with a planned maximum capacity of approximately 111 Mt. The LGO will be completely processed by Y +23.

#### Topsoil Stockpiles

During the mine life, reclamation materials (i.e., topsoil with subsoil, organic soil, woody debris) will be salvaged and stored for use in progressive or final reclamation. The total estimated volume of potentially salvageable soil is 8.46 Mm<sup>3</sup>. There will be seven soil stockpiles on the proposed mine site. Final stockpiles will be seeded as surfaces are graded to final repose angles and become available for seeding with non-propagating grass species, native grasses and forbs, and tree and shrub species to reduce erosion and invasive-species establishment and to control fugitive dust dispersal.

### 5.3.5 Borrow and Aggregate Crushing and Screening Areas

Eight borrow areas will be developed in Year -2 in order to produce aggregate to construct mine infrastructure and include:

- Mine site borrow areas;
- Borrow, aggregate screening, and construction laydown areas;
- TSF C additional borrow area;
- TSF C North borrow area;
- TSF C South borrow area;
- TSF D borrow areas;
- Freshwater Reservoir borrow area; and
- Borrow, aggregate screening and concrete plant areas.

Crushing and screening plants will produce concrete aggregates, structural fills, road general fills, sub base and base coarse fills.

### 5.3.6 Concrete Batch Plants

Concrete batch plants will be mobilized in Year -2. A high volume plant will operate during construction with additional plants available during peak pouring periods and as a backup to the high volume plant. All dry mix concrete batch plants will be winterized.

### 5.3.7 Refuse Incinerator

A putrescible refuse incinerator is located on site. The incinerator will be utilized during all Project phases. The incinerator is authorized to burn a maximum of 1.1 tonnes/day of the following:

- Putrescible camp waste;
- Paper;
- Cardboard, and
- Lumber scraps that cannot be recycled.

BW Gold plans to use the incinerator as permitted. Incinerator ash is disposed of in accordance with existing approval for the facility, *Environmental Management Act* Permit #106530. Ash is deposited in an off-site landfill. When operational conditions require that a landfill is brought online, a landfill will be located, permitted and constructed. Any excess waste above and beyond what the permitted incinerator can process will be disposed of in an alternate manner, for example taken off-site for disposal. As the site develops and head count increases, consideration will be given to expanding site incineration capacity if the waste generated exceeds the permitted capacity of the existing incinerator.



# 6.0 Identification of Potential Air Emission Sources

Fugitive dust is the primary source of air emissions. Potential dust sources include material handling/ re-handling, construction and use of unpaved roads, blasting, compaction, drilling, grading, material (including ore) loading and unloading, and ore processing. Erodible surface areas such as stockpiles and the TSF beach) are also sources of fugitive dust.

Table 6-1 provides an overview of the Project activities anticipated to emit fugitive dust by Project phase. Table 6-2 provides further detail on dust emissions by Project component, further illustrated by Figure 6-1. Table 6-3 identifies emission sources and predicted emissions of total suspended particulate (TSP), particulate matter less than 10 µm (microns) in diameter (PM<sub>10</sub>), particulate matter less than 2.5 µm in diameter (PM<sub>2.5</sub>), carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>); and sulphur dioxide (SO<sub>2</sub>).

Non-dust air emission sources include, but may not be limited to, mine fleet exhaust (multiple), backup diesel generators (x6), NO<sub>x</sub> and SO<sub>2</sub> from blasting and the existing diesel-fired putrescible waste incinerator.

**Table 6-1: Activities Resulting in Fugitive Dust by Project Phase**

Construction	Operations	Closure	Post-closure
<ul style="list-style-type: none"> <li>Land clearing and earthworks for all on-site and off-site Project components</li> <li>Construction and use of unpaved access and mine site roads</li> <li>Surface blasting, drilling, and material handling for starter pits</li> <li>Construction of Project-owned roads</li> <li>Construction of the transmission line</li> <li>Construction of the freshwater supply system</li> <li>Construction of TSF dams, and interim environmental control dam (ECD)</li> <li>Material handling/re-handling at Lower and Upper Waste stockpiles, LGO and topsoil stockpiles, borrow areas, and laydown areas</li> <li>Construction of water management structures (e.g., diversion channels)</li> <li>Aggregate extraction from borrow pits</li> <li>Borrow and aggregate screening areas</li> <li>Concrete batch plants</li> <li>Parking lot and road grading</li> </ul>	<ul style="list-style-type: none"> <li>Pit slopes</li> <li>Surface blasting and mining activities during open pit operations</li> <li>Ore extraction in the open pit</li> <li>Ore transport to the processing plant</li> <li>Ore processing</li> <li>Construction of TSF Main Dam D and Final ECD</li> <li>Wind erosion from exposed TSF beach and stockpiles</li> <li>Land clearing and earthworks associated with production ramp ups</li> <li>Use of unpaved surfaces including the mine site haul roads</li> <li>Material handling/re-handling at Lower and Upper Waste stockpiles, LGO and topsoil stockpiles, borrow areas, and laydown areas</li> <li>Borrow and aggregate screening areas</li> <li>Parking lot and road grading</li> </ul>	<ul style="list-style-type: none"> <li>Pit slopes</li> <li>Earthworks, land forming and soil stockpile rehandling</li> <li>Use of unpaved mine site roads</li> <li>Wind erosion from exposed TSF beach</li> <li>Parking lot and road grading</li> </ul>	<ul style="list-style-type: none"> <li>Pit slopes above inundation level</li> <li>Use of unpaved mine site roads</li> <li>Parking lot and road grading</li> <li>Final decommissioning and closure of all remaining infrastructure</li> </ul>

**Table 6-2: Fugitive Dust Emission Sources by Project Component**

Component	Location	Potential Source	Dust-generating Material	Generating Conditions	Additional Comments
Open Pit	Figure 6-1	OVB and waste rock removal, blasting, drilling, material handling/re-handling, vehicle traffic	OVB, waste rock, ore, aggregate, waste rock	Any conditions	Pit will become deeper and wetter as it is developed, mitigating fugitive dust
TSF, Site C and Site D Main dams, Site C Saddle and West dams	Figure 6-1	Excavation (drilling and blasting), compaction, material placement and handling, vehicle traffic	Waste rock, tailings	Windy, dry, hot days or extremely cold weather	TSF will expand and begin to inundate upstream dam faces as it is developed, mitigating dust

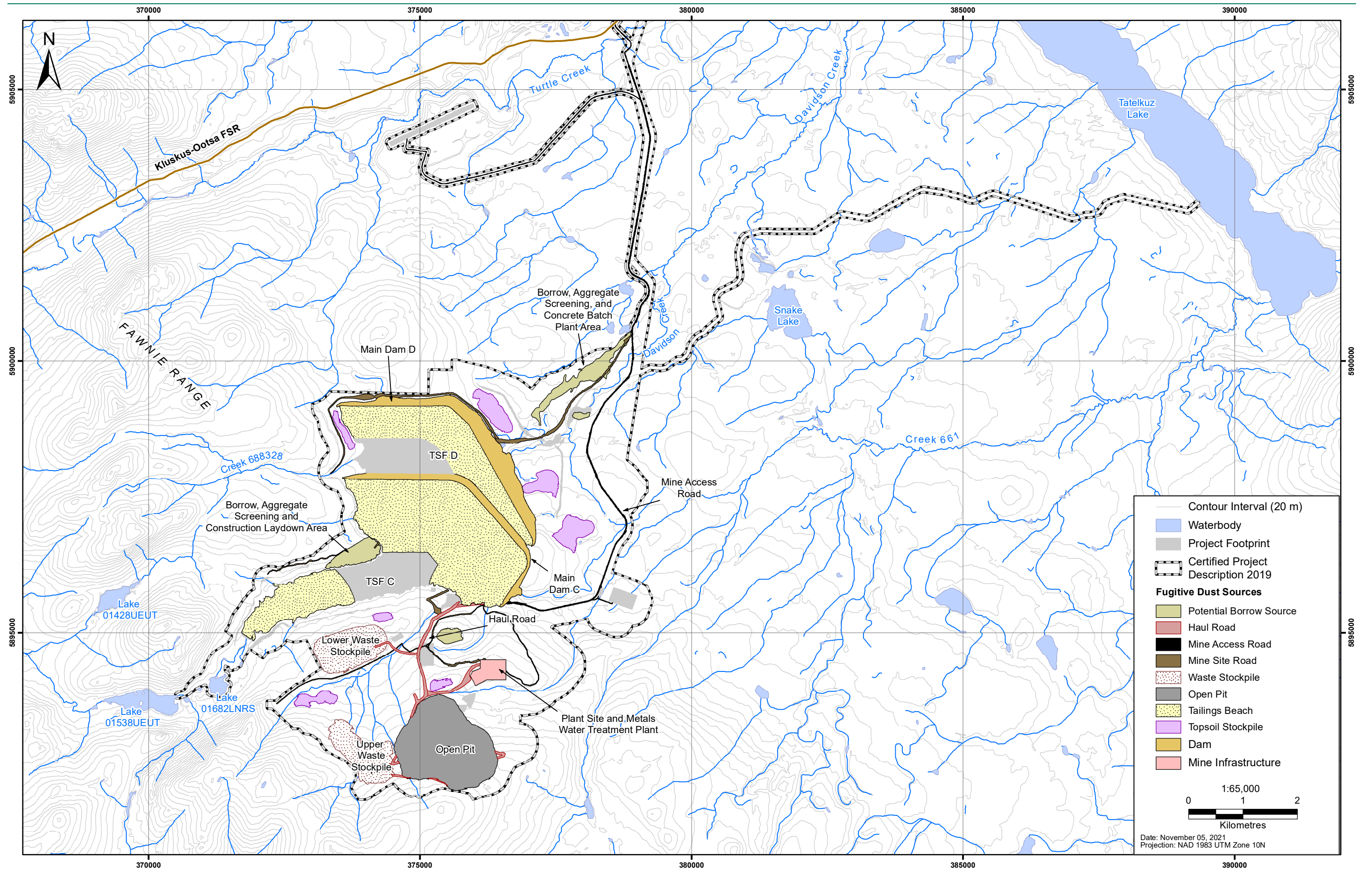
Component	Location	Potential Source	Dust-generating Material	Generating Conditions	Additional Comments
TSF beach	Figure 6-1	Wind erosion, blasting, drilling, vehicle traffic	OVB, waste rock, aggregate, tailings	Windy, dry, hot days or extremely cold weather	
Concrete batch plants	Figure 6-1	Material handling	Cement, aggregate	Any conditions	Active during Construction phase and intermittent use thereafter; Plants will conform to Code of Conduct for Concrete Batch plants (BC Reg. 329/2007)
Aggregate screening areas	Figure 6-1	Material handling/re-handling, vehicle traffic	aggregate	Windy, dry, hot days or extremely cold weather	
Borrow areas	Figure 6-1	Material handling/re-handling, vehicle traffic	OVB, waste rock and aggregate	Windy, dry, hot days or extremely cold weather	
Processing plant (located at Plant Site)	Figures 5.3-2, 5.3-3, 6-1	Conveyor drop, primary crusher building, Secondary and tertiary crusher building, reclaim tunnel, rotary kiln, propane smelting, fire assay furnace	Ore	Windy, dry, hot days or extremely cold weather	Covered conveyors; baghouse collector systems
Upper and Lower Waste stockpiles	Figure 6-1	Wind erosion, material handling, vehicle traffic	OVB and waste rock	Windy, dry, hot days or extremely cold weather	
LGO stockpile	Figure 6-1	Wind erosion, material handling/re-handling, vehicle traffic	Ore	Windy, dry, hot days or extremely cold weather	Until stockpile is fully processed by Y+23
Topsoil stockpiles	Figure 6-1	Wind erosion, material handling, vehicle traffic	Topsoil	Wind, dry, hot days or extremely cold weather	Until stockpiles are vegetated
Freshwater Reservoir and dam	Figure 6-1	Excavation (drilling and blasting), compaction, material placement and handling, vehicle traffic	Cement, aggregate	Windy, dry, hot days or extremely cold weather	

Component	Location	Potential Source	Dust-generating Material	Generating Conditions	Additional Comments
Interim, and final Environmental Control dams	Figure 6-1	Excavation (drilling and blasting), compaction, material placement and handling, vehicle traffic	Cement, aggregate	Windy, dry, hot days or extremely cold weather	
TSF, mine site haul and service roads	Figure 6-1	Vehicle traffic, grading	Aggregate	Any conditions	
MAR	Figure 6-1	Vehicle traffic, grading	Aggregate	Windy, dry, hot days or extremely cold weather	

**Table 6-3: Operations Emission Sources and Predicted Emissions**

Emission Source	Maximum Emissions (tonnes/day)					
	TSP	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO
Material Handling	4.40	1.63	0.34	-	-	-
Unpaved Road (Haul Roads)	3.29	0.72	0.089	0.0015	2.17	0.091
Unpaved Roads (FSR+MAR)	0.57	0.14	0.014	1.1E-04	0.018	0.0056
Dump/Storage Areas	6.02	3.01	0.45	-	-	-
Incinerator	0.041	0.041	0.038	0.0022	0.0054	0.065
Processing Plant	0.0051	0.0022	6.0E-04	-	-	-
Refinery System	1.8E-04	1.8E-04	1.5E-04	3.7E-05	0.048	0.028
Fired Sources	0.049	0.049	0.047	0.026	0.38	0.12
<b>Total Emissions</b>	<b>14.38</b>	<b>5.59</b>	<b>0.98</b>	<b>0.03</b>	<b>2.62</b>	<b>0.31</b>





**Figure 6-1: Project Components with Potential to Generate Fugitive Dust**



## 7.0 Identification of Potential Effects of Fugitive Dust

### 7.1 Air Quality Objectives and Parameters of Concern

The *Canadian Environmental Protection Act, 1999* establishes National Ambient Air Quality Objectives (NAAQOs) and Canadian Ambient Air Quality Standards (CAAQS) to protect human health and the environment. BC has established Ambient Air Quality Objectives (AAQOs) pursuant to the Environmental Management Act. Federal and BC air quality objectives are provided in Table 7.1-1 and are non-legally binding limits. As even low levels of air pollution can affect some individuals, air quality objectives should not be viewed as levels that can be ‘polluted up to’, but levels to stay well below. Additionally, Permit #110650 includes limits on the discharge of contaminants from point sources.

**Table 7.1-1: Federal and BC Ambient Air Quality Objectives**

Contaminant	Averaging Period	Objectives/Standards (µg/m <sup>3</sup> )				
		Federal <sup>(a,b,c,d)</sup>			British Columbia <sup>(e)</sup>	
		Maximum Desirable	Maximum Acceptable	Maximum Tolerable	BCAAQO <sup>(f)</sup>	CAAQS <sup>(g)</sup>
TSP	24-hour	-	120	400	120	
	Annual	60	70	-	60 <sup>(h)</sup>	
PM <sub>10</sub>	24-hour	-			50	
PM <sub>2.5</sub>	24-hour	27 to 28 <sup>(i)</sup>			25 <sup>(j)</sup>	28 <sup>(k)</sup>
	Annual	8.8 to 10 <sup>(l)</sup>			8 <sup>(m)</sup>	10 <sup>(n)</sup>
CO	1-hour	15,000	35,000	-	14,300	
	8-hour	6,000	15,000	20,000	5,500	
NO <sub>2</sub>	1-hour	79 to 113 <sup>(o)</sup>			188 <sup>(p)</sup>	113 <sup>(q)</sup>
	Annual	23 to 32 <sup>(r)</sup>			60 <sup>(s)</sup>	32
SO <sub>2</sub>	1-hour	170 to 183 <sup>(t)</sup>			196 <sup>(u)</sup>	183 <sup>(v)</sup>
	Annual	10 to 13 <sup>(w)</sup>			13 <sup>(x)</sup>	

Sources: <sup>(a)</sup> CCME 1999, <sup>(b)</sup> Government of Canada 2013, <sup>(c)</sup> Government of Canada 2017a, <sup>(d)</sup> Government of Canada 2017b, and <sup>(e)</sup> ENV 2020.

**Notes:**

µg/m<sup>3</sup> = micrograms per cubic metre; mg/dm<sup>2</sup>/d = milligrams per square decimetre per day; TSP = total suspended particulate; PM<sub>10</sub> = Particulate matter less than 10 µm (microns) in diameter; PM<sub>2.5</sub> = Particulate matter less than 2.5 µm (microns) in diameter; CO = carbon monoxide; NO<sub>2</sub> = nitrogen dioxide; SO<sub>2</sub> = sulphur dioxide

“-” signifies that no air quality objective is available.

<sup>(f)</sup> BC AAQO.

<sup>(g)</sup> CAAQS.

<sup>(h)</sup> Based on geometric mean.

<sup>(i)</sup> CAAQS is 28 µg/m<sup>3</sup> in 2015 and 27 µg/m<sup>3</sup> in 2020 (CCME 1999); compliance based on annual 98th percentile value, averaged over three consecutive years.

- (j) Achievement based on annual 98th percentile of daily average, over one year.*
- (k) Achievement based on annual 98th percentile of daily average, averaged over three consecutive years.*
- (l) CAAQS is 10 µg/m<sup>3</sup> in 2015 and 8.8 µg/m<sup>3</sup> in 2020 (CCME 1999); compliance based on the average over three consecutive years.*
- (m) Achievement based on annual average, over one year. There is a planning goal of 6 µg/m<sup>3</sup>.*
- (n) Achievement based on annual average, averaged over three consecutive years.*
- (o) CAAQS is 113 µg/m<sup>3</sup> from December 2017 through December 2024 and 79 µg/m<sup>3</sup> as of January 2025 (Government of Canada 2017a); compliance based on a three-year average of the annual 98th percentile of the daily 1-hour maximum concentration (D1HM).*
- (p) Interim provincial AAQO, currently under review. Achievement based on annual 98th percentile of D1HM, over 1 year.*
- (q) Achievement based on annual 98th percentile of D1HM, averaged over three consecutive years.*
- (r) CAAQS is 32 µg/m<sup>3</sup> from December 2017 through December 2024 and 23 µg/m<sup>3</sup> as of January 2025 (Government of Canada 2017a); compliance based on a one-calendar-year average of all the 1-hour average concentrations.*
- (s) Interim provincial AQO, currently under review.*
- (t) CAAQS is 183 µg/m<sup>3</sup> from October 2017 through December 2024 and 170 µg/m<sup>3</sup> as of January 2025 (Government of Canada 2017b); compliance based on a three-year average of the annual 99th percentile of the daily-maximum 1-hour average concentrations.*
- (u) Achievement based on annual 97th percentile of D1HM averaged over 2015-2017, annual 97.5th percentile of D1HM averaged over 2016-2018 and annual 98th percentile of D1HM averaged over 2017-2019, with one allowable excursion above 75 ppb to a maximum of 85 ppb over a three-year period prior to 2020. Superseded by CAAQS level and metric January 1, 2020.*
- (v) Achievement based on annual 99th percentile of D1HM, averaged over three consecutive years, effective January 1, 2020. Used to inform new air management decisions beginning January 1, 2017 and all air management decisions beginning January 1, 2020.*
- (w) CAQQS is 13 µg/m<sup>3</sup> from October 2017 through December 2024 and 10 µg/m<sup>3</sup> as of January 2025 (Government of Canada 2017b); compliance based on a one-calendar-year average of all the 1-hour average concentrations.*
- (x) Used to inform new air management decisions beginning January 1, 2017 and all air management decisions beginning January 1, 2020.*

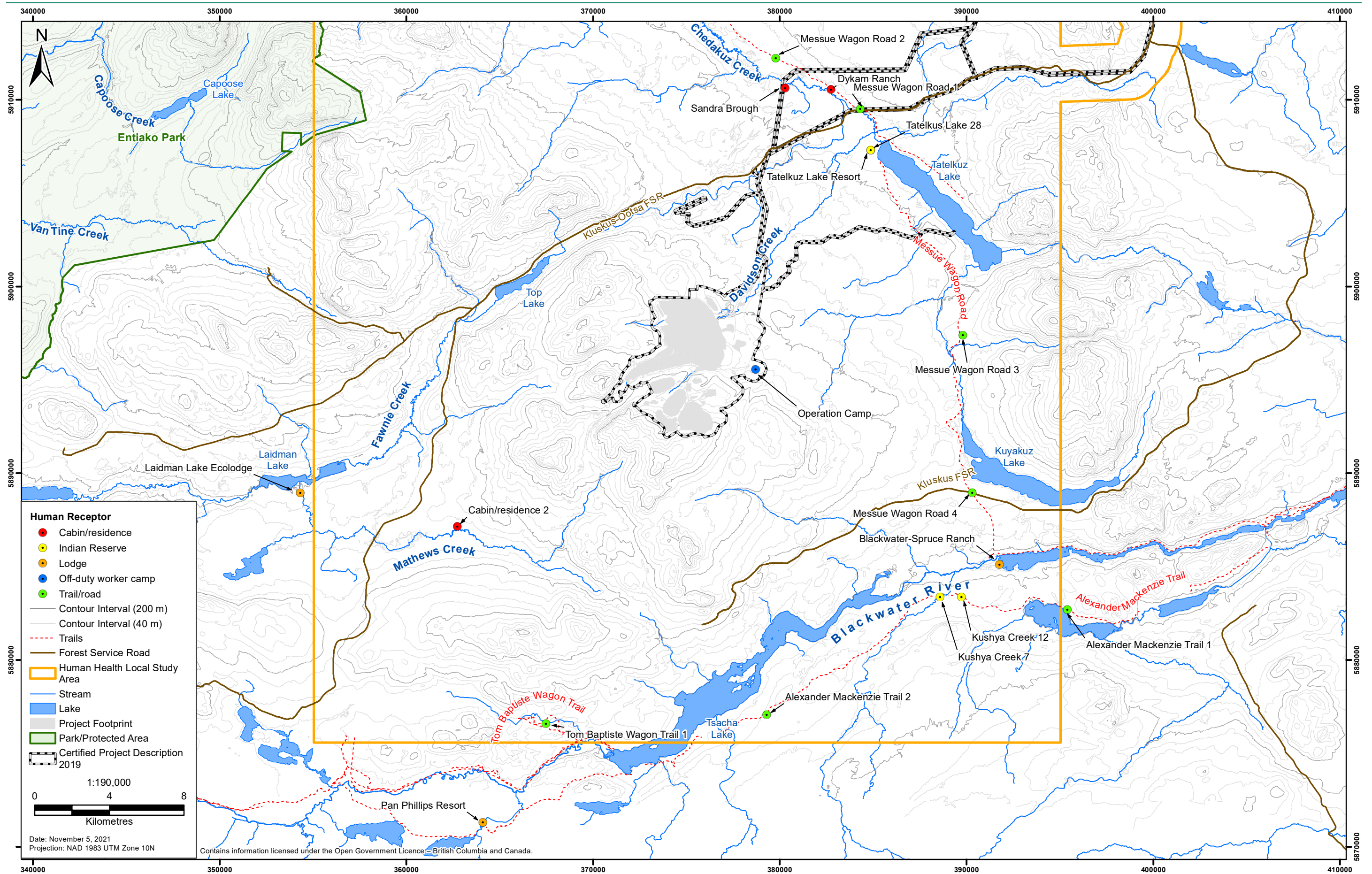
Particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>) are the main parameters of concern for mining operations as they relate to human health. For the Project's human health risk assessment (HHRA), emissions of nitrogen oxides, SO<sub>2</sub>, CO and PM (PM<sub>2.5</sub> and PM<sub>10</sub>) were modelled to estimate concentrations at each human receptor location (including full-time residents, temporary land users and off-duty workers) for comparison with BC objectives (Entia 2021). The HHRA considered estimated metal concentrations in dust that is predicted to be deposited at soils and vegetation sampling locations.

Figure 7.1-1 identifies sensitive receptors in relation to the Project. The closest on-site receptor is the operations camp which will house off-duty workers (Figure 7.1-1). The closest off-site receptor is Tatelukus Lake Indian Reserve 28 (Tatelkus Lake 28), located approximately 5.8 km northeast of the mine site (Figure 5.1-1). Onsite and offsite wildlife and vegetation receptors are assessed with human health and environment impacts when applying BC objectives when dust is deposited on soils and vegetation.

To minimize air emission impacts from the Project to human health and the environment mitigations and monitoring will be implemented as described in Section 8. Visual monitoring of dust will be completed onsite at active earthworks, haul roads, and stockpiles.

Air dispersion modelling was conducted to predict concentrations of parameters of concern.





**Figure 7.1-1: Air Quality Human Receptors**

## 7.2 Air Dispersion Modelling Results and Effects

Modelling results represent a Level 3 assessment using the CALPUFF modelling system. The CALPUFF modeling system was used to prepare meteorological data, model concentrations and deposition, and to post-process results for specific pollutants and applicable averaging periods. CALPUFF was run using 2011 meteorology data. The results presented below represent predicted concentrations during the Phase 1 of the Project.

Table 7.2-1 summarizes the results of air dispersion modelling for all off-site human receptor locations, and Table 7.2-2 summarizes the results of air dispersion modelling for the operations camp. The results at all off-site receptor locations indicate there are no exceedances of applicable ambient air quality objectives, with all results being less than 80% of the objectives and hence are not considered parameters of potential concern (POPC).

**Table 7.2-1: Baseline Case and Project Case Concentrations for Criteria Air Contaminants for All Off-site Receptor Locations**

Parameter	Averaging Period	Concentration ( $\mu\text{g}/\text{m}^3$ )			AAQO ( $\mu\text{g}/\text{m}^3$ )	POPC?	POC?
		Baseline Case	Project Only	Project Case			
PM <sub>2.5</sub>	24-hour	4	0.4	4.4	25	No	No
	Annual		0.1	4.1	8	No	No
PM <sub>10</sub>	24-hour	9	2	11	50	No	No
NO <sub>2</sub>	1-hour	8	5	13	79	No	No
	Annual		0.3	8.3	23	No	No
SO <sub>2</sub>	1-hour	2	1.0	3.0	170	No	No
	Annual		0.03	2.0	10	No	No
CO	1-hour	120	30	150	14,300	No	No
	8-hour		12	132	5,500	No	No

**Table 7.2-2: Baseline Case and Project Case Concentrations for Criteria Air Contaminants at the Operations Camp**

Parameter	Averaging Period	Concentration ( $\mu\text{g}/\text{m}^3$ )			AAQO ( $\mu\text{g}/\text{m}^3$ )	POPC?	POC?
		Baseline Case	Project Only	Project Case			
PM <sub>2.5</sub>	24-hour	4	3.6	7.6	25	No	No
	Annual		1.0	5.0	8	No	No
PM <sub>10</sub>	24-hour	9	17.9	26.9	50	No	No
NO <sub>2</sub>	1-hour	8	29.1	37.1	79	No	No
	Annual		1.8	9.8	23	No	No

Parameter	Averaging Period	Concentration ( $\mu\text{g}/\text{m}^3$ )			AAQO ( $\mu\text{g}/\text{m}^3$ )	POPC?	POC?
		Baseline Case	Project Only	Project Case			
SO <sub>2</sub>	1-hour	2	6.6	8.6	170	No	No
	Annual		0.2	2.2	10	No	No
CO	1-hour	120	197.5	317.5	14,300	No	No
	8-hour		85.0	205.0	5,500	No	No

**Notes:**

*PM<sub>2.5</sub>* = particulate matter less than 2.5  $\mu\text{m}$  in diameter; *PM<sub>10</sub>* = particulate matter less than 10  $\mu\text{m}$  in diameter

*NO<sub>2</sub>* = nitrogen dioxide; *SO<sub>2</sub>* = sulfur dioxide; *CO* = carbon monoxide

*AAQO* = Ambient Air Quality Objective, based on the most conservative BC AAQO or CAAQS (including standards anticipated for 2025)

*POPC* = Parameter of Potential Concern, identified if the parameter concentration is higher than 80% of the AAQO.

*POC* = Parameter of Concern, identified if the parameter concentration is higher than the AAQO.

*Baseline Case* concentrations are from Table 2.2-4 in Chapter 2 of the Application.

*Project Case* concentrations include both background and Project contributions.

The HHRA (Entia 2021) found that predicted 24-hour ground-level PM<sub>2.5</sub> and PM<sub>10</sub> concentrations do not result in any acute short-term exposure hazard quotient (HQ) values above 1.0 for any of the offsite sensitive receptor locations. The highest HQ values for 24-hour PM<sub>2.5</sub> and PM<sub>10</sub> are 0.176 and 0.225 respectively, at Tatelkuz Lake Resort and Tatelkus Lake 28. The contributions of Project emissions to the total HQ for 24-hour PM<sub>2.5</sub> and PM<sub>10</sub> are 0.016 and 0.045 respectively, based on the effects assessment. At the operations camp, the highest HQ values for 24-hour PM<sub>2.5</sub> and PM<sub>10</sub> are 0.304 and 0.539, respectively. The contributions of Project emissions to the total operations camp HQ for 24-hour PM<sub>2.5</sub> and PM<sub>10</sub> are 0.144 and 0.359 respectively, based on the effects assessment. Adverse health effects for human receptors are unlikely to occur following acute short-term exposures to PM<sub>2.5</sub> and PM<sub>10</sub>.

Predicted annual ground-level PM<sub>2.5</sub> concentrations do not result in any chronic HQ values above 1.0 for any of the receptor locations. The highest HQ value for annual chronic exposure to PM<sub>2.5</sub> at any offsite sensitive receptor is 0.512 at Tatelkuz Lake Resort and Tatelkus Lake 28. The contribution of Project emissions to the total HQ for annual chronic exposure is 0.012 based on the effects assessment. At the operations camp, the HQ value for annual chronic exposure to PM<sub>2.5</sub> is 0.629 with a contribution from Project emissions of 0.129. These values show that the contribution of Project emissions to the total HQ is small – maximum of 2% for offsite receptors, 21% at the operations camp. Since the total HQ values for the baseline condition and effects assessment remain less than 1.0, adverse health effects for human receptors are unlikely to occur following chronic exposure to PM<sub>2.5</sub>.

Particulate emissions can have effects on aquatic resources and fish, vegetation, wildlife, and human health. Potential effects on the aquatic environment from dust include increase in turbidity levels which could affect habitat quality and organism health. Deposition of dust can lead to contamination of soils with metals, which may adversely affect vegetation abundance, composition, nutritional value, and toxicity. Fugitive dust can cause physical injuries to vegetation, including the alteration of photosynthetic receptors, respiration, and transpiration. Potential effects to wildlife and people include health effects from ingestion of plants and/or animals that have been exposed to chemicals contained with the dust. The amount of dust generated by haul trucks and mining equipment depend on a variety of factors including road material, waste rock moisture content, chemical composition, and the amounts of particulates ready to be emitted, known as silt content. The distance the particles will travel depends on



particle size distribution (bigger particles are deposited to the ground closer to the source) and meteorological conditions. With higher winds, the higher mass concentration of larger size particles increases faster than smaller sized particles. (Haller et al. 1999).

Naturally occurring small particulates produced by forest fires can elevate PM<sub>2.5</sub> and PM<sub>10</sub> levels above guidelines.

## 8.0 Implementation

The following sections present the mitigation measures, training, and monitoring that will be implemented to manage fugitive dust and confirm mitigation measures are working.

### 8.1 Training and Awareness

Employees and contractors will receive awareness-level training in fugitive dust management and air quality on their arrival on site through an environmental on-boarding training session and prior to the start of work as part of the Site Orientation. The purpose of this training is to provide all site personnel with a basic level of environmental awareness and an understanding of their obligations regarding compliance with regulatory requirements, commitments, and best practices. A refresher training will be provided to employees and contractors on an annual basis. Refresher training may take the form of periodic re-training through tailgate and safety meetings.

Site supervisors will be responsible for understanding and implementing the AQDMP and operational SOPs with respect to their individual work areas. The EM will ensure additional training and advice is provided as needed. Targeted training related to dust management will be provided to individuals and/or groups of workers assuming a specific authority or responsibility related to air quality. This training will be delivered by means of classroom instruction, toolbox/tailgate meetings or other means as appropriate.

BW Gold will regularly review and update the training and awareness plan based on changes in training needs and regulatory requirements.

### 8.2 Mitigation Measures

Site-specific mitigation measures, including best management practices, will be applied to all dust sources as listed in Table 8.2-1. If measures are ineffective, contingency measures are also proposed, where relevant. Visual monitoring of dust onsite will be carried out in source areas of dust generation, where dust has potential of leaving the site.

**Table 8.2-1: Air Quality Mitigation Measures, Best Management Practices, and Contingency**

Emission Source	Best Management Practices and Mitigation Measures	Contingency
Open Pit	<ul style="list-style-type: none"><li>Employees involved in material handling or management will receive instruction by a qualified person on the importance of minimizing material drop height (from excavator to truck, conveyor to stockpile, etc.) to reduce fugitive dust, noise, and vibration.</li><li>Utilize available fleet of water trucks, weather depending.</li><li>Use weather forecasts to inform blasting plan (e.g., wind forecast, lightning and thunder warnings).</li></ul>	n/a
Production drilling	<ul style="list-style-type: none"><li>Use wet drilling during very dry conditions (less than 0.25 mm/day of precipitation in the previous week).</li></ul>	n/a
Production blasting	<ul style="list-style-type: none"><li>Immediately prior to blasting, the “Drill and Blast Engineer / Blast Coordinator” will check weather conditions to determine if the blast is likely to cause any dust or fume impacts on the surrounding environment.</li></ul>	n/a

Emission Source	Best Management Practices and Mitigation Measures	Contingency
	<ul style="list-style-type: none"> <li>Blasting may be postponed until wind direction is not forecast to disperse emissions towards employees or local sensitive receptors when dust or fume impacts on employees and environment cannot be avoided. The Mine Drill and Blast Superintendent and Mine manager will ultimately decide when to postpone blasting (the H&amp;S Manager and The Project Occupational Health and Safety Program can inform this decision).</li> </ul>	
Concrete batch plants	<ul style="list-style-type: none"> <li>When unloading material, piles should form low piles (target height of approximately 10 m) that extend horizontally, where practical.</li> <li>Employees involved in material handling or management will receive instruction by a qualified person on the importance of minimizing material drop height (from excavator to truck, conveyor to stockpile, etc.) to reduce fugitive dust, noise, and vibration.</li> </ul>	n/a
Aggregate crushing and screening areas	<ul style="list-style-type: none"> <li>Equip the crusher and/or screener circuits with onboard water dosing during times of the year above freezing temperatures or other dust suppression measures (e.g., reagents) systems.</li> <li>Apply water when temperatures are above freezing and there are very dry conditions (less than 0.25 mm/day of precipitation in the previous week).</li> <li>Stockpiles should form low piles (target height of approximately 10 m) that extend horizontally as determined by the Construction Manager, where practical.</li> <li>Use screener and crusher covers.</li> <li>Check cover for tears, holes and cracks on a monthly basis. Repair as soon as possible.</li> </ul>	n/a
TSF, Site C and Site D Main dams, Site C Saddle and West dams	<ul style="list-style-type: none"> <li>Advance planning of weekly workload activities.</li> <li>Apply water in non-freezing, very dry conditions (less than 0.25 mm/day of precipitation in the previous week).</li> </ul>	<ul style="list-style-type: none"> <li>Maintain higher water levels</li> <li>Application of calcium chloride, magnesium chloride or other approved dust suppressants during freezing conditions<sup>1</sup></li> </ul>
Freshwater Reservoir and dam	<ul style="list-style-type: none"> <li>Advance planning of weekly workload activities.</li> <li>Apply water in non-freezing, very dry conditions (less than 0.25 mm/day of precipitation in the previous week).</li> </ul>	<ul style="list-style-type: none"> <li>Application of calcium chloride or magnesium chloride during freezing conditions<sup>1</sup></li> </ul>
Borrow areas	<ul style="list-style-type: none"> <li>Apply water when temperatures are above freezing and there are very dry conditions (less than 0.25 mm/day of precipitation in the previous week).</li> <li>Employees involved in material handling or management will receive instruction by a qualified person on the importance of minimizing material drop height (from excavator to truck, conveyor to stockpile, etc.) to reduce fugitive dust, noise, and vibration.</li> <li>Develop new borrow areas only when and as required (to be determined by the Mine Manager).</li> </ul>	n/a

Emission Source	Best Management Practices and Mitigation Measures	Contingency
	<ul style="list-style-type: none"> <li>• Once suitable materials have been salvaged, place topsoil on disturbed areas and seed once they are sloped to final grade and at an appropriate time of year for seeding using a native seed mix to re-establish vegetative cover as soon as reasonably possible.</li> <li>• When unloading material, piles should form low piles (target height of approximately 10 m) that extend horizontally.</li> <li>• Minimize drop height from loaders and excavators (shovels) to the truck.</li> </ul>	
Processing Plant	<ul style="list-style-type: none"> <li>• Apply water when temperatures are above freezing and there are very dry conditions (less than 0.25 mm/day of precipitation in the previous week).</li> <li>• Use screener and crusher covers.</li> <li>• Employees involved in material handling or management will receive instruction by a qualified person on the importance of minimizing material drop height (from excavator to truck, conveyor to stockpile, etc.) to reduce fugitive dust, noise, and vibration.</li> <li>• Baghouse, control emissions from fully enclosed conveyor.</li> <li>• Enclose conveyors.</li> <li>• Check cover for tears, holes and cracks on approved inspection and maintenance schedule. Repair or replace as soon as possible.</li> </ul>	n/a
Low Grade Ore Stockpile	<ul style="list-style-type: none"> <li>• When unloading material, stockpile lifts should form low piles (target height of approximately 10 m) that extends horizontally and conform to the stockpile design report (MMTS 2021).</li> </ul>	n/a
Topsoil stockpiles	<ul style="list-style-type: none"> <li>• When unloading material, the piles should form low piles (target height of approximately 10 m) that extend horizontally (MMTS 2021).</li> <li>• Seed stockpiles once they are sloped to final grade and at an appropriate time of year for seeding to reduce erosion and establishment of invasive species.</li> </ul>	n/a
MAR	<ul style="list-style-type: none"> <li>• Speed limits will be established based on road design class, with the maximum speed limit of 50 km/h on all Project roads.</li> <li>• Reduce speed limits on the mine access road if weather conditions cause fugitive dust emissions and dust cannot be controlled by watering.</li> <li>• Speed limits are clearly marked through signage and enforced by site security Personnel caught speeding may face disciplinary measures, and if violators are encountered they will be provided with constructive instruction on the importance of adhering to speed limits to limit dust generation.</li> <li>• Manage dust emissions from roadways in accordance with the Fugitive Dust Management SOP<sup>2</sup>.</li> <li>• Water roads in accordance with Section 5.1.1 (Watering) of the Fugitive Dust Management SOP.</li> <li>• Apply dust suppressant reagents after spring melt (e.g., calcium chloride, magnesium chloride or other equivalent) as approved by the Mine Manager.</li> <li>• Grader maintenance with road crush as required.</li> <li>• Regular compaction.</li> <li>• Use coarse aggregate on roads with low silt content to reduce silt loading on roads.</li> </ul>	n/a



Emission Source	Best Management Practices and Mitigation Measures	Contingency
TSF and mine haulage and service roads	<ul style="list-style-type: none"> <li>Speed limits will be established based on road design class, with the maximum speed limit of 50 km/h on all Project roads.</li> <li>Reduce speed limits on Project-owned roads if weather conditions cause fugitive dust emissions and dust cannot be controlled by watering.</li> <li>Speed limits are clearly marked through signage and enforced by site security Personnel caught speeding may face disciplinary measures, and if violators are encountered they will be provided with constructive instruction on the importance of adhering to speed limits to limit dust generation.</li> <li>Manage dust emissions from roadways in accordance with the Fugitive Dust Management SOP<sup>2</sup>.</li> <li>Visual inspection for dust emissions from roadways and active stockpiles – mine and Infrastructure supervisors, or designate, as well as the mine dispatch office who have a number of real-time stationary but rotating cameras with multiple angles of the open pit and haul roads will monitor for visible emissions from the trucks equipment, and active stockpiles on the site during moderate weather conditions. A hot, dry day is defined as a day with less than 0.25 mm of rainfall for the preceding 24 hours and a temperature greater than 20 °C.</li> <li>Utilize available fleet of water trucks, weather depending (non-freezing conditions).</li> <li>Apply dust suppressant reagents after spring melt (e.g., calcium chloride, magnesium chloride or other equivalent) as approved by the Mine Manager.</li> <li>Use coarse aggregate on roads with low silt content to reduce silt loading on roads.</li> <li>Grader maintenance with road crush as required.</li> <li>Regular compaction.</li> </ul>	<ul style="list-style-type: none"> <li>Trial installation of a fog/sprinkler system that releases small droplets of water on roadways to suppress airborne dust and not cause water seepage on high traffic haul roads (e.g., primary crusher ramp, stockpile access roads).</li> </ul>
Primary and secondary crusher circuits, conveyors and stockpile drop points	<ul style="list-style-type: none"> <li>Install spray bar sprinklers at material transfer points to limit dust emissions.</li> <li>During periods of air temperatures below 0 °C, reagents can be used to limit the formation of frost balls.</li> </ul>	n/a
Loads in transit in open beds.	<ul style="list-style-type: none"> <li>Install removable tarps to cover truck loads of fine material if possible.</li> <li>Use tackifiers, if necessary, to limit fugitive dust from loads of fine material.</li> </ul>	n/a
Vehicles	<ul style="list-style-type: none"> <li>Maintain equipment in good working condition according to manufacturer's recommendations.</li> <li>Restrict speeds and reducing idling (no-idling policy will be implemented, except for situations such as extenuating circumstances during the winter where cold starts and stopping could wear on mining equipment or the vehicle is being used as refuge for lunch or breaks on hot summer days).</li> <li>Use Tier IV engines for mine fleet.</li> </ul>	n/a

**Notes:**

*n/a – not applicable.*

<sup>1</sup> BW Gold will follow guidance from the BC best practice manual on fugitive dust management, (<https://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/mining-smelt->

*energy/guidance-documents/dust\_management\_plan\_guidance.pdf), which refers to the best management practice manual from the NWT: (<https://www.enr.gov.nt.ca/sites/enr/files/guidelines/dustsupression.pdf>).*

*The application rate of dust suppressant will be carefully monitored to provide adequate coverage without pooling or runoff of products. The amount of dust suppressant applied will not exceed the minimum amount required to effectively suppress dust. Dust suppressant will be bladed or incorporated into the road immediately upon application, to limit the potential of product migrating off the roadway. There will be no evidence of excess product on the roadway. The dust suppressant will not migrate or run off the traveled portion of the roadway.*

<sup>2</sup> *BW Gold will maintain the most current version of the Fugitive Dust Management Plan SOP at the mine site.*

## 8.3 Monitoring

The air quality monitoring program will be initiated prior to the start of construction and remain in place during all phases of the Project. Figure 8.3-1 illustrates the existing and planned monitoring sites, with further details provided in the following sections.

### 8.3.1 Meteorological Stations

There are two existing, automated meteorological stations (Figure 8.3-1). Table 8.3-1 provides information on the locations, parameters measured, and the available period of data. Prevailing winds have historically been observed to come from the west (see Section 5.2), which can cause fugitive dust events.

The parameters identified in Table 8.3-1 will be monitored over all phases of the Project. Data, continuously collected by the units, will be downloaded following procedures in the Climate Station Operational and Quality Assurance Plan and reviewed by BW Gold employees overseen by the Environmental Manager at a minimum of a monthly basis. Data will be reviewed according to guidance in Water and Air Baseline Guidance Document for Mine Proponents and Operators (BC MOE 2016c).

The meteorological stations will follow the Station Operational and Quality Assurance Plan as required by air discharge permit #110650.

### 8.3.2 Dustfall Monitoring

According to ENV 2020, dustfall monitoring and the dustfall Pollution Control Objectives have outdated methodology and criteria and are no longer recommended by BC ENV. Instead, it is recommended with the objective to protect human health, monitoring particulates are more appropriate. To protect soil, water and vegetation, sampling specific media such as metal concentrations from particulate matter from air or metals in water from the surface water management and metal concentration sampling from vegetation in vegetation management is more appropriate. Therefore, air quality and fugitive dust monitoring will include both particulate sampling and analysis of particulate matter metal concentrations as detailed in the Country Foods Monitoring Program. In addition, visual monitoring of dust will be undertaken.

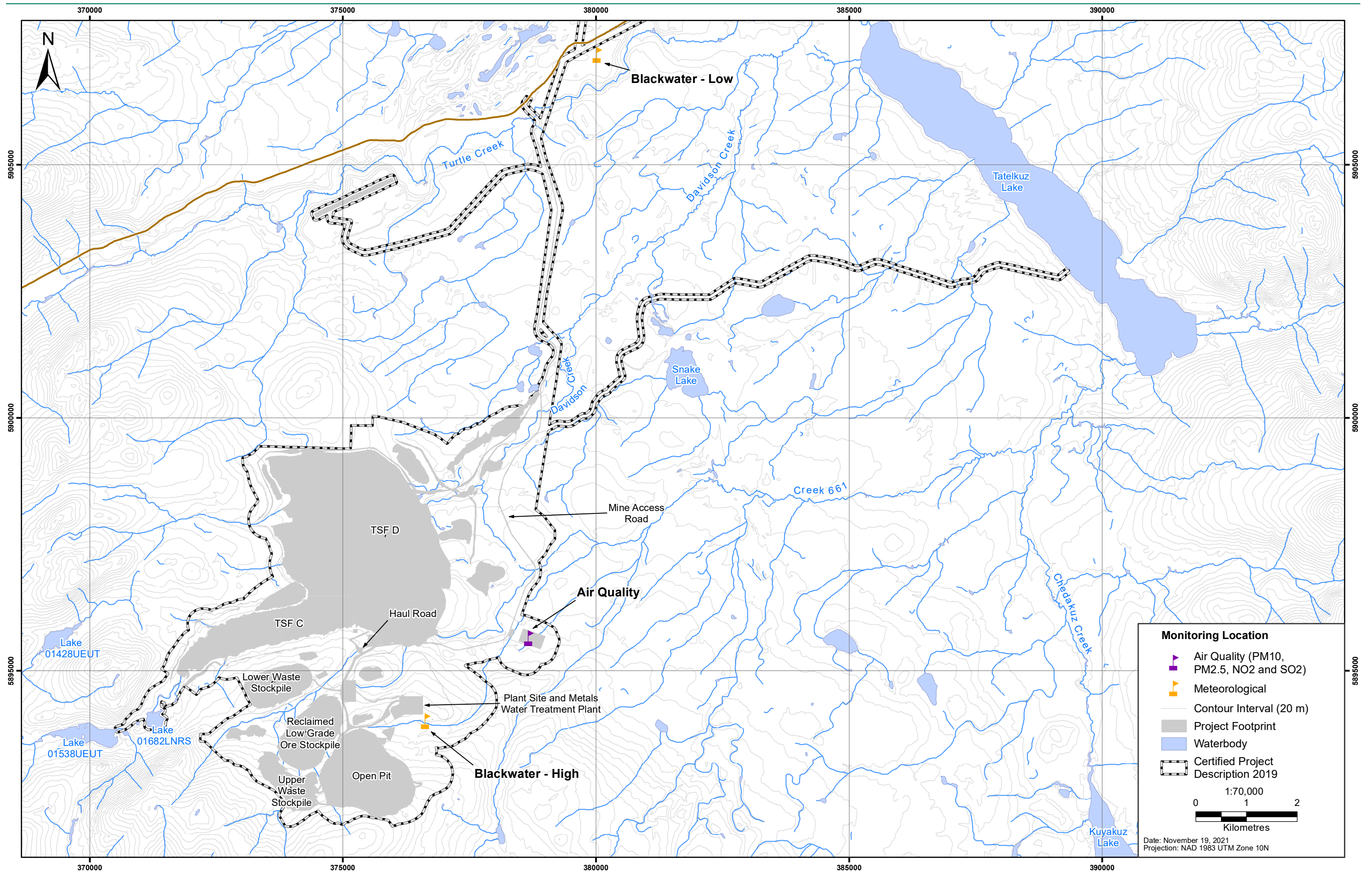


Figure 8.3-1: Air Quality Monitoring Locations



**Table 8.3-1: Blackwater Project Meteorological Stations**

Station Name (EMS No.)	Station Height	Latitude (deg N)	Longitude (deg W)	Elevation (masl)	Meteorological Parameters Monitored	Data Period Available
Low (E331132)	10 m	53.29979	124.80025	1,050	Air temperature, relative humidity, precipitation, wind speed and direction, barometric pressure, snow depth, net radiation, solar radiation	August 2011 - present
High (E331133)	10 m	53.18113	124.84620	1,470	Air temperature, relative humidity, precipitation, wind speed and direction, barometric pressure, snow depth, net radiation, solar radiation	July 2012 - present

Mine personnel will be trained to be observant for dust related concerns which may arise. These observations, together with meteorological conditions and mitigation efforts taken to deal with an issue, will be recorded and included in annual reports. Dust visual monitoring will focus on areas where there are active surface earthworks, haul roads and overburden, and soil stockpiles.

Visual monitoring will occur at all locations where fugitive dust generation is occurring.

The visual dust monitoring program is intended to contribute to:

- visual identification and recording of fugitive dust events;
- assessment of the effectiveness of mitigation and management measures;
- identification of effects requiring further mitigation efforts; and
- compliance with permit, approvals, and regulatory requirements.

The visual monitoring program will consist of visual observations and documentation of fugitive dust by mine personnel. During periods of wind greater than 5 m/s and when the ground is not covered under snow, Departmental Managers responsible for the areas listed will perform visual monitoring for dust at the following locations:

- locations of active surface earthworks;
- active haul roads; and
- overburden and soil stockpiles.

In addition to these regular inspections mine personnel will be directed to inform Departmental Managers if persistent dust plumes are visible.

Inspections will not be recorded under level “none” described in the Trigger Action Response table (see Table 9.1-1). For Level “Medium” or “High” Alert events in the Trigger Action Response Table, after inspections are complete, a log of the findings will be filled out by the Departmental Manager referenced above. The log will contain information on the location where dust plumes were visible, their approximate size and temporal persistence, activities occurring that may have caused the dust plume, meteorological conditions at the time and any actions taken.



Monitoring will be conducted by competent personnel as designated by the Environment Manager. Data will be reported in compliance with Permit #110650 requirements and are kept and made available to others for review upon request.

### 8.3.3 Particulate Matter Monitoring

A Thermo Scientific Partisol-FRM Model 2025i-D PM sampler will be installed on the mine site at the exploration camp before the start of major works construction and moved to the operations camp at the start of operations. The camp is the nearest sensitive receptor to mine operations. The station will measure PM < 10 microns (PM<sub>10</sub>) and PM < 2.5 microns (PM<sub>2.5</sub>) mass concentrations on a 47 mm filter contained in a single-action filter change mechanism.

Samples will be collected over a 24-hour period at a target flow rate of 1 m<sup>3</sup>/h. Sample volumes will be recorded and divided into the mass concentration to yield a 24-hour average concentration in units of µg/m<sup>3</sup>. The Partisol sampler is suitable for a wide variety of climate conditions and meets the United States Environmental Protection Agency guidelines for manual air samplers.

Fine particulate sampling will occur every third day for PM<sub>2.5</sub> and PM<sub>10</sub>, between May and October. During November to April, sampling occurs for PM<sub>2.5</sub> and PM<sub>10</sub> on a six (6) day basis.

The location of Partisol monitoring is expected to change in 2024 with the development of a permanent operations camp.

### 8.3.4 Nitrogen Dioxide and Sulfur Dioxide Monitoring

Nitrogen dioxide (NO<sub>2</sub>) and SO<sub>2</sub> will be sampled using a passive air sampling system (PASS) whereby gas pollutants are monitored by passive diffusion through a diffusive surface onto an adsorbent membrane or filter. PASS monitors will be installed at the exploration camp prior to the start of major works construction and at the operations camp at the start of operations.

Monitors will be under a protective rain shelter, attached to a supporting pole. Site personnel will collect and replace the PASS units approximately every 15 days and submit the units to an accredited laboratory for analysis.

PASS laboratory results will be reviewed for sample integrity issues and erroneous data. Field notes, chains of custody, comments from the laboratory, and professional judgement will also be considered during the review process. Invalid data will be omitted from final analyzed datasets. Because PASS sampling is passive, hourly NO<sub>2</sub> and SO<sub>2</sub> concentrations cannot be sampled using this method and therefore will not be compared against the hourly CAAQS.

The location of PASS monitoring is expected to change in 2024 with the development of a permanent operations camp.

### 8.3.5 Carbon Monoxide

Based on the air dispersion modelling results, predicted CO levels are below BC air quality objectives at the human receptor locations (i.e., less than 5% of the objective). The maximum 1-h CO concentration at any human receptor is 317 µg/m<sup>3</sup> while the objective is 14,300 µg/m<sup>3</sup>. The maximum 8-h CO concentration is 205 µg/m<sup>3</sup> while the objective is 5,500 µg/m<sup>3</sup>.

CO monitoring is normally not recommended for these low levels; however, CO monitoring is a requirement of the DS Condition #6.12. CO will be sampled using an appropriate sampling methodology.

### 8.3.6 Point Source Discharge Monitoring

The following point source monitoring will be undertaken as per Table 8.3-2, and the results thereof submitted to ENV as part of annual reporting requirements under the air emissions permit. The sampling and analyses must be conducted once in the first six months of operation, and then once every five years, under normal operating conditions. A minimum of five days prior to each event, the EM will notify ENV that sampling is scheduled.

**Table 8.3-2: Blackwater Project Point Sources**

Source	Parameter	EMS No.
Primary Crusher	Total Particulate Matter	E328676
Secondary Crusher	Total Particulate Matter	E328677
Tertiary Crusher	Total Particulate Matter	E328679
Reclaim Tunnel	Total Particulate Matter	E328680
Fire Assay Lab	Total Particulate Matter	E328687
Fire Assay Sample Prep Area	Total Particulate Matter	E328686
Cyanide Prep Area	Total Particulate Matter	E328683
Copper Sulphate Mix Tank	Total Particulate Matter	E328684
Incinerator	Total Particulate Matter	E328685

The baghouses and dust suppression systems will be operated and maintained in accordance with the manufacturer's specifications.

The operating pressure drop for the baghouses will be maintained within the design conditions specified by the manufacturer's performance warranty. The baghouses will be equipped with a gauge or meter, which indicates the pressure drop across the control device. If the manufacturer's specifications are unavailable then the pressure drop will not be less than 1.0 inches of water column or more than 10.0 inches of water column.

BW Gold will comply with the manufacturers recommended schedule for inspecting and maintaining control equipment. If the inspection frequency is not specified by the manufacturer, recommended inspection and maintenance activities will be conducted at least once per quarter.

### 8.3.7 Quality Assurance / Quality Control

The quality assurance/quality control (QA/QC) program for air quality will include:

- Use of standard field data sheets and SOPs (e.g., for calibration of the Partisol and PASS sampling equipment) for field sampling and data collection;
- Review of data once transferred to a database to minimize the potential for transcription errors;
- Appropriate training for field personnel responsible for collecting samples;
- Use of chain of custody (COC) forms and CALA-accredited laboratory for analysis of samples; and
- Appropriate laboratory-based QA/QC programs, consistent with the requirements of the British Columbia Environmental Laboratory Manual (BC ENV 2020a).

## 8.4 Community Feedback Mechanism

Pursuant to DS Condition 6.3, BW Gold will establish a feedback mechanism to manage input and complaints related to exposure to dust from the Project during construction, operation and decommissioning. Complaints may arise from Project-related use of the FSRs between Vanderhoof and the Project site. Monitoring activities will include a review of any complaints received from the public related to fugitive dust and air quality and an initial response within 48 hours. Complaints will be carefully investigated, tracked and logged, contributing factors that may have resulted in the complaint, and any actions that were undertaken and follow-up to address the complaint. Complaints may require a more in-depth root cause analysis and result in modification of the Plan.

In the event that COPC limits and corresponding concentration triggers identified in Section 9 (Adaptive Management Trigger Action Response) of the AQDMP are exceeded, BW Gold will notify the EAO, ENV, EMLI, Northern Health and Aboriginal Groups and Independent Environmental Monitor. As required by EAC Condition 20, the notification will include both a technical report and a plain language summary of the technical report. The report will be public by posting it to the Blackwater Project website.

## 9.0 Adaptive Management and Follow-up Program

The AQDMP is a living document that will evolve over time in response to the results of the monitoring program, changing conditions or development at the Project, updates to scientific methods, and through consultation and discussions with Indigenous Nations, regulators, or other stakeholders. This process of continuous improvement with changing conditions is referred to as adaptive management.

Condition 6.12 of the DS requires BW Gold to develop an air quality follow-up program (AQFP) as follows:

*The Proponent shall develop, prior to construction and in consultation with Indigenous groups and relevant authorities, a follow-up program to verify the accuracy of the environmental pertains to adverse environmental effects of the Designated Project on the health of Indigenous Peoples as a result of changes to air quality and determine the effectiveness of mitigation measures. As part of the implementation of the follow-up program, the Proponent shall monitor nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), fine particulate matter (PM<sub>2.5</sub>), particulate matter (PM<sub>10</sub>), dust, and carbon monoxide (CO) in air. The Proponent shall implement the follow-up program during all phases of the Designated Project and shall apply conditions 2.9 and 2.10 when implementing the follow-up program.*

The federal DS requirements related to follow-up and adaptive management are:

*“2.5 The Proponent shall, where a follow-up program is a requirement of a condition set out in this Decision Statement, have a Qualified Professional, where such a qualification exists for the subject matter of the follow-up program, determine, as part of the development of each follow-up program and in consultation with the party or parties being consulted during the development, the following information:*

*2.5.1 the follow-up activities that must be undertaken by a qualified individual;*

*2.5.2 the methodology, location, frequency, timing and duration of monitoring associated with the follow-up program;*

*2.5.3 the scope, content, format and frequency of reporting of the results of the follow-up program;*

*2.5.4 the levels of environmental change relative to baseline conditions that would require the Proponent to implement modified or additional mitigation measure(s), including instances where the Proponent may require Designated Project activities to be stopped; and*

*2.5.5 the technically and economically feasible mitigation measures to be implemented by the Proponent if monitoring conducted as part of the follow-up program shows that the levels of environmental change referred to in condition 2.5.4 have been reached or exceeded.*

*2.6 The Proponent shall update and maintain the follow-up and adaptive management information referred to in condition 2.5 during the implementation of each follow-up program in consultation with the party or parties being consulted during the development of each follow-up program.”*

Condition 3 of the EAC requires an adaptive management plan to provide a framework for identifying triggers to determine effectiveness of mitigation and whether additional mitigation is required to address air quality effects. The adaptive management plan, as defined in Condition 3(d) to 3(l) of the EAC, must include at least the following:

*“3(d) the monitoring program that will be used including methods, location, frequency, timing and duration of the monitoring;*



- 3(e) *the baseline information that will be used, or collected where existing baseline information is insufficient, to support the monitoring program;*
- 3(f) *the scope, content and frequency of reporting of the monitoring results;*
- 3(g) *the identification of qualitative and quantitative triggers, which, when observed through monitoring required under paragraph d), will require the Holder to alter existing, or develop new, mitigation measures to avoid, reduce, and/or remediate effects;*
- 3(h) *methods that will be applied to detect when a numeric trigger, or type or level of change referred to in paragraph g) occurs;*
- 3(i) *a description of the process for and timing to alter existing mitigation measures or develop new mitigation measures to reduce or avoid effects;*
- 3(j) *identification of the new and/or altered mitigation measures that will be applied when any of the changes identified in paragraphs a) to c) occur, or the process by which those will be established and updated over the relevant timeframe for the specific condition;*
- 3(k) *the monitoring program that will be used to determine if the altered or new mitigation measures and/or remediation activities are effectively mitigating or remediating the effects and or avoiding potential effects; and*
- 3(l) *The scope, content and frequency of reporting on the implementation of altered or new mitigation measures.”*

## 9.1 Air Quality Trigger Response Framework

Triggers are provided for the following action levels of the adaptive management framework: none, and low, medium; and high. The framework is intended to provide an early-warning system such that when defined action levels are triggered there is sufficient time to prevent irreversible adverse environmental effects to health of Indigenous Peoples.

The air quality adaptive management triggers and responses are provided in Table 9.1-1. The actions that will be taken are based on visual inspections of fugitive dust on the MAR and mine site roads, dustfall monitoring, PM, PM<sub>10</sub>, and PM<sub>2.5</sub>, metals, SO<sub>2</sub> and NO<sub>2</sub> measurements at the operations camp. An appropriate action level will be developed based on guidance in the adaptive management framework: British Columbia Ambient Air Quality Objectives (BC ENV 2020c) for particulate matter and gases such as nitrogen dioxide and sulfur dioxide.

It is important to note that appropriate action responses resulting from dust observations are quite different than appropriate action responses resulting from fine PM measurements. When visible dust is observed, typically the source of the dust will be evident, and the mitigation measures are well-defined as shown in Table 9.1-1.

The PM<sub>10</sub> and PM<sub>2.5</sub> concentrations will be measured on 24-hour basis every three days during summer and every six days during winter and there will be a delay between the measurement date and reporting results after weighing the filter for the 24-hour period. Additionally, unlike a visible dust observation, the source of the elevated PM<sub>10</sub> and PM<sub>2.5</sub> concentrations may or may not be immediately apparent. Some analysis may be required to determine the cause and specify appropriate corrective action(s). This analysis will involve determining the operational and/or meteorological conditions that were present during the elevated PM event and determining if operational changes should be implemented to limit emissions.

**Table 9.1-1: Trigger Action Response**

Component	Location	Level	Trigger	Management Response
Fugitive Dust	Unpaved Roads	None	Dust plume less than half the height of a haul truck tire.	No action. Continue work in accordance with site management procedures.
		Low	Dust plume less than half the size of a haul truck for any period of time up to 30 minutes.	Limited watering of high traffic areas. Repeat visual inspection every 2 hours depending on weather.
		Medium	Dust plume same size as a haul truck extending beyond local area for periods longer than half a day.	Continuous watering of high traffic areas until dust plume subsides. Speed limit restrictions in high traffic areas.
		High	Dust plume greater than the size of a haul truck for periods longer than 1 day, or when dust plumes extend beyond the active mine area/infrastructure.	Increase frequency of watering and if not successful examine longer use of alternative dust suppressants (e.g., calcium or magnesium chloride, lignin compounds, environmentally friendly oils or clay additives). Speed limit restrictions may be required if dust cannot be controlled by watering. Closure of certain routes may be required if dust cannot be controlled by watering or speed restrictions.
	Surface Earthworks	None	Minor localized dust (dust plumes that are less than 2 m in height) during construction and normal mine operations.	No action. Continue work in accordance with site management procedures.
		Low	Visible dust plumes rising over 2 m above the active construction area for longer than 30 minutes.	Minimize material movement in areas with active construction or operation and heavy equipment use.
		Medium	Triggers per level 1 but with dust plume extending beyond local area for periods longer than half a day.	Application of water to exposed construction area (if this is a source).
		High	Extensive areas of dust generation with large dust plumes for periods longer than 1 day or when dust plumes extend beyond the active mine area/infrastructure.	Increase frequency of watering and if not successful apply gravel to exposed construction area (if this is a source). Investigate long term solutions if dust plumes persist.

Component	Location	Level	Trigger	Management Response
Fugitive Dust (cont'd)	Stockpiles	None	Minor localized dust (dust plumes that are less than 2 m in height) during construction and normal mine operations.	No action. Continue work in accordance with site management procedures.
		Low	Visible dust plumes rising over 2 m above the ground for longer than 30 minutes.	Turn on spray bar sprinklers <sup>1</sup> . During periods where temperature are below freezing add reagents to control dust.
		Medium	Triggers per level 1 but with dust plume extending beyond local area for periods longer than half a day.	Increase the rate of water application using spray bar sprinklers. During periods where temperature are below freezing, add reagents to control dust.
		High	Extensive areas of dust generation with large dust plumes for periods longer than 1 day or when dust plumes extend beyond the active mine area/infrastructure.	Examine the possibility of re engineering the spray bar sprinklers <sup>1</sup> to provide more effective water coverage of transfer points.
	Material handling transfer locations	None	Minor localized dust (dust plumes that are less than 2 m in height) during construction and normal mine operations.	No action. Continue work in accordance with site management procedures.
		Low	Visible dust plumes rising over 2 m above the ground for longer than 30 minutes.	Turn on spray bar sprinklers <sup>1</sup> . During periods where temperature are below freezing add reagents to control dust.
		Medium	Triggers per level 1 but with dust plume extending beyond local area for periods longer than half a day.	Increase the rate of water application using spray bar sprinklers <sup>1</sup> . During periods where temperature are below freezing, add reagents to control dust.
		High	Extensive areas of dust generation with large dust plumes for periods longer than 1 day or when dust plumes extend beyond the active mine area/ infrastructure.	Examine the possibility of re engineering the spray bar sprinklers <sup>1</sup> to provide more effective water coverage of transfer points.

Component	Location	Level	Trigger	Management Response
PM <sub>10</sub> and PM <sub>2.5</sub>	Operations Camp	None	The annual average PM <sub>10</sub> and PM <sub>2.5</sub> concentration is less than or equal to 50% of the Ambient Air Quality Objective.	No action. Continue monitoring.
		Low	The annual average PM <sub>10</sub> and PM <sub>2.5</sub> concentration is greater than 50% but less than or equal to 80% of the Ambient Air Quality Objective.	Continue monitoring. Develop causal analysis and associated mitigations in addition to a schedule for implementation based on the exceedance level.
		Medium	The annual average PM <sub>10</sub> and PM <sub>2.5</sub> concentration is greater than 80% but less than or equal to 100% of the Ambient Air Quality Objective.	Develop causal analysis and associated mitigations in addition to a schedule for implementation. Increase sampling frequency to every other day.
		High	The annual average PM <sub>10</sub> and PM <sub>2.5</sub> concentration is greater than the Ambient Air Quality Objective.	Implement mitigations developed at the medium action level. Increase sampling frequency to daily.
SO <sub>2</sub> and NO <sub>2</sub>	Operations Camp	None	The annual average SO <sub>2</sub> and/or NO <sub>2</sub> concentration is less than or equal to 50% of the Ambient Air Quality Objective.	No action. Continue monitoring.
		Low	The annual average SO <sub>2</sub> and/or NO <sub>2</sub> concentration is greater than 50% but less than or equal to 80% of the Ambient Air Quality Objective.	Continue monitoring. Develop causal analysis and associated mitigations in addition to a schedule for implementation based on the exceedance level.
		Medium	The annual average SO <sub>2</sub> and/or NO <sub>2</sub> concentration is greater than 80% but less than or equal to 100% of the Ambient Air Quality Objective.	Develop causal analysis and associated mitigations in addition to a schedule for implementation.
		High	The annual average SO <sub>2</sub> and/or NO <sub>2</sub> concentration is greater than the Ambient Air Quality Objective.	Implement mitigations developed at the medium action level.

*Note:*

<sup>1</sup> *Spray bar sprinklers will be installed once trialing is complete.*



For these reasons, the action/response associated with each level of alert is expressed in terms of how quickly the analysis and response is to be carried out. It is possible that fugitive dust will contribute to PM<sub>10</sub>/ PM<sub>2.5</sub> concentrations, and thus actions taken in response to visual observations may be part of the response for elevated PM<sub>10</sub>/ PM<sub>2.5</sub>. The actions/responses for PM<sub>10</sub>/ PM<sub>2.5</sub> listed in Table 9.1-1 are triggered based on 24-hour measurements since annual averages will only be known on an annual basis. As part of the adaptive management process the frequency of elevated 24-hour PM<sub>10</sub>/ PM<sub>2.5</sub> concentrations and the trend analyses of PM<sub>10</sub>/ PM<sub>2.5</sub> concentrations will be tracked and evaluated to provide assurance that the standards and objectives are achieved.

The EM or a qualified person will be responsible for calculating the 3-month trend analyses PM<sub>2.5</sub> concentration and will evaluate the frequency of occurrence of elevated 24-hour PM<sub>10</sub> and PM<sub>2.5</sub> concentrations. Based on the findings, the EM may propose modifications to emissions control equipment and/or to dust management and amend the AQDMP. In addition, the EM will compare measurements to predictions from the effects assessment and make recommendations regarding modifications to mitigation measures if warranted.

If there is an air quality advisory issued by ENV that affects the region where the mine is located, the EM will determine if an adjustment to a higher alert level described in Table 9.1-1 is required to further mitigate dust emissions.

Passive sampling for SO<sub>2</sub> and NO<sub>2</sub> and low-flow particulate sampling with Partisols or similar units to monitor fine particulates at Tatelkuz Lake Resort and Tatelkus Lake 28 will be established to monitor air quality impacts offsite in the case that air quality monitoring on-site indicates it is required.

## 9.2 Follow-up Program

A Follow-up Program (FUP) will be conducted through all phases of the Project as defined by the federal DS Condition 6.12. The FUP has been developed and will continue to be updated in consultation with Indigenous groups (see Sections 8.4, 10.1.2, and 11). The main objective of the FUP will be to compare results of the air quality monitoring program with predictions made in the Environmental Assessment and determine the effectiveness of mitigation measures. Monitoring components will include NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, dust, and CO.

To determine if modified or additional mitigation measures are required the results of the monitoring program will be compared to the predicted concentrations of criteria air contaminants shown in Tables 7.2-1 and 7.2-2. The predicted concentrations are considered to be baseline concentrations for the purposes of the FUP. None of the baseline concentrations reported in Tables 7.2-1 and 7.2-2 exceeded ambient air quality standards.

If the monitoring program as described in Section 8.3 exceeds the criteria air contaminant standards provided in Table 7.1-1 then additional mitigation measures including contingency measures described in Table 8.2-1 will be considered and implemented where required. The final determination of which additional mitigation will be required will be based on an analysis of the causes of the exceedances. The FUP will, over time, inform the monitoring program and adaptive management to improve mitigations, and result in closer tracking of predicted results with monitored results:

- Low = exceed baseline – continue monitoring
- Medium = exceed baseline and predicted – continue monitoring, develop casual analysis (if observed concentrations are approaching the guidelines)
- High = exceed baseline, predicted, and guideline – implement mitigations plan, increase sampling frequency, etc.

The FUP will be conducted on an annual basis as part of the annual reporting as described in Section 11.

## 10.0 Reporting and Record Keeping

### 10.1 Reporting

#### 10.1.1 *Environmental Management Act* Annual Reporting

*Environmental Management Act* Permit #110650 requires annual reports to be prepared by a qualified professional and be submitted to ENV. Annual reports are public documents and include a summary of environmental incidents and complaints, all monitoring under permits, an assessment of the data, and recommendations as appropriate. The reporting must also conform to the requirements outlined in Developing a Fugitive Dust Management Plan for Industrial Projects (BC EMMPR & ENV, 2018) which require that adaptive management be used to evaluate the effectiveness and direct continual improvement of the AQFDMP.

BW Gold will follow reporting requirements in Technical Guidance 4 (BC MOE 2016b) and any amendments or updates thereto. Permit #110650 annual reporting must be submitted by March 31 of each year.

#### 10.1.2 Decision Statement Annual Reporting

Annual reporting and information sharing requirements in the federal DS applicable to this plan are identified below. Conditions 2.11, 2.12, 2.13 and 2.14 identify annual reporting and information sharing requirements as follows:

- Condition 2.11 requires “The proponent [BW Gold] shall, commencing in the reporting year during which the proponent begins the implementation of the conditions set out in the DS, prepare an annual report that describes the activities undertaken by the proponent [BW Gold] in the reporting year to comply with each condition in the DS” as well as other matters identified in the Condition.
- Condition 2.12 requires “The proponent [BW Gold] shall provide a draft annual report in condition 11 to Indigenous groups, no later than June 30 following the reporting year to which the annual report applies. BW Gold shall consult the Indigenous groups on the content and findings in the draft annual report”.
- Condition 2.13 requires “The proponent [BW Gold] in consideration of any comments received from Indigenous groups pursuant to condition 2.12, shall revise and submit to the Agency [Impact Assessment Agency of Canada] and Indigenous groups a final annual report, including an executive summary in both official languages, no later than September 30 following the reporting year to which the annual report applies”.
- Conditions 2.14 requires:
  - “The Proponent [BW Gold] shall publish on the Internet, or any medium which is publicly available, the annual reports and the executive summaries...”. Names and contact information will be removed from the annual reports to protect confidentiality.
  - “The Proponent [BW Gold] shall keep these documents publicly available for 25 years following the decommissioning of the Designated Project”.
  - “The Proponent [BW Gold] shall notify the Agency and Indigenous groups of the availability of these documents within 48 hours of their publication”.

In addition, the DS Condition 6.15 requires that a plan to communicate the results of the FUP (Section 9.2) in plain language to Indigenous Groups and the relevant authorities as discussed in Section 10. This will be satisfied through the Annual Report.

### 10.1.3 Environmental Assessment Certificate #M19-01 Annual Reporting

Condition 5 of the EAC sets out reporting requirements. BW Gold will submit a report to the attention of the Environmental Assessment Office and Aboriginal Groups on the status of compliance with EAC #M19--01 at the following times:

- a. at least 30 days prior to the start of Construction;
- b. on or before March 31 in each year after the start of Construction;
- c. at least 30 days prior to the start of Operations;
- d. on or before March 31 in each year after the start of Operations;
- e. at least 30 days prior to the start of Closure;
- f. on or before March 31 in each year after the start of Closure until the end of Closure;
- g. at least 30 days prior to the start of Post-Closure; and
- h. on or before March 31 in each year after the start of Post-Closure until the end of Post-Closure.

## 10.2 Emergency Reporting and Process Modification Procedures

In the event of an emergency or other condition which prevents normal operation of the air pollution control systems described in Section 5.3 or leads to an unauthorized discharge, BW Gold will take action to immediately to restore the normal operation and to prevent any unauthorized discharges. The emergency or other condition along with the remedial action that has and will be taken will be reported to the [EnvironmentalCompliance@gov.bc.ca](mailto:EnvironmentalCompliance@gov.bc.ca) email address or as otherwise instructed by ENV.

In the event of a spill or the risk of a spill occurs, BW Gold will report it immediately by calling 1-800-663-3456 in accordance with the Spill Reporting Regulation.

In the case that BW Gold would like to modify a process that may increase the generation of fugitive dust and/or adversely affect the quality and/or quantity of the discharge to the receiving environment, ENV will be notified before implementing changes to any process. The notification must include details of any mitigation measures to be implemented as a result of the process modification. In addition BW Gold will request written approval should there be a need to bypass processes authorized by ENV.

## 10.3 Record Keeping

The EM will be responsible for ensuring dust events are logged, including details of the on-site activities, meteorological conditions, and the management actions taken. The EM will also be responsible for ensuring that analysis and mitigation for any fine PM event is completed in a timely manner. Records will be maintained for:

- Public complaints;
- Meteorological stations;
- Dust visual observations;
- Particulate matter monitoring; and
- Nitrogen dioxide and SO<sub>2</sub> monitoring.

Monitoring data will be entered into an electronic database and have quality control checks completed upon receipt of results. Data will be entered into a standard format that allows for data reporting and analyses. Data and data comparisons will be stored in a single file format for each type of survey or monitoring activity. Monitoring records will be maintained and retained in accordance with Conditions 12.1 and 12.2 of the federal DS respectively. The records will be made available upon request.



## 11.0 Plan Revisions

The AQDMP will be reviewed annually by a qualified professional per ELoMC annual schedule to: review the monitoring program; confirm that the measures in the plan are being implemented; and identify any improvements to improve the effectiveness of fugitive dust best management practices. AQDMP revisions will be required:

- If the monitoring program shows that the effects of the Project are not mitigated to the extent contemplated or predicted in the Application/EIS (New Gold 2015) or exceed adaptive management triggers;
- There are new and /or changes to emission sources; and
- There are changes to other relevant management plans and regulatory requirements; and
- There are amendments to the operating permit conditions.

Proposed changes will be documented via the provision a change log document including rationale for changes, which will be provided at the same time (where possible) or following resubmission of the AQFDMP. As required by EAC #M19-01 Condition 20, the plan and any amendments thereto, will be implemented to the satisfaction of a qualified professional throughout construction, operations, and closure and to the satisfaction of the EAO. Revised versions of the AQDMP will be provided to EAO, ELoMC, and Northern Health through the Condition 42 public website. Upon submissions of updated Management plans, reviewers will be invited to share and direct any comments, questions or concerns on the AQFDMP updates through the ELoMC. Regular presentations of implementation of management plans including the AQFDMP will also be provided to reviewers per the ELoMC annual schedule of topics/development of monthly meeting agendas.

## 12.0 Qualified Professionals

This management plan has been prepared and reviewed by the following qualified professionals:

Reviewer Role	Name	Signature	Date
Prepared by:	Andres Soux, M.Sc. Principal Consultant		August 28, 2023
Reviewed by:	Rolf Schmitt, P.Geo. Technical Director		August 28, 2023
ERM Permit to Practice No.: 1001271			

## 13.0 References

Definitions of the acronyms and abbreviations used in this reference list can be found in the Acronyms and Abbreviations section.

### Legislation

*Canadian Environmental Protection Act*, 1999, SC 1999, c. 33.

Code of Practice for the Concrete and Concrete Products Industry, BC Reg. 329/2007.

*Declaration on the Rights of Indigenous Peoples Act*, SBC 2019, c. 44.

*Environmental Assessment Act*, SBC 2018, c. 51.

*Environmental Management Act*, SBC 2003, c. 53.

*Impact Assessment Act*, RSC 2019, c. 28.

*Mines Act*, RSBC 1996, c. 293.

Open Burning Smoke Control Regulation, BC Reg. 145/93.

Sulphur in Diesel Fuel Regulation, SOR/2002-254.

*United Nations Declaration on the Rights of Indigenous Peoples Act*, SC 2021, c. 14.

Waste Discharge Regulation, BC Reg. 320/2004.

### Secondary

BC EAO. 2019a. *Assessment Report for Blackwater Gold Mine Project (Blackwater) With respect to the Application by New Gold Inc. for an Environmental Assessment Certificate pursuant to the Environmental Assessment Act*, S.B.C. 2002, c.43. Prepared by the Environmental Assessment Office. May 17, 2019.

BC EAO. 2019b. *Summary Assessment Report for Blackwater Gold Mine Project (Blackwater) With respect to the application by New Gold Inc. for an Environmental Assessment Certificate pursuant to the Environmental Assessment Act*, S.B.C. 2002, c. 43.

BC EAO. 2019c. *In the matter of the ENVIRONMENTAL ASSESSMENT ACT S.B.C. 2002, c. 43 (the Act) and in the matter of an Application for an Environmental Assessment Certificate (Application) by New Gold Inc. (Proponent) for the Blackwater Gold Project Environmental Assessment Certificate #M19-01*.

BC EMLI. 2022. *Health, Safety and Reclamation Code for Mines in British Columbia*.  
[https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/code-review/health\\_safety\\_and\\_reclamation\\_code\\_nov2022.pdf](https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/code-review/health_safety_and_reclamation_code_nov2022.pdf)

BC EMPR & ENV. 2018. *Developing a Fugitive Dust Management Plan for Industrial Projects*.

BC EMPR & ENV. 2019. *Joint Application Information Requirements for Mines Act and Environmental Management Act Permits*. Government of BC. Victoria, BC. September. Victoria.

BC ENV. 2018. *Fact Sheet - Industrial Camps Waste Authorizations and Best Practices*.

BC ENV. 2020. *British Columbia Ambient Air Quality Objectives*. British Columbia Ministry of the Environment. [https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/reports-pub/prov\\_aqo\\_fact\\_sheet.pdf](https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/reports-pub/prov_aqo_fact_sheet.pdf).

- BC ENV. 2020. *Technical Guidance. Dustfall Monitoring and Pollution Control Objectives*. Prepared by Regional Operations Branch. [https://www2.gov.bc.ca/assets/gov/environment/waste-management/waste-discharge-authorization/guides/templates/gui-tec-041\\_dustfall\\_monitoring.pdf?bcgovtm=20200319\\_GCPE\\_AM\\_COVID\\_4\\_NOTIFICATION\\_BCGOV\\_BCGOV\\_EN\\_BC\\_NOTIFICATION](https://www2.gov.bc.ca/assets/gov/environment/waste-management/waste-discharge-authorization/guides/templates/gui-tec-041_dustfall_monitoring.pdf?bcgovtm=20200319_GCPE_AM_COVID_4_NOTIFICATION_BCGOV_BCGOV_EN_BC_NOTIFICATION).
- BC ENV. 2021. *Provincial Air Quality Objectives for Nitrogen Dioxide*. [https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/reports-pub/env\\_no2\\_intentionpaper.pdf](https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/reports-pub/env_no2_intentionpaper.pdf).
- BC MOE. 2016a. *Guidelines for the authorization of incinerators in industrial camp locations*. Operational Policy Manual, Section 2.01. Prepared by Environmental Protection Division.
- BC MOE. 2016b. *Technical Guidance 4. Environmental Management Act Authorizations. Annual Reporting Under the Environmental Management Act. A Guide for Mines in British Columbia. Version 1.3*.
- BC MOE. 2016c. *Water and Air Baseline Guidance Document for Mine Proponents and Operators. Version 2*.
- BC MOH. 2017. *BC Guidelines for Industrial Camps Regulation*. Prepared by Health Protection Branch, Ministry of Health. [https://www2.gov.bc.ca/assets/gov/health/keeping-bc-healthy-safe/industrial-camps/bc\\_guidelines\\_for\\_industrial\\_camps\\_regulation.pdf](https://www2.gov.bc.ca/assets/gov/health/keeping-bc-healthy-safe/industrial-camps/bc_guidelines_for_industrial_camps_regulation.pdf).
- CCME. 2013. *Guidance Document on Achievement Determination Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone*.
- CCME. 2020. *Guidance Document of Achievement Determination for Canadian Ambient Air Quality Standards for Nitrogen Dioxide* [https://ccme.ca/en/res/gdadforcaaqsfornitrogendioxide\\_en1.0.pdf](https://ccme.ca/en/res/gdadforcaaqsfornitrogendioxide_en1.0.pdf) (Accessed April 2021).
- CCME. 2020. *Guidance Document of Achievement Determination for Canadian Ambient Air Quality Standards for Sulphur Dioxide* [https://ccme.ca/en/res/gdadforcaaqsforsulphurdioxide\\_en1.0.pdf](https://ccme.ca/en/res/gdadforcaaqsforsulphurdioxide_en1.0.pdf) (Accessed April 2021).
- CCME. 2020. *Guidance Document on Achievement Determination for Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone* (Accessed April 2021).
- CCME. 1999. *Canadian National Ambient Air Quality Objectives: Process and Status*. Canadian Council of Ministers of the Environment: n.p.
- CEA Agency. 2019. *Decision Statement Issued under Section 54 of the Canadian Environmental Assessment Act, 2012 to New Gold Inc. c/o Ryan Todd, Director, Blackwater Project Sunlife Plaza Suite 610, 1100 Melville Street Vancouver, British Columbia V6E 4A6 for the Blackwater Gold Project*.
- ECCC. 2011. *Guidance Document on Off-Road Compression-Ignition Engine Emissions Regulations: Chapter 6*.
- ECCC. 2012. *Guidance Document on Off-Road Compression-Ignition Engine Emissions Regulations: Chapter 6* <https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/publications/guidance-document-engine-emission-regulations/chapter-6.html> (accessed April 2021).
- ECCC. 2013. *Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone in 2015 and 2020*.
- ECCC. 2017. *Canadian Ambient Air Quality Standards for Nitrogen Dioxide in 2020 and 2025*.

- ENV. 2020. *Technical Guidance. Dustfall Monitoring and Pollution Control Objectives*.  
[https://www2.gov.bc.ca/assets/gov/environment/waste-management/waste-discharge-authorization/guides/templates/gui-tec-041\\_dustfall\\_monitoring.pdf?bcgovtm=20200319\\_GCPE\\_AM\\_COVID\\_4\\_NOTIFICATION\\_BCGOV\\_BCGOV\\_EN\\_BC\\_NOTIFICATION](https://www2.gov.bc.ca/assets/gov/environment/waste-management/waste-discharge-authorization/guides/templates/gui-tec-041_dustfall_monitoring.pdf?bcgovtm=20200319_GCPE_AM_COVID_4_NOTIFICATION_BCGOV_BCGOV_EN_BC_NOTIFICATION)  
 (accessed May 2021).
- Environment and Climate Change Canada. 2017. *Canadian Ambient Air Quality Standards for Nitrogen Dioxide in 2020 and 2025*.
- Entia. 2021. *Blackwater Gold Project: Human Health Risk Assessment Update*. Prepared for BW Gold LTD. by Entia Environmental Consultants Ltd.: Campbell River, BC. November 2021.
- Haller, L. C. Claiborn, T. Larson, J. Koenig, G. Norris and R. Edgar (1999). *Airborne Particulate Matter Size Distributions in an Arid Urban Area*. *J. Air & Waste Manage. Assoc.* 49:161 168.
- KP. 2021a. *Blackwater Gold Project: 2020 Baseline Climate Report*. Prepared by Knight Piésold Ltd. for BW Gold Ltd. VA101-457/33-4. January 2021.
- KP. 2021b. *Blackwater Gold Project: 2020 Hydrometeorology Report*. Prepared by Knight Piésold Ltd. for BW Gold Ltd. VA101-457/33-4. May 2021.
- MMTS. 2021. *Blackwater Gold Project: Open Pit and Stockpile Design Report*. Prepared by Moose Mountain Technical Services for Artemis Gold Inc. Cranbrook, BC. 2015. *Blackwater Gold Project Environmental Assessment Application/Environmental Impact Statement*. Prepared by AMEC Environment & Infrastructure for New Gold Inc.: Vancouver, BC.
- Passam AG. 2022. Product Sheet: *Diffusive Sampler for Carbon Monoxide*. [https://www.passam.ch/wp-content/uploads/2022/02/SP23\\_CO\\_Product-Sheet\\_2022\\_EN.pdf](https://www.passam.ch/wp-content/uploads/2022/02/SP23_CO_Product-Sheet_2022_EN.pdf) (accessed July 2022).



## **Appendix A    Concordance with Environmental Assessment Certificate #M19-01 (June 21, 2019)**

# Appendix A Concordance with Environmental Assessment Certificate #M19-01 (June 21, 2019)

Condition #	Description	Action/Location in the Plan
1.	<p><b>Document Review and Implementation</b></p> <p>Where a condition of this Certificate requires the Holder to provide a plan, program or other document, the Holder must provide the plan, program or other document to the EAO and Aboriginal Groups in the timeframe referenced in such condition, unless otherwise approved by the EAO. The EAO may, within 60 days of receiving a copy of such plan, program or other document, advise that:</p> <ol style="list-style-type: none"> <li>the Holder may proceed to implement the plan, program or other document with or without revisions; or</li> <li>a revised plan, program, or other document must be provided for approval of the EAO prior to a specified activity or milestone.</li> </ol> <p>If the EAO advises pursuant to paragraphs (a) or (b) that changes are required to a plan, program, or other document, then the Holder must follow the instructions of the EAO in that regard.</p> <p>If the EAO does not advise on paragraphs (a) or (b) within 60 days of the EAO receiving a plan, program, or other document, the Holder may proceed to implement the plan, program or other document.</p> <p>The Holder may, or the EAO may require the Holder to, revise any plan, program or other document if the Holder or the EAO determines that the implementation of the plan, program or other document is not:</p> <ol style="list-style-type: none"> <li>meeting one or more objectives of the plan, program or other document set out in the relevant condition of this Certificate;</li> <li>having the effects contemplated or intended, as set out in the plan, program or other document itself;</li> <li>consistent with the Certificate; or</li> <li>consistent with changes in industry best practices or technology.</li> </ol>	<p>Draft AQDMP provided to Aboriginal Groups in August 2021 for review and comment.</p>
2.	<p><b>Plan Development</b></p> <p>Where a condition of this Certificate requires the Holder to develop a plan, program or other document, any such plan, program or other document must, at a minimum, include the following information:</p>	
	<p>a. purpose and objectives of the plan, program or other document;</p>	Section 1
	<p>b. roles and responsibilities of the Holder and Employees;</p>	Section 3, Table 3-1

Condition #	Description	Action/Location in the Plan
	c. names and, if applicable, professional certifications and professional stamps/seals, of those responsible for the preparation of the plan, program, or other document;	Signed by qualified professional
	d. schedule for implementing the plan, program or other document throughout the relevant Project phases;	Section 1 – the AQDMP will be implemented during construction, operations and closure
	e. means by which the effectiveness of the mitigation measures will be evaluated including the schedule for evaluating effectiveness;	Section 8.3, Section 9.2
	f. schedules and methods for the submission of reporting to specific agencies, Aboriginal Groups and the public and the required form and content of those reports; and	Section 10
	g. process and timing for updating and revising the plan, program or other document, including any consultation with agencies and Aboriginal Groups that would occur in connection with such updates and revisions.	Section 11
3.	<p><b>Adaptive Management</b></p> <p>Where a condition of this Certificate requires the Holder to develop a plan, program or other document that includes monitoring, including monitoring of mitigation measures or monitoring to determine the effectiveness of the mitigation measures, the Holder must include adaptive management in that plan. The objective of the adaptive management is to address the circumstances that will require the Holder to implement alternate or additional mitigation measures to address effects of the Project if the monitoring shows that those effects:</p> <ul style="list-style-type: none"> <li>a. are not mitigated to the extent contemplated in the Application;</li> <li>b. are not predicted in the Application; or</li> <li>c. have exceeded the triggers identified in paragraph g) of this condition.</li> </ul> <p>The adaptive management in the plan must include at least the following:</p> <ul style="list-style-type: none"> <li>d. the monitoring program that will be used including methods, location, frequency, timing and duration of the monitoring;</li> </ul>	Section 4, Section 8
	e. the baseline information that will be used, or collected where existing baseline information is insufficient, to support the monitoring program;	n/a (the baseline information is sufficient and monitoring data will continue to be collected over the LoM)
	f. the scope, content and frequency of reporting of the monitoring results;	Section 10.1

Condition #	Description	Action/Location in the Plan
	g. the identification of qualitative and quantitative triggers, which, when observed through monitoring required under paragraph d), will require the Holder to alter existing, or develop new, mitigation measures to avoid, reduce, and/or remediate effects;	Section 9.1, Table 9.1-1
	h. the methods that will be applied to detect when a numeric trigger, or type or level of change referred to in paragraph g), has occurred.	Section 9.1, Table 9.1-1
	i. a description of the process for and timing to alter existing mitigation measures or develop new mitigation measures to reduce or avoid effects;	Section 9.2
	j. identification of the new and/or altered mitigation measures that will be applied when any of the changes identified in paragraphs a) to c) occur, or the process by which those will be established and updated over the relevant timeframe for the specific condition;	Identification of new or altered mitigation measures will be determined based on monitoring results.
	k. the monitoring program that will be used to determine if the altered or new mitigation measures and/or remediation activities are effectively mitigating or remediating the effects and or avoiding potential effects; and,	Monitoring results and will be used to determine if mitigation measures are effective or need to be modified. The monitoring program is described in Section 8.3.
	l. the scope, content and frequency of reporting on the implementation of altered or new mitigation measures.	Section 10.1
	If there are any requirements or mitigation measures required in the plan, program or other document for which adaptive management, or elements of adaptive management listed in paragraphs d) to l) are assessed to be not appropriate or applicable, the plan must include identification of those requirements and measures, and the rationale for that assessment.	This will be assessed in future plan updates.
4.	<p><b>Consultation</b></p> <p>Where a condition of this Certificate requires the Holder consult a particular party or parties regarding the content of a plan, program or other document, the Holder must, to the satisfaction of the EAO:</p> <ol style="list-style-type: none"> <li>provide written notice to each such party that: i) includes a copy of the plan, program or other document; ii) invites the party to provide its views on the content of such plan, program or other document; and iii) indicates: <ol style="list-style-type: none"> <li>if a timeframe for providing such views to the Holder is specified in the relevant condition of this Certificate, that the party may provide such views to the Holder within such time frame; or</li> </ol> </li> </ol>	Draft AQDMP provided to Aboriginal Groups in August 2021 for review and comment. While BW Gold sets general timeframes for review and comments via written notice, BW Gold and Aboriginal Groups engage in ongoing communication to establish flexible timeframes agreed to by all parties.

Condition #	Description	Action/Location in the Plan
	1.2 if a timeframe for providing such views to the Holder is not specified in the relevant condition of this Certificate, specifies a reasonable period during which the party may submit such views to the Holder;	
	2. undertake a full and impartial consideration of any views and other information provided by a party in accordance with the timelines specified in a notice given pursuant to paragraph (a);	Comments from Aboriginal Groups and corresponding BW Gold responses are maintained in a tracking table. BW Gold comprehensively and impartially reviews received comments received within agreed upon timeframes on a regular basis.
	3. provide a written explanation to each such party that provided comments in accordance with a notice given pursuant to paragraph (a) as to: <ul style="list-style-type: none"> <li>3.1 how the views and information provided by such party to the Holder have been considered and addressed in a revised version of the plan, program or other document; or</li> <li>3.2 why such views and information have not been addressed in a revised version of the plan, program or other document;</li> </ul>	Responses BW Gold provides in the tracking table include explanations on how comments from Aboriginal Groups have been addressed in a revised version of the AQMP. In cases where such comments have not been addressed in the revised version, BW Gold similarly explains its rationale for doing so.
	4. maintain a record of consultation with each such party regarding the plan, program or other document; and	BW Gold is maintaining consultation records
	5. provide a copy of such consultation record to the EAO, the relevant party, or both, promptly upon the written request of the EAO or such party. The copy of such consultation record must be provided to the EAO, relevant party, or both, no later than 15 days after the Holder receives the request for a copy of the consultation record, unless otherwise authorized by the EAO.	Potential future requirement.
20.	The Holder must retain a Qualified Professional to develop an Air Quality and Dust Management Plan. The plan must be developed in consultation with ENV, EMPR, NHA and Aboriginal Groups. The plan must include at least the following: <ul style="list-style-type: none"> <li>a. the means by which the mitigation measures identified in the Mitigations Table required under Condition 43 for the valued component Air Quality will be implemented;</li> </ul>	Section 8.2



Condition #	Description	Action/Location in the Plan
	b. the means by which guidance contained in EMPR's and ENV's guidance: Developing a Fugitive Dust Management Plan for Industrial Projects (May 2018, or as updated or replaced from time to time) is addressed;	Appendix C
	c. the identification and detailed descriptions of dust-emitting sources from the Project;	Section 6
	d. the identification of environmental receptors to be monitored;	Section 8.3
	e. a compliance monitoring program, including the locations of monitoring stations and equipment that will be used to conduct the monitoring;	Section 8.3
	f. the contaminants of potential concern (COPC) and corresponding concentrations (triggers) that would cause the Holder to take corrective action to reduce contaminant concentrations to avoid adverse health effects to receptors identified in paragraph d);	Section 7.1
	g. how this plan will inform the Wildlife Management and Monitoring Plan (Condition 23), and Country Foods Monitoring Plan (Condition 41); and	Section 1.4
	h. how the Holder will notify the EAO, ENV, EMPR, NHA, Aboriginal Groups, IEM, and the public in the event that contaminant concentration triggers identified in paragraph f) are exceeded. The notification must include both a technical report and a plain language summary of the technical report.	Section 8.4
	The Holder must provide the draft plan that was developed in consultation with ENV, EMPR, NHA, and Aboriginal Groups to ENV, EMPR, NHA, Aboriginal Groups and the EAO for review a minimum of 60 days prior to the planned commencement of Construction or as listed in the Document Submission Plan required by Condition 10 of this Certificate.	To be submitted 60 days prior to planned commencement.
	The plan and any amendments thereto, must be implemented to the satisfaction of a Qualified Professional throughout Construction, Operations, and Closure and to the satisfaction of the EAO.	Future requirement.

## **Appendix B    Concordance with Canadian Environmental Assessment Agency Decision Statement (April 2019)**

## Appendix B Concordance with Canadian Environmental Assessment Agency Decision Statement (April 2019)

Condition #	Description	Location in Plan
2.1 (General Conditions)	The Proponent shall ensure that its actions in meeting the conditions set out in this Decision Statement during all phases of the Designated Project are considered in a careful and precautionary manner, promote sustainable development, are informed by the best information and knowledge available at the time the Proponent takes action (including community and Indigenous traditional knowledge), are based on methods and models that are recognized by standard-setting bodies, are undertaken by qualified individuals, and have applied the best available economically and technically feasible technologies.	Section 5; Section 7; Section 8; Section 12
2.2 (General Conditions)	The Proponent shall, when mitigation is a requirement of a condition set out in this Decision Statement, give preference to avoiding the adverse environmental effect of the Designated Project over minimizing the adverse environmental effect of the Designated Project. If unable to avoid the adverse environmental effect, the Proponent shall give preference to minimizing the adverse environmental effect of the Designated Project over compensating for the adverse environmental effect of the Designated Project. If unable to minimize the adverse environmental effect, the Proponent shall compensate for the adverse environmental effect of the Designated Project.	Section 8.2; Section 8.3
2.3 (General Conditions)	<p>The Proponent shall, where consultation is a requirement of a condition set out in this Decision Statement:</p> <p>2.3.1 provide a written notice of the opportunity for the party or parties being consulted to present their views and information on the subject of the consultation;</p> <p>2.3.2 provide all information available and relevant on the scope and the subject matter of the consultation and a period of time agreed upon with the party or parties being consulted, not less than 15 days, to prepare their views and information;</p> <p>2.3.3 undertake a full and impartial consideration of all views and information presented by the party or parties being consulted on the subject matter of the consultation;</p> <p>2.3.4 strive to reach consensus with Indigenous groups; and</p> <p>2.3.5 advise the party or parties being consulted on how the views and information received have been considered by the Proponent including a rationale for why the views have, or have not, been integrated. The Proponent shall advise the party or parties in a time period that does not exceed the period of time taken in 2.3.2.</p>	In Progress; Section 11

Condition #	Description	Location in Plan
2.4 (Consultation)	<p>The Proponent shall, where consultation with Indigenous groups is a requirement of a condition set out in this Decision Statement, determine and strive to reach consensus with each Indigenous group regarding the manner by which to satisfy the consultation requirements referred to in condition 2.3, including:</p> <p>2.4.1 the methods of notification;</p> <p>2.4.2 the type of information and the period of time to be provided when seeking input;</p> <p>2.4.3 the process to be used by the Proponent to undertake impartial consideration of all views and information presented on the subject of the consultation; and</p> <p>2.4.4 the period of time and the means by which to advise Indigenous groups of how their views and information were considered by the Proponent.</p>	In Progress
2.11 (Annual Reporting)	<p>The Proponent shall, commencing in the reporting year during which the Proponent begins the implementation of the conditions set out in this Decision Statement, prepare an annual report that sets out:</p> <p>2.11.1 the activities undertaken by the Proponent in the reporting year to comply with each of the conditions set out in this Decision Statement;</p> <p>2.11.2 how the Proponent complied with condition 2.1;</p> <p>2.11.3 for conditions set out in this Decision Statement for which consultation is a requirement, how the Proponent considered any views and information that the Proponent received during or as a result of the consultation, including a rationale for how the views have, or have not, been integrated;</p> <p>2.11.4 the information referred to in conditions 2.5 and 2.6 for each follow-up program;</p> <p>2.11.5 the results of the follow-up program requirements identified in conditions 3.14, 3.15, 3.16, 4.5, 5.5, 6.11, 6.12, 6.13, 6.14, 8.18.6, 8.20.5, 8.21, and 8.22 if required;</p> <p>2.11.6 any update made to any follow-up program in the reporting year;</p> <p>2.11.7 any modified or additional mitigation measures implemented or proposed to be implemented by the Proponent, as determined under condition 2.9 and rationale for why mitigation measures were selected pursuant to condition 2.5.4; and</p> <p>2.11.8 any change(s) to the Designated Project in the reporting year.</p>	Section 10.1.2
2.12 (Annual Reporting)	<p>The Proponent shall provide a draft annual report referred to in condition 2.11 to Indigenous groups, no later than June 30 following the reporting year to which the annual report applies. The Proponent shall consult Indigenous groups on the content and findings in the draft annual report.</p>	Section 10.1.2
2.13 (Annual Reporting)	<p>The Proponent, in consideration of any comments received from Indigenous groups pursuant to condition, 2.12 shall revise and submit to the Agency and Indigenous groups a final annual report, including an executive summary in both official languages, no later than September 30 following the reporting year to which the annual report applies.</p>	Section 10.1.2

Condition #	Description	Location in Plan
2.15 (Information Sharing)	When the development of any plan is a requirement of a condition set out in this Decision Statement, the Proponent shall submit the plan to the Agency and to Indigenous groups prior to construction, unless otherwise required through the condition.	In Progress
6.1	The Proponent shall mitigate, during all phases of the Designated Project, emissions of fugitive dust from the Designated Project, including dust associated with vehicles on project roads.	Section 8.2, Table 8.2-1
6.3	The Proponent shall develop, prior to construction and in consultation with Indigenous groups, a protocol for receiving complaints related to the exposure to noise and dust from the Designated Project. The Proponent shall respond to any noise or dust complaint(s) within 48 hours of the complaint being received and shall implement corrective actions to reduce exposure to noise or dust in a timely manner. The Proponent shall implement the protocol during construction, operation and decommissioning.	Section 8.4
6.12	The Proponent shall develop, prior to construction and in consultation with Indigenous groups and relevant authorities, a follow-up program to verify the accuracy of the environmental assessment as it pertains to adverse environmental effects of the Designated Project on the health of Indigenous Peoples as a result of changes to air quality and determine the effectiveness of mitigation measures. As part of the implementation of the follow-up program, the Proponent shall monitor nitrogen dioxide (NO <sub>2</sub> ), sulfur dioxide (SO <sub>2</sub> ), fine particulate matter (PM <sub>2.5</sub> ), particulate matter (PM <sub>10</sub> ), dust, and carbon monoxide (CO) in air. The Proponent shall implement the follow-up program during all phases of the Designated Project and shall apply conditions 2.9 and 2.10 when implementing the follow-up program.	Section 9
6.15	The Proponent shall develop, prior to construction and in consultation with Indigenous groups and relevant authorities, and implement, during all phases of the Designated Project, a plan to communicate the results of the follow-up program referred to in conditions 6.11, 6.12, 6.13 and 6.14 in plain language to Indigenous groups and relevant authorities. The communication plan shall include the procedures to communicate, including the frequency of communication.	Section 10.1.2



## **Appendix C    Concordance Table with Developing a Fugitive Dust Management Plan for Industrial Projects (EMPR & ENV 2018)**

## Appendix C Concordance Table with Developing a Fugitive Dust Management Plan for Industrial Projects (EMPR & ENV 2018)

Section	Description	Location in the Plan
1. Introduction	This section provides contextual background information on the project, project overview, and regulatory framework.	Section 1 Section 2
1.1 Company Information	Provide an overview including the name, organization and structure of the operating company.	Section 1.1
1.2 Permitting	Identify the permit for which this document is being developed and other relevant licences, authorizations and regulations which impact on this document.	Section 1
1.3 Purpose/Objectives and Scope	Describe the purpose and/or objectives that this plan will address.	Section 1
1.4 Authorship	A record of the development of the FDMP should be included.	Section 12
1.5 Submitted to	A record of the development and submission of the FDMP should be included.	n/a – The plan is being submitted with a Joint <i>Mines Act/ Environmental Management Act</i> permit application. This application seeks authorizations for air discharges.
2. Roles and Responsibilities	Describe the roles and responsibilities for implementation of, and compliance with, the plan.	Section 3 (AQDMP)
3. Facility Description and Setting		
3.1 Site Ownership and Physical Location	Provide information on the site ownership, all relevant tenures/ permit boundaries, and the project location in relation to local communities and other sensitive receptors.	Section 5.1 and 5.2
3.2 Descriptive Overview of the Facility	Provide a brief overview of the site and activities that could result in fugitive dust.	Section 5.3
3.3 Process Flow Diagram or Description of the Facility	Provide a process flow diagram and/or use descriptions to indicate the process, operations and equipment that have the potential to emit fugitive dust.	Figure 5.3-3
3.4 Facility Site Map (Including Dust Sources)	The site map will clearly identify the locations of all fugitive dust emission sources and site features discussed in the facility description.	Figure 5.2-3

Section	Description	Location in the Plan
4. Identification of Potential Sources or Activities which Generate Fugitive Dust	The FDMP must contain a list of potential sources and/or activities which may generate fugitive dust.	Section 6
4.1 Source List Review	The FDMP must include a procedure to ensure the source list is reviewed on a regular schedule to reflect current conditions.	Section 11
4.2 Source List Update Procedure	Outline the procedure to take when updating or removing existing sources or adding new sources to the list established in Section 4.1	Section 11
4.3 Fugitive Dust Source List	<p>The fugitive dust source list must include the following:</p> <ul style="list-style-type: none"> <li>• unique identification number or designation for each source;</li> <li>• location of the source within the facility (or reference id on the included site map);</li> <li>• potential source of fugitive dust;</li> <li>• factors influencing generation of dust (e.g., wind, operational activities); and</li> <li>• identification of the dust-generating material (e.g., aggregate, clean coal, road dust).</li> </ul>	Table 6-2
5. Identification of Potential Effects of Fugitive Dust	The potential effects of dust both on and off the site should be identified.	Section 7
6. Fugitive Dust Management	The FDMP must contain a description of how fugitive dust will be managed onsite.	Section 8.2
6.1 Best Management Practices (BMP)	BMPs represent the current 'state of practice' approach to manage dust impacts and effects, and aim to produce outcomes consistent with social, economic and environmental expectations.	Table 8.2-1
6.2 Site Specific Mitigation Measures	The FDMP is most effective when it is developed to be a site-specific, operational plan.	Section 8.2
7. Plan Implementation		
7.1 Training	The plan should identify training and frequency of training of site personnel identified in the 'Roles and Responsibilities' section to ensure that they are aware of their responsibilities under the plan.	Section 8.1
7.2 Monitoring and Maintenance	Monitoring activities may include tracking of public complaints, visual inspection of facilities by site personnel, and quantitative monitoring of the environment, such as passive particulate deposition (dustfall) or active suspended particulate (TSP, PM10 or PM2.5) sampling on and off site, to evaluate the effectiveness of dust control practices and to quantify levels of fugitive dust and its composition leaving the site.	Section 8.3

Section	Description	Location in the Plan
7.3 Trigger Action Response Plan (TARP)	The Response Plan should include specific triggers, actions to be taken, and reporting protocols.	Section 9
7.4 Record Keeping	The FDMP must include information on record keeping, including a complaint tracking tool and a record of dust events and responses.	Section 10.2
8. Adaptive Management	Adaptive management may be used to evaluate the effectiveness and direct continual improvement of the FDMP.	Section 9
9. Reporting	Outline the structure and timing of reporting, taking into account the annual reporting requirements of regulatory agencies, updates to First Nations and the public, and reporting related to the TARP (i.e., reporting out on dust events).	Section 10.1
10. References	References	Section 13.0



## **Appendix D    Transmission Line Air Quality and Fugitive Dust Management Plan**



Blackwater  
Mine



# Transmission Line Air Quality and Fugitive Dust Management Plan

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# Work Instructions

## Name of SOP

<b>Version</b>	G.1
<b>Replaces</b>	F.1
<b>Creation Date</b>	01/22/2024
<b>Scheduled Review Date</b>	
<b>Review Date</b>	
<b>Document Team Members</b>	
<b>Document Owner:</b>	
<b>Document Approver:</b>	
<b>Related Documents:</b>	
<b>Key Contacts:</b>	
<b>Change Requests:</b>	

## Context Statement

The Blackwater Gold Project (Project) received an Environmental Assessment Certificate #M19-01 (EAC) on June 21, 2019, under the 2002 *Environmental Assessment Act*, and received a Decision Statement (DS) on April 15, 2019, under the *Canadian Environmental Assessment Act, 2012*, approving the Project with conditions. Blackwater is an open pit gold and silver mine with associated ore processing facilities located 110 km southwest of Vanderhoof in central British Columbia. The EAC and DS includes activities associated with the construction and operation of an electrical transmission line (TL) that is required to provide the energy requirements for the Project. A number of provincial permits and authorizations will be required to construct and operate the TL. The primary permits include the following: Statutory Right-of-Way (StROW) and interim Licence of Occupation (LOO) for Crown Land, an Occupant Licence to Cut (OLTC), Road and Special Use Permits (for Roads), and Junction Permits for critical road intersections.

This Transmission Line Air Quality and Fugitive Dust Management Plan (TL AQDMP) supports applications for Crown land tenure (i.e., ROW, LOO) under the Land Act and is also required under the *Forest and Range Practices Act* (FRPA), and the Occupational Health and Safety (OHS) Regulation.



## Acronyms and Abbreviations

<b>Artemis</b>	Artemis Gold Inc.
<b>BC</b>	British Columbia
<b>Blackwater</b>	Blackwater Gold Project
<b>BMP</b>	Best Management Practices
<b>BW Gold</b>	BW Gold Ltd.
<b>CEO</b>	Chief Executive Officer
<b>CCME</b>	Canadian Council of Ministers of the Environment
<b>CCN</b>	Cheslatta Carrier Nation
<b>Code</b>	Health, Safety and Reclamation Code for Mines in British Columbia
<b>COO</b>	Chief Operating Officer
<b>CSFN</b>	Carrier Sekani First Nations
<b>CO</b>	Carbon Monoxide
<b>COPC</b>	Contaminants of Potential Concern
<b>DFO</b>	Fisheries and Oceans Canada
<b>DS</b>	Decision Statement
<b>EAC</b>	Environmental Assessment Certificate
<b>EAO</b>	Environmental Assessment Office
<b>ECCC</b>	Environment and Climate Change Canada
<b>EC</b>	Environmental Certificate
<b>ELoMC</b>	Environmental Life of Mine Committee
<b>EM</b>	Environmental Manager
<b>EMBC</b>	Emergency Management British Columbia
<b>MLI</b>	Ministry of Energy, Mines and Low Carbon Innovation
<b>EMP</b>	Environmental Management Plan
<b>EMPR</b>	Ministry of Energy Mines and Petroleum Resources
<b>EMS</b>	Environmental Management System
<b>ENV</b>	Ministry of Environment and Climate Change Strategy

<b>EPC</b>	Engineering, Procurement, and Construction
<b>FSR</b>	Forest Service Road
<b>GM</b>	General Manager
JAIR or Joint MA/EMA Application	Joint Application Information Requirements for <i>Mines Act and Environmental Management Act</i> Permits
<b>ha</b>	hectares
<b>Indigenous nations</b>	Lhoosk'uz Dené Nation, Ulkatcho First Nation, Nadleh Whut'en First Nation, Stellat'en First Nation, Saik'uz First Nation, and Nazko First Nation as defined by EAC M#19-01
<b>km</b>	Kilometre
<b>L</b>	Litre
<b>LDN</b>	Lhoosk'uz Dené Nation
<b>m</b>	Metre
<b>MOE</b>	Ministry of Environment
<b>MT</b>	Mitigation Table
<b>NFN</b>	Nazko First Nation
<b>NHA</b>	Northern Health Authority
<b>NO<sub>x</sub></b>	Nitrogen Oxides
<b>NWFN</b>	Nadleh Whut'en First Nation
<b>OBSCR</b>	Open Burning Smoke Control Regulation
<b>PAHs</b>	Polycyclic aromatic hydrocarbons
<b>Plan</b>	Transmission Line Air Quality and Fugitive Dust Management Plan
<b>PM</b>	Particulate Matter
<b>PM<sub>10</sub></b>	Particulate Matter <10 µm
<b>PM<sub>2.5</sub></b>	Particulate Matter <2.5 µm
<b>Project</b>	Blackwater Gold Project
<b>QA/QC</b>	Quality assurance/quality control
<b>QP</b>	Qualified Professional
<b>ROW</b>	Right of Way
<b>SAO</b>	Safe Act Observations

<b>SFN</b>	Saik'uz First Nation
<b>SOW</b>	Standard Operating Procedure
<b>StFN</b>	Stellat'en First Nation
<b>SO<sub>2</sub></b>	Sulphur Dioxide
<b>t</b>	tonnes
<b>TARP</b>	Trigger Action Response Plan
<b>TK</b>	Traditional Knowledge
<b>TL</b>	Transmission Line
<b>TL AQDMP</b>	Transmission Line Air Quality and Dust Management Plan
<b>TL CEMP</b>	Transmission Line Construction Environmental Management Plan
<b>TL IPMP</b>	Transmission Line Integrated Vegetation Management Plan
<b>TL IVMP</b>	Transmission Line Integrated Vegetation Management Plan
<b>TL RCP</b>	Transmission Line Reclamation and Closure Plan
<b>TL SEPSCP</b>	Transmission Line Surface Erosion Prevention and Sediment Control Plan
<b>TL WMP</b>	Transmission Line Wildfire Management Plan
<b>WMMP</b>	Wildlife Mitigation and Management Plan
<b>TN</b>	Tsilhqot'in Nation
<b>UFN</b>	Ulkatcho First Nation
<b>TSP</b>	Total Suspended Particulates
<b>UFN</b>	Ulkatcho First Nation
<b>US EPA</b>	United States Environmental Protection Agency
<b>VC</b>	Valued Component
<b>VOCs</b>	Volatile Organic Compounds
<b>VP</b>	Vice President
<b>WHMIS</b>	Workplace Hazardous Materials Information System

## 1.0 Project Overview

The Blackwater Gold Project (the Project) is a gold and silver open pit mine located in central British Columbia (BC), approximately 112 kilometres (km) southwest of Vanderhoof, 160 km southwest of Prince George, and 446 km northeast of Vancouver. The Project site is presently accessed via the Kluskus Forest Service Road (FSR), the Kluskus-Ootsa FSR and an exploration access road, which connects to the Kluskus-Ootsa FSR at km 142. Electrical power for the Project will be supplied by a new approximately 135 km, 230 kilovolt overland transmission line (TL) that will connect to the BC Hydro grid at the Glenannan substation located near the Endako mine, 65 km west of Vanderhoof. A brief description of the proposed TL is as follows:

- From the Glenannan substation to the mine site permit area, the transmission line will be permitted by way of Licence of Occupation (statutory right-of-way; ROW);
- The TL will be constructed within a cleared right of way (ROW) of 40 metre (m) width for standard spans, but up to 50 m width for longer spans in select areas. The TL ROW area is approximately 515 ha;
- Existing permitted and non-status roads will be used for the purpose of accessing the ROW. New access trails and stream crossings will be located only within the TL cleared ROW;
- Equipment and material laydown areas will also lie within the cleared ROW; and
- The construction workforce will be housed at the Project camp or other independent commercial accommodations in the area.

Overall Project construction is anticipated to take two years. The TL is anticipated to take approximately 14 months to construct.

Post-construction, most of the temporary access trails used for construction on the TL ROW will be deactivated and/or decommissioned within 3 years with the exception of those required for maintenance. During operation of the TL there will be periodic inspections and maintenance as well as occasional unscheduled power supply interruptions that will require inspection and maintenance/repair activities.

Once commissioned, the TL will be required to support mine development throughout the Project's 23-year mine life. There may be some ongoing requirements for the TL following mine closure and into post-closure, pending post-closure electrical load evaluation. The TL will be decommissioned 46 years (or more) after construction, during the Project's post-closure phase.

The Blackwater mine site is located within the traditional territories of Lhoosk'uz Dené Nation (LDN), Ulkatcho First Nation (UFN), Skin Tyee Nation and Tsilhqot'in Nation. The Kluskus and Kluskus-Ootsa Forest Service Roads (FSR) and Project TL cross the traditional territories of Nadleh Whut'en First Nation (NWFN), Saik'uz First Nation (SFN), and Stellat'en First Nation (StFN; collectively, the Carrier Sekani First Nations) as well as the traditional territories of the Nazko First Nation (NFN), Nee Tahi Buhn Band, Cheslatta Carrier Nation and Yekooche First Nation (EAO 2019a and 2019b).

Additional details on transmission line components and activities are presented in Section 3.2 of the Transmission Line Initial Project Description (TL IPD; BW Gold 2022).

## 1.1 Permitting

A number of provincial permits and authorizations will be required to construct and operate the TL. The primary permits include the following: Statutory Right-of-Way (ROW) and interim Licence of Occupation (LOO) for Crown Land, an Occupancy Licence to Cut (OLTC), Road and Special Use Permits (for Roads) Road Use Permits, and Junction Permits for critical road intersections. This management plan is provided in support of the LOO permit application.

Parameters selected for the TL AQDMP includes some of the same parameters included in the mining assessment:

- Fugitive dust including Total Suspended Particulates (TSP), particulate matter (PM)<sub>10</sub>, fine particulate matter (PM<sub>2.5</sub>); and
- Criteria air contaminants including sulphur dioxide (SO<sub>2</sub>) nitrogen dioxide (NO<sub>x</sub>) and carbon monoxide (CO).

Federal and provincial legislation that may be relevant to air quality and dust control include:

- *Canadian Environmental Protection Act, 1999*;
- *Forest & Range Practices Act*;
- Environmental Emergency Regulations;
- *Transportation of Dangerous Goods Act*;
- Transportation of Dangerous Goods Regulations;
- *Environmental Management Act 2003*;
- Environmental Code of Practice for Metal Mines 2009;
- *Hazardous Products Act* and Hazardous Products Regulations;
- *Hazardous Materials Information Review Act*;
- *Mines Act*;
- Health, Safety and Reclamation Code for Mines in British Columbia (2021);
- Chief Inspector's Directive – Hydrocarbon Spills, May 15, 2015;
- Workplace Hazardous Materials Information System (WHMIS) Regulation (Mines); and
- Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products.

The TL AQDMP and any amendments thereto, must be implemented to the satisfaction of a QP throughout Construction, Operations, and Closure and to the satisfaction of the EAO. Guidance documents related to air quality and fugitive dust management include:

- The Guideline for the Selection of Valued Components and Assessment of Potential Effects (BC EAO, 2013);
- British Columbia Ambient Air Quality Objectives (2021);
- Canadian Ambient Air Quality Standards (2020);
- *Developing a Fugitive Dust Management Plan for Industrial Projects* (May 2018);
- Implementation Guidelines for the Environmental Emergency Regulations (2011);



- On-Road Vehicle and Engine Emission Regulations (SOR/2003-2), Canada Gazette Part II, Vol. 137, No. 1;
- Off-Road Compression-Ignition Engine Emission Regulations (SOR/2005-32);
- US EPA; 40 CFR Part 9, 86 and 89 Control of Emissions of Air Pollution from Non-road Diesel Engines; Final Rule;
- Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations (SOR/2013-24);
- British Columbia Field Sampling Manual: 2020 – Part B Air and Air Emissions Testing; and
- BC MOE 2016. Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators.

Consistent with the Guidance (EMPR & ENV, 2018), the TL AQDMP does not address occupational health and safety requirements pertaining to workplace exposures to dust. Worker health and safety at Project sites is regulated by the Health, Safety and Reclamation Code for Mines in BC (EMLI, 2021).

## 1.2 Purpose and Objectives

The purpose of the TL AQDMP is to minimize the effects of the TL project's air emissions on human health and the natural environment. The TL AQDMP has adopted an air quality and emissions management system that recognizes and responds to the issue of gaseous and particulate emissions at all stages of the TL project, from planning, construction, operations, and to closure. The TL AQDMP outlines mitigation measures and best management practices (BMPs), monitoring, adaptive management, and a follow-up monitoring program. The Plan identifies dust-emitting sources, dust mitigation measures, and contingency measures in the event that primary control measures are not effectively controlling dust emissions.

The objectives of the TL AQDMP are to:

- Identify TL project activities which may impact emissions;
- Establish measurable goals and targets to air quality and emissions management;
- Protect the air quality through the development of environmental mitigation measures associated with construction and operations activities;
- Address air quality related environmental aspects in the planning, design, and execution phases of the TL project;
- Implement BMPs for air emissions;
- Describe the management practices expected for all employees, contractors, and subcontractors related to the air quality and emissions management; and
- Identify the process for recording, reporting, and correcting non-compliance related to the TL AQDMP.

The TL AQDMP is linked to the Transmission Line Integrated Vegetation Management Plan (TLIVMP); Transmission Line Reclamation and Closure Plan (TLRCP); Transmission Line Surface Erosion Prevention and Sediment Control Plan (TLSEPSCP); Transmission Line Construction Environmental Management Plan (TL CEMP); Transmission Line Wildfire Management Plan (TL WMP); and the Wildlife Mitigation and Management Plan (WMMP).

## 1.3 Scope

The scope of this TL AQDMP includes all TL construction activities and is a standalone document. The scope of the TL AQDMP is to enhance existing policies and procedures for all relevant stakeholders. The TL AQDMP is supplementary to, and does not replace or override, any existing Government legislation, and associated Regulations.

## 2.0 Roles and Responsibilities

BW Gold has the obligation of ensuring that all commitments are met and that all relevant obligations are made known to mine personnel and site contractors during all phases of the mine life. A clear understanding of the roles, responsibilities, and level of authority that employees and contractors have when working at the mine site is essential to meet Environmental Management System (EMS) objectives. The BW Gold Construction Manager (CM) and Environmental Manager (EM) is responsible for communicating with EMBC, and for notifying the Ministry of Environment and Climate Change Strategy (ENV) depending on the environmental impact.

Table 2-1 provides an overview of general environmental management responsibilities during all phases of the mine life for key positions that will be involved in environmental management. This table also includes roles and responsibilities for the TL AQDMP. Other positions not specifically listed in Table 2-1 but who will provide supporting roles include independent environmental monitors, Independent Tailings Review Board, TSF qualified person, and other qualified persons and qualified professionals.

**Table 2-1: Blackwater Roles and Responsibilities**

Position	Responsibility
Chief Executive Officer (CEO)	The CEO is responsible for overall Project governance. Reports to the Board.
Chief Operating Officer (COO)	The COO is responsible for engineering and Project development and coordinates with the Mine Manager to ensure overall Project objectives are being managed. Reports to CEO.
Vice President (VP) Environment & Social Responsibility	The VP is responsible for championing the Environmental Policy Statement and EMS, establishing environmental performance targets, and overseeing permitting. Reports to COO.
General Manager (GM) – Development	The GM is responsible for managing project permitting, the Project's administration services and external entities, and delivering systems and programs that ensure Artemis's values are embraced and supported: Putting People First, Outstanding Corporate Citizenship, High Performance Culture, Rigorous Project Management and Financial Discipline. Reports to COO.
Mine Manager	The Mine Manager, as defined in the Mines Act, has overall responsibility for mine operations, including the health and safety of workers and the public, Environmental Management System (EMS) implementation, overall environmental performance and protection, and permit compliance. The Mine Manager may delegate their responsibilities to qualified personnel. Reports to GM.
Construction Manager (CM)	The CM is accountable for ensuring environmental and regulatory commitments and obligations are being met during the construction phase, including TL AQDMP implementation and compliance. Reports to GM.

<b>Position</b>	<b>Responsibility</b>
Environmental Manager (EM)	The EM is responsible for the day-to-day management of the Project's environmental programs, compliance with environmental permits, and updating EMS and MPs. The EM or designate will be responsible for reporting non-compliance to the CM, and Engineering, Procurement, and Construction contractor (EPC), other contractors, the Company, and regulatory agencies, where required. If TARP triggers are observed, the EM is responsible for notifying the EAO, EMPR, NHA, Indigenous Groups, and the public. The notification will include both a technical report and a plain language summary of the technical report. Supports the CM with TL AQDMP implementation and compliance, and reports to Mine Manager.
Departmental Managers	Departmental Managers are responsible for implementation of the EMS relevant to their areas. Reports to Mine Manager.
Indigenous Relations Manager	Indigenous Relations Manager is responsible for Indigenous engagement throughout the life of mine. Also responsible for day-to-day management and communications with Indigenous groups. Reports to EM.
Community Relations Advisor	Community Relations Advisor is responsible for managing the Community Liaison Committee and Community Feedback Mechanism. Reports to Mine Manager.
Environmental Monitors	Environmental Monitors (includes Environmental Specialists and Technicians) are responsible for tracking and reporting on environmental permit obligations through field-based monitoring programs. Report to EM.
Aboriginal Monitors	Aboriginal Monitors are required by EAC #M19-01 Condition 17 and will be responsible for monitoring the Project's potential effects on Aboriginal interests. Aboriginal Monitors will be involved in adaptive management and follow-up monitoring programs.
Employees and Contractors	Employees and Contractors are trained and responsible for being aware of permit requirements specific to their roles and responsibilities, including the TL AQDMP. If fugitive dust concerns are raised in concern with the TL AQDMP, they shall report to their site supervisor who will relay to the EM and/or CM. Report to departmental managers.
Qualified Professionals and Qualified Persons	Qualified professionals and qualified persons will be retained to review objectives and conduct various aspects of environmental and social monitoring as specified in EMPs and social MPs.

BW Gold will employ a qualified person as an Environmental Manager (EM) who will ensure that throughout the Construction phase (including the construction of the TL), the EMS requirements are established, implemented, maintained, and that environmental performance is reported to management for review and action. The EM is responsible for retaining the services of qualified persons or qualified professionals with specific scientific or engineering expertise to provide direction and management advice in their areas of specialization. The EM will be supported by a staff of Environmental Monitors that will include Environmental Specialists and Technicians and a consulting team of subject matter experts in the fields of environmental science and engineering.

During the Construction phase, the Engineering, Procurement, and Construction (EPC) contractor and subcontractors, will report to the Construction Manager (CM). The EPC contractor will be responsible for ensuring that impacts are minimized, and environmental obligations are met during the Construction phase. For non- EPC contractors, who will perform some of the minor works on site, the same reporting structure, requirements, and responsibilities will be established as outlined above. BW Gold will maintain overall responsibility for management of the construction and operation of the mine site and will therefore be responsible for establishing employment and contract agreements, communicating environmental requirements, and conducting periodic reviews of performance against stated requirements.

The CM is accountable for ensuring that environmental and regulatory commitments/obligations are being met during the construction phase on site, including the TL AQDMP. The EM will be responsible for ensuring that construction activities are proceeding in accordance with the objectives of the EMS, associated MPs, and TL AQDMP. The EM or designate will be responsible for reporting non-compliance to the CM, EPC contractor, other contractors, the Company, and regulatory agencies, where required. The EM or designate will have the authority to stop any construction activity that is deemed to pose a risk to the environment; work will only proceed when the identified risk has been addressed and concerns rectified.

Environmental management during operation of the TL project will be integrated under the direction of the EM, who will liaise closely with Departmental Managers and will report directly to the Mine Manager. The EM will be supported by the VP of Environment and Social Responsibility in order to provide an effective and integrated approach to environmental management and ensure adherence to corporate environmental standards. The EM will be accountable for implementing the approved MPs (including TL AQDMP) and reviewing them periodically for effectiveness. Departmental Managers will be directly responsible for implementation of the EMS and MPs/standard operating procedures) relevant to their areas. It is expected that during operations of the TL project that the operations, inspection, and maintenance/repair of the TL will fall under the Mine Site Services Department, with some of the services being assigned to qualified consultants and contractors. All employees and contractors are responsible for daily implementation of the practices and policies contained in the EMS and TL AQDMP.

During closure and post-closure staffing levels will be reduced to align with the level of activity associated with these phases. Prior to initiating closure activities, BW Gold will revisit environmental and health and safety roles and responsibilities to ensure the site is adequately resourced to meet permit monitoring and reporting requirements. The Mine Manager will have overall responsibility for Closure and Post-closure activities.

Pursuant to Condition 19 of the EAC, BW Gold has established an Environmental Life of Mine Committee (ELoMC) to facilitate information sharing and provide advice on the development and operation of the Project, and the implementation of EAC conditions, in a coordinated and collaborative manner. Committee members include representatives of the EAO, Uikatcho First Nation (UFN), Lhoosk'uz Dene Nation (LDN), Nadleh Whut'en First Nation (NWFN), Stellat'en First Nation (StFN), Saik'uz First Nation (SFN), Nazko First Nation (NFN), Ministry of Energy, Mines and Low Carbon Innovation (EMLI), ENV, and Ministry of Forests, Lands, Natural Resource Operations and Rural Development.

Pursuant to Condition 17 of the EAC, Aboriginal Group Monitor and Monitoring Plan, BW Gold will retain or provide funding to retain a monitor for each Aboriginal Group prior to commencing construction and through all phases of the mine life. The general scope of the monitor's activities will be related to monitoring for potential effects from the Project on the Aboriginal Group's Aboriginal interests.

The TL Engineering Procurement and Construction Management or Engineering, Procurement, and Construction contractor roles and responsibilities relating to environmental management, industrial and domestic waste management, and environmental protection are identified below in Table 2-2.

**Table 2-2: Transmission Line Construction Contractor Roles and Responsibilities**

Role	Responsibility
Contractor Construction Manager (CCM)	<p>The Contractor Construction Manager (CCM) has ultimate responsibility for construction proceedings, including worker and public health and safety and environmental protection. The CCM will ensure the implementation of training programs as well as support the Blackwater Gold Environmental Policy. The CCM will ensure that adequate support and resources are made available for the implementation and maintenance of the Environmental Management System (EMS), including the TL AQDMP implementation and review. The CCM may, as needed, delegate their duties to Qualified Professional (QPs). Report to the BW Gold Construction Manager.</p>
Contractor Construction Superintendents	<p>The Contractor Construction Superintendents have an administrative responsibility and requirement to act upon the directions, guidance, and support of the Construction Manager. They are resources to the CCM, and have the following responsibilities:</p> <ul style="list-style-type: none"> <li>• Learning and following the TL AQDMP in relation to their work;</li> <li>• Support the implementation of the Blackwater Gold Environmental Policy;</li> <li>• Ensure that environmental matters are given consideration in pre-planning of construction activities, budgets, training, and operations; and</li> <li>• Ensure that workers under their supervision are made aware of known, or reasonably foreseeable, environmental aspects where they work.</li> </ul>
Construction Employees, Contractors, and Subcontractors	<ul style="list-style-type: none"> <li>• Employees have general responsibilities for environmental protection, which include: <ul style="list-style-type: none"> <li>– Learning and following the TL AQDMP in relation to their work;</li> <li>– Supporting the Blackwater Gold Environmental Policy;</li> <li>– Supporting implementation of EMPs;</li> <li>– Cooperating with the Blackwater Environment Committee representative(s);</li> <li>– Learning and following environmental best practices and procedures relevant to their work;</li> <li>– Following instructions and directives given by supervisors;</li> <li>– Operating equipment in an environmentally responsible manner to avoid environmental impacts;</li> <li>– If training another worker, ensuring that they are properly completing all required tasks and responsibilities in accordance with environmental best practices procedures;</li> <li>– Reporting all environmental incidents immediately to their supervisor, who will expedite a response to address the incident;</li> <li>– Participating in mitigating or minimizing harm to the environment should an environmental incident occur; and</li> <li>– Asking for help or information when unsure how to perform a task without compromising social, cultural, archaeological, or environmental values.</li> </ul> </li> </ul>



## 3.0 Project Setting

### 3.1 Emissions and Physical Location Overview

The TL AQDMP addresses the new approximately 135 km overland transmission line (TL) that will connect the mine to the BC Hydro grid, as described in the Project Overview. There is an absence of heavy industrial air emission sources within the local and regional project areas that could add to the TL emissions aside from the mine itself. The TL activities determined to contribute to cumulative air quality effects are those associated with combustion emissions, unpaved roads, and material handling as these activities may generate air emission such as TPM, PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, and CO.

Of the listed general land uses below, mining exploration and forestry resource use are the activities that may have the largest non-TL cumulative effects contribution to air quality during TL construction. The other activities listed are not expected to create measurable changes in the air quality. Known general land uses within the region include:

- Protected areas and parks;
- Recreation/tourism use (e.g., all-terrain vehicle use);
- Forestry and timber resource use;
- Hunting/trapping/guide outfitting;
- Fishing and aquaculture;
- Agriculture and grazing;
- Range use;
- Mining, exploration, and mineral tenures;
- Land ownership and tenures;
- Recreational and commercial use of waterways;
- Groundwater resource use; and
- Surface water resource use.

Local residents and Indigenous groups and their members have expressed interest in the potential effects on air quality during TL construction and operations. These groups' comments during the engagement and consultation process have provided insights into traditional, ecological, and community knowledge, which is defined as a body of knowledge built up by a group of people through generations of living in close contact with nature. This includes unique knowledge about the local environment, how it functions, and its characteristic ecological relationships. No specific sensitive environmental receptors specific to the TL are identified at this time to be monitored. Mine sensitive receptors include the Project operations camp, and Tatelkus Lake Indian Reserve 28 (tatelkus Lake 28), as indicated in the Project Air Quality and Fugitive Dust Management Plan (AQDMP)

During a meeting with the Nazko First Nation (NFN), members emphasized that clean air, including being free of dust, is important to ensure medicinal plants and waters are clean to eat and drink. Lhoosk'uz Dene Nation (LDN) and Saikuz First Nation (SFN) elders also noted their concerns about the potential effects of the Project, such as the impact of dust and emissions on air quality.

## 4.0 Identification of Potential Sources or Activities which Generate Fugitive Dust

### 4.1 Source List Review

Fugitive dust will be generated from construction activities including material handling and resuspended road dust. Other particulate sources include diesel emissions and industrial burning.

TL project construction is anticipated to start in late 2022. Air quality and fugitive dust management is critical for safety, and for preventing potential effects to local and regional wildlife populations and habitats. The Project has adopted an air quality and emissions management system that recognizes and responds to the issue of gaseous and particulate emissions at all stages of the Project, from planning, construction, operation, closure, and post closure. This includes systematically identifying sources, predicting contaminants levels, evaluating potential effects on human health and the environment, and incorporating prediction and control measures.

During construction and operations phases of the TL, many of the emissions will result from diesel fuelled internal combustion engines, industrial burning, and fugitive dust. Emitted substances will be dispersed into the surrounding air and concentration levels will depend on emission rates, release characteristics, meteorological parameters, and topography. Due to the physical length of the TL, meteorological parameters and topography are expected to vary. Diesel emission levels depend on engine design parameters, emissions controls, equipment maintenance, and the power rating, and do not depend on TL project phase or activity. Industrial burning of debris piles is addressed in the TL WMP, along with inspections and maintenance of fire equipment. Timing of burning activities depends on local burning bans. Fugitive dust is the primary source of TL project air emissions. Potential dust sources include material handling/rehandling, construction and use of unpaved roads, blasting, compaction, drilling, grading, material loading and unloading.

Air quality and emissions management defines the programs and procedures that have been, or will be, developed for ensuring that all air quality risks are adequately addressed, prevented, and controlled for all phases of the TL project including design, construction, operations, and decommissioning/closure. This includes the following activities:

- Timber harvesting;
- Road construction, including bridges;
- Material handling;
- Equipment selection (vehicles, drilling and process equipment, etc.);
- Site clearing;
- Vehicle traffic and use of heavy equipment (paved and unpaved roads); and
- Blasting.

In order to quantify cumulative air quality effects, it is necessary to obtain spatially and temporally specific activity information so that emissions can be estimated and assigned to a specific geographic area. By their nature, forestry resource use and mining exploration are activities that move continuously and have a relatively low level of activity in any specific location over a significant period of time. This would be the same case for TL construction. Therefore, the TL project air quality effects are expected to be lower than an activity that remains in one location for a longer period of time.

## 4.2 Source List Update Procedure

The TL AQDMP's source list shall be reviewed as needed to reflect current site conditions. If fugitive dust sources are removed or new sources are added/observed on site by employees, contractors, EM, or CM, the TL AQDMP will be updated by the EM. At minimum, the source list will be reviewed annually by the EM.

## 4.3 Fugitive Dust Source List

Table 4-1 below will be updated to list and identify fugitive dust sources during all phases of TL construction.

Table 4-2 provides an overview of the TL project activities anticipated to emit fugitive dust by TL project phase.

**Table 4-1: TL Fugitive Dust Source List**

Unique ID	Location	Potential Source	Dust Generating Material	Generation Conditions	Additional Comments
Stockpile Area 1 (SP-001)	Designated stockpile area	Wind erosion, material handling	Fine aggregate 0.05mm – 1mm, 1mm – 2 mm	Windy, dry, or hot days, material handling operations	Location will change as TL construction moves along 135 km stretch.
Unpaved Road 1 (UR-001)	Main activity area for transport vehicles	Vehicle traffic	Road dust, aggregate, diesel emissions	Windy, dry, or hot days, material handling operations, vehicle equipment condition, number of vehicle passes, vehicle weight	Location will change as TL construction moves along 135 km stretch.
Blasting Zone 1 (BZ-001)	Blasting zones (if required)	Blasting	Soil/rock composition of blast site	Windy, dry, or hot days, blast size, material handling operations	Location will change as TL construction moves along 135 km stretch.
Staging Area 1 (ST-001)	Staging area	Vehicle traffic	Road dust, aggregate, diesel emissions	Windy, dry, or hot days, vehicle traffic, vehicle equipment condition, number of vehicle passes, vehicle weight	Location will change as TL construction moves along 135 km stretch.
Drilling Area 1 (DR-001)	Drilling area	Drilling	Soil/rock composition of drilling site	Windy, dry, or hot days, drilling duration, material handling operations	Location will change as TL construction moves along 135 km stretch.

Unique ID	Location	Potential Source	Dust Generating Material	Generation Conditions	Additional Comments
Road Construction 1 (RC-001)	Incomplete road construction area	Road construction operations, material handling	Road dust, aggregate, diesel emissions	Windy, dry, or hot days, material handling operations, vehicle equipment condition, number of vehicle passes, vehicle weight	Location will change as TL construction moves along 135 km stretch.
Borrow Pit 1 (BP-001)	Designated borrow pit area	Material handling	Aggregates, soil	Windy, dry, or hot days, vehicle equipment condition, material handling operations	Location will change as TL construction moves along 135 km stretch.
Screening Area 1 (SC-001)	Designated screening area	Screening, material handling	Aggregate	Windy, dry, or hot days, material handling operations	Location will change as TL construction moves along 135 km stretch.
Clearing Area 1 (CL-001)	Clearing area	Clearing Equipment, material handling	Sawdust, upturned soil	Windy, dry, or hot days, clearing duration, vehicle equipment condition, material handling operations	Location will change as TL construction moves along 135 km stretch.
Transmission Line Construction 1 (TL001)	Incomplete transmission line construction area	Material Handling	Aggregate, soil	Windy, dry, or hot days, vehicle equipment condition, material handling operations	Location will change as TL construction moves along 135 km stretch.
Industrial Burning Area (IB-001)	Designated pile burning area	Material candling, burn piles	Wood combustion	Refer to TL WMP. Schedule varies on conditions.	Location will change as TL construction moves along 135 km stretch.



**Table 4-2: TL Activities Resulting in Fugitive Dust by Phase**

Construction	Operations	Closure	Post-closure
<ul style="list-style-type: none"> <li>• Land clearing and earthworks for all on-site components</li> <li>• Construction and use of unpaved access roads</li> <li>• Surface blasting and drilling</li> <li>• Construction of TL project roads</li> <li>• Construction of the transmission line</li> <li>• stockpiles, borrow areas, and laydown areas</li> <li>• Aggregate extraction from borrow pits</li> <li>• Borrow and aggregate screening areas</li> <li>• Industrial burning</li> </ul>	<ul style="list-style-type: none"> <li>• Use of unpaved surfaces including roads</li> <li>• Road maintenance</li> <li>• Progressive reclamation, restoration activities</li> </ul>	<ul style="list-style-type: none"> <li>• Use of unpaved roads</li> <li>• Road maintenance</li> <li>• Progressive reclamation, restoration activities</li> </ul>	<ul style="list-style-type: none"> <li>• Use of unpaved roads</li> <li>• Road maintenance</li> </ul>

# 5.0 Identification of Potential Effects of Fugitive Dust

The greatest fugitive dust generation will occur during the TL project construction phase. Fugitive dust emitted from construction operations may have potential adverse effects on human health and pose environmental risks both on and off site.

The United States Environmental Protection Agency (US EPA, 2021) states that “the size of particles is directly linked to their potential for causing health problems. Small particles less than 10 micrometers in diameter pose the greatest problems, because they can get deep into your lungs, and some may even get into your bloodstream.” Potential environmental effects include visibility impairment, environmental damage, and materials damage (US EPA, 2021). Potential effects listed by the US EPA are summarized in the Table 5-1. The impact depends on fugitive dust concentration, particulate sizes, and location of operations and receptors.

**Table 5-1: Potential Health and Environmental Effects of Particulate Matter**

Potential Health Effects	Potential Environmental Effects
<ul style="list-style-type: none"><li>• premature death in people with heart or lung disease</li><li>• nonfatal heart attacks</li><li>• irregular heartbeat</li><li>• aggravated asthma</li><li>• decreased lung function</li><li>• increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing.</li></ul>	<ul style="list-style-type: none"><li>• reduced visibility (haze) from fine particulates</li><li>• making lakes and streams acidic</li><li>• changing the nutrient balance in coastal waters and large river basins</li><li>• depleting the nutrients in soil</li><li>• damaging sensitive forests and farm crops</li><li>• affecting the diversity of ecosystems</li><li>• contributing to acid rain effects</li><li>• staining and damaging stone and other materials, including culturally important objects such as statues and monuments</li></ul>

(US EPA, 2021)

## 6.0 Air Quality and Fugitive Dust Management

Particulate and gaseous contaminant emissions management will be applied throughout all phases of the TL project lifecycle, including construction, operations, and decommissioning/closure. Most fugitive dust emissions occur from vehicle travel on unpaved roadways (e.g., access roads) resuspending particulate matter (PM) into the air, and from materials handling equipment (e.g., bulldozers, graders, trucking). Other mitigation measures for PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, and CO from diesel fuelled equipment relate to engine emission controls, as those substances are generated as combustion by-products.

### 6.1 Best Management Practices (BMP)

The following procedures for dust management will apply to all phases of the TL project. These mitigation and preventative measures will be monitored and reviewed for continuous improvement opportunities as the TL project progresses. These procedures may include, but are not limited to, the following:

- Minimize clearing of vegetation for construction areas to limit surface disturbance;
- Minimize drop heights for material handling, loading, and unloading;
- Progressive reclamation of disturbed areas will occur as soon as feasible;
- Maintenance of unpaved roads which will be regularly compacted and kept in good repair;
- Use of coarse aggregate for road surfaces with low silt content;
- Vehicles will be driven at designated speeds on project roads;
- Roadways and stockpiles will be wetted as needed to minimize dust from grading, vehicle traffic, and wind erosion when ambient air temperatures permit;
- Water or spray quantities used will be documented;
- Reporting incidents involving excessive dust on site;
- Weather preparedness; and
- Employee training.

### 6.2 Site Specific Mitigation Measures

To minimize gaseous emissions from diesel combustion on site, the EM will ensure that all equipment and vehicles will be maintained to ensure that they are operating as per manufacturers specifications. This may include equipment and vehicles with Canadian Tier emissions standards. All off-road vehicles will use ultra-low sulphur diesel (15 parts per million [ppm] maximum), as required under Canadian emissions regulations. Smoke emissions from industrial burning are also expected to occur. The EM will ensure that the TL WMP is followed and that burning times and emissions follow OBSCR requirements to minimize impacts.

Most TL project fugitive dust emissions are expected to occur from vehicle travel on unpaved roads (e.g., access roads) and from material handling (bulldozers, graders, trucking). This will be mitigated using a combination of preventative strategies and mitigation controls shown in Table 6-1. The EM and CM will be responsible to ensure that strategies and controls are implemented and followed as required. Contractors and employees will require training to identify when additional mitigation measures are required.

**Table 6-1: Fugitive Dust Mitigation Measures**

Unique ID	Mitigation Measures
Stockpile Area 1 (SP-001)	<ul style="list-style-type: none"> <li>Minimize stockpile area as much as possible.</li> <li>Locate stockpile areas where wind speed is minimal or blocked.</li> <li>When practicable in an active work zone, water stockpiles on dry windy (average wind speed above 10 m/s) days above freezing temperatures.</li> <li>Minimize material drop heights where possible when adding material to stockpiles.</li> <li>Cover stockpiles if abandoned for a long period of time.</li> <li>When unloading material, piles should form low piles that extend horizontally, where practical.</li> <li>Employees involved in material handling or management will receive training by a qualified person on the importance of minimizing material drop height (from excavator to truck, conveyor to stockpile, etc.) to reduce fugitive dust.</li> <li>Ensure a supply of water and available transportation vehicles, weather depending.</li> </ul>
Unpaved Road 1 (UR-001)	<ul style="list-style-type: none"> <li>Limit vehicle speed on site to a maximum of 50 km/hr.</li> <li>Minimize unpaved road distances for vehicle travel where possible.</li> <li>Road surfaces will be constructed of coarse aggregate with low silt content where additional road surfacing material is required.</li> <li>Water or apply calcium chloride to suppress resuspension of particulates on dry and/or high activity days.</li> <li>Further reduce speed limits on Project-owned roads if weather conditions cause fugitive dust emissions and dust cannot be controlled by watering.</li> <li>Ensure a supply of water and available transportation vehicles, weather depending (non-freezing conditions).</li> </ul>
Blasting Zone 1 (BZ-001)	<ul style="list-style-type: none"> <li>Schedule blasting for favourable moist conditions where possible</li> <li>Use blasting mats, when possible, where high particulate suspension is expected</li> <li>Use weather forecasts to inform blasting plan (e.g., wind forecast, lightning and thunder warnings).</li> <li>Immediately prior to blasting, the “Blast Engineer / Blast Coordinator” must check weather conditions to determine if the blast is likely to cause any dust or fume impacts on the surrounding environment.</li> <li>Where dust or fume impacts on employees and environment cannot be avoided, blasting must be postponed until weather conditions improve. The CM will decide when to postpone blasting.</li> </ul>
Staging Area 1 (ST-001)	<ul style="list-style-type: none"> <li>Minimize staging area as much as possible</li> <li>Locating staging areas where wind speed is minimal or blocked</li> </ul>
Drilling Area 1 (DR-001)	<ul style="list-style-type: none"> <li>Schedule drilling for favourable moist conditions where possible</li> <li>Use wet drilling during very dry conditions (less than 0.25 mm/day of precipitation in the previous week)</li> </ul>

Unique ID	Mitigation Measures
Road Construction 1 (RC-001)	<ul style="list-style-type: none"> <li>• Limit vehicle speed on site to a maximum of 50 km/hr.</li> <li>• Minimize unpaved road distances for vehicle travel where possible.</li> <li>• Watering or application of calcium chloride to suppress resuspension of particulates on dry and/or high activity days.</li> <li>• Minimize material drop heights where possible.</li> <li>• Road surfaces will be constructed of coarse aggregate with low silt content where additional road surfacing material is required.</li> </ul>
Borrow Pit 1 (BP-001)	<ul style="list-style-type: none"> <li>• Minimize pit area as much as possible.</li> <li>• Apply water when temperatures are above freezing and there are very dry conditions (less than 0.25 mm/day of precipitation in the previous week).</li> <li>• Employees involved in material handling or management will receive training by a qualified person on the importance of minimizing material drop height (from excavator to truck, conveyor to stockpile, etc.) to reduce fugitive dust.</li> <li>• Develop new borrow areas only when and as required (to be determined by the Construction Manager).</li> <li>• Once suitable materials have been salvaged, place topsoil on disturbed areas and seed using a native seed mix to re-establish vegetative cover as soon as reasonably possible.</li> <li>• When unloading material, piles should form low piles that extend horizontally.</li> <li>• Minimize drop height from loaders and excavators (shovels) to the truck.</li> </ul>
Screening Area 1 (SC-001)	<ul style="list-style-type: none"> <li>• Minimize material drop heights where possible.</li> <li>• Equip the screener circuits with onboard water dosing during times of the year above freezing temperatures or other dust suppression measures (e.g., reagents) systems.</li> <li>• Apply water when temperatures are above freezing and there are very dry conditions (less than 0.25 mm/day of precipitation in the previous week).</li> <li>• Check cover for tears, holes, and cracks on a monthly basis. Repair as soon as possible.</li> </ul>
Clearing Area 1 (CL-001)	<ul style="list-style-type: none"> <li>• Minimize clearing area as much as possible.</li> <li>• Limit vehicle speed on site to a maximum of 50 km/hr.</li> <li>• Minimize material drop heights where possible.</li> </ul>
Transmission Line Construction 1 (TL001)	<ul style="list-style-type: none"> <li>• Minimize material drop heights where possible.</li> </ul>
Industrial Burning Area (IB-001)	<ul style="list-style-type: none"> <li>• Refer to TL WMP for combustion schedule and mitigation requirements.</li> </ul>

## 7.0 Plan Implementation

The TL AQDMP is a living document that will evolve over time in response to monitoring results and regulatory changes. The plan incorporates adaptive management as follows:

- **Plan**

- Source identification and characterization;
- Qualitative visual assessment of particulate emissions;
- Identification of contributing factors that favour dust generation; and
- Description of fugitive dust control for each source.

- **Do**

- Schedule for implementation and operation of control measures;
- Description of maintenance and record keeping procedures for control and monitoring equipment; and
- Training procedures.

- **Monitor**

- Inspection and maintenance procedures; and
- Record keeping to verify ongoing implementation of plan.

- **Adjust**

- Review of effectiveness of control measures; and
- Update the plan as required.

## 7.1 Training

Employees and contractors will receive training in fugitive dust management and air quality awareness on their arrival on site through an environmental on-boarding training session and prior to the start of work as part of the Site Orientation. The purpose of this training is to provide all site personnel with a basic level of environmental awareness and an understanding of their obligations regarding compliance with regulatory requirements, commitments, and best practices.

All those responsible for the management, implementation, and operation of any aspect of this plan will be competent for their role. All staff will attend site orientation where the contents, requirements and commitments made in this plan will be communicated. Staff will be adequately trained for their roles to implement this plan and will be aware of BW Gold's commitments to uphold this plan. Training will cover safety and measures to mitigate effects on ecosystems, soils, and vegetation and to emphasize the importance of following and implementing the TL AQDMP. Targeted training related to dust management will be provided to individuals and/or groups of workers assuming a specific authority or responsibility related to air quality. BW Gold will regularly review and update the training and awareness plan based on changes in training needs and regulatory requirements.

Employee education and outreach on access management will be supported by:

- Development and delivery of educational material to site personnel; and
- Maintaining updated information related to access management at Blackwater in a location available to employees.



Prior to the commencement of work on the TL project, all personnel will:

- Review and be aware of the requirements of the TL AQDMP;
- Be aware of their legislative requirements, specifically including but not limited to:
  - WHMIS, Safety Data Sheets, Transportation of Dangerous Goods, Occupational Health and Safety, and relevant British Columbia Air Quality Objectives;
- Be trained in and be aware of:
  - Safety and emergency response procedures; and
  - Evacuation procedures.

Contractors and subcontractors are required to hold regular documented safety meetings at a frequency agreed to by Proponent project management. Safety meetings must focus discussion on hazards and risks specific to the work being performed and recent incidents within the workplace. Additionally, as a minimum, discussions will include past meeting concerns, findings from workplace inspections, and reported near misses. These meetings must also include air quality and fugitive dust risks and incidents. If a potential dust concern is observed, it shall be reported to the EM.

Proponent management will attend Contractor's safety meeting to reinforce their commitment to safety, provide opportunities for direct contact with site personnel, and monitor that the quality of meetings is adequate.

These meetings include but are not limited to:

- Daily Crew Talks;
- Daily Safe Act Observations (SAOs) by Supervisors;
- Daily Risk Assessment Inspection of Work Area;
- Weekly Management Meetings; and
- Monthly Management Meetings.

## 7.2 Monitoring and Maintenance

The purpose of this monitoring component is to document the efficacy of the mitigation measures implemented and to meet regulatory requirements at the TL project site. The Plan will ensure that project activities are conducted according to applicable legislation and the conditions of all project approvals. Monitoring will be carried out in order to meet permit and reporting requirements. It will also be used as a tool to determine the efficacy of the mitigation measures implemented.

The TL AQDMP monitoring program largely relies on qualitative visible observations on site, while paying attention to weather conditions as shown in the Trigger Action Response Plan (TARP). Depending on observed conditions, TARP may trigger reporting of on-site emissions for mitigative actions and/or review of the TL AQDMP. TL personnel will be trained to be observant for dust related concerns which may arise. These observations, together with meteorological conditions and mitigation efforts taken to deal with a problem, will be recorded and included in monthly and annual reports. Visual monitoring will focus on areas where there are active surface earthworks, unpaved roads and overburden and soil stockpiles. Visual monitoring will occur on a daily basis at all locations where fugitive dust generation is occurring. At minimum, monitoring report summaries will be reviewed annually to determine any emissions trends and to revise operating practices or monitoring protocols as required.

The Proponent will collaborate as required with other government-sponsored monitoring programs as required to measure the effects of air quality occurring in the TL project area during the construction and operations phases of the TL project. The monitoring program will be submitted by the EM for review to the appropriate regulatory authorities for comment before construction/operations begins.

### 7.3 Trigger Action Response Plan (TARP)

The Trigger Action Response Plan (TARP) is intended to provide an early-warning system such that when defined action levels are triggered there is sufficient time to prevent irreversible adverse environmental and health effects. Workers on site shall assess daily weather conditions and make continuous visual observations on-site to determine which TARP triggers and actions/responses are required (Table 7-1). Site conditions and TARP level of alert shall be recorded by site supervisors in an observation logbook daily. The CM will summarize the recorded observations and report monthly to BW Gold. The EM and CM are responsible for ensuring that TARP is implemented, followed, and up to date. If there is an air quality advisory issued by ENV that affects the region where the mine is located, the EM will determine if an adjustment to a higher alert level described in Table 7-1 is required to further mitigate dust emissions.

**Table 7-1: On-site Trigger Action Response Plan (TARP)**

Component	Location	Level	Trigger	Management Response
Fugitive Dust	Unpaved Roads	None	<ul style="list-style-type: none"> <li>Dust plume less than half the height of a truck tire.</li> </ul>	<ul style="list-style-type: none"> <li>No action. Continue work in accordance with site management procedures.</li> </ul>
		Low	<ul style="list-style-type: none"> <li>Dust plume less than half the size of a truck for any period of time up to 30 minutes.</li> </ul>	<ul style="list-style-type: none"> <li>Limited watering of high traffic areas.</li> <li>Repeat visual inspection every 2 hours depending on weather.</li> </ul>
		Medium	<ul style="list-style-type: none"> <li>Dust plume same size as a truck extending beyond local areas for periods longer than half a day.</li> </ul>	<ul style="list-style-type: none"> <li>Continuous watering of high traffic areas until dust plume subsides.</li> <li>Speed limit restrictions in high traffic areas.</li> </ul>
		High	<ul style="list-style-type: none"> <li>Dust plume greater than the size of a truck for periods longer than 1 day, or when dust plumes extend beyond the active construction area.</li> </ul>	<ul style="list-style-type: none"> <li>Increase frequency of watering and if not successful examine longer use of alternative dust suppressants (e.g., calcium or magnesium chloride, lignin compounds, environmentally friendly oils, or clay additives).</li> <li>Speed limit restrictions may be required if dust cannot be controlled by watering.</li> <li>Closure of certain routes may be required if dust cannot be controlled by watering or speed restrictions.</li> <li>Reassessment TL AQDMP may be required.</li> </ul>
	Surface earthworks, staging, clearing, blasting, drilling	None	<ul style="list-style-type: none"> <li>Minor localized dust during construction and normal operations.</li> </ul>	<ul style="list-style-type: none"> <li>No action. Continue work in accordance with site management procedures.</li> </ul>
		Low	<ul style="list-style-type: none"> <li>Visible dust plumes rising over 2 m above the active construction area for longer than 30 minutes.</li> </ul>	<ul style="list-style-type: none"> <li>Minimize material movement in areas with active construction or operation and heavy equipment use.</li> <li>Limit timing of blasting/drilling so not concurrent with other high dust generating activities.</li> <li>Minimize drop heights for material handling.</li> </ul>

Component	Location	Level	Trigger	Management Response
		Medium	<ul style="list-style-type: none"> <li>Triggers per level 1 but with dust plume extending beyond local area for periods longer than half a day.</li> </ul>	<ul style="list-style-type: none"> <li>Application of water to exposed construction area (if this is a source).</li> <li>Limit timing of blasting/drilling for more favourable weather conditions.</li> </ul>
		High	<ul style="list-style-type: none"> <li>Extensive areas of dust generation with large dust plumes for periods longer than 1 day or when dust plumes extend beyond the active construction area.</li> </ul>	<ul style="list-style-type: none"> <li>Increase frequency of watering and if not successful apply gravel to exposed construction area (if this is a source).</li> <li>Investigate long term solutions if dust plumes persist.</li> <li>Reassessment TL AQDMP may be required.</li> </ul>
	Stockpiles	None	<ul style="list-style-type: none"> <li>Minor localized dust during construction and normal operations.</li> </ul>	<ul style="list-style-type: none"> <li>No action. Continue work in accordance with site management procedures.</li> </ul>
		Low	<ul style="list-style-type: none"> <li>Visible dust plumes rising over 2 m above the ground for longer than 30 minutes.</li> </ul>	<ul style="list-style-type: none"> <li>Turn on spray bar sprinklers or apply other water application where applicable.</li> <li>During periods where temperatures are below freezing add reagents to control dust.</li> </ul>
		Medium	<ul style="list-style-type: none"> <li>Triggers per level 1 but with dust plume extending beyond local area for periods longer than half a day.</li> </ul>	<ul style="list-style-type: none"> <li>Increase the rate of water application using spray bar sprinklers.</li> <li>During periods where temperatures are below freezing, add reagents to control dust.</li> </ul>
		High	<ul style="list-style-type: none"> <li>Extensive areas of dust generation with large dust plumes for periods longer than 1 day or when dust plumes extend beyond the active construction area.</li> </ul>	<ul style="list-style-type: none"> <li>Examine the possibility of re-engineering the spray bar sprinklers, or reassessment of water application to provide more effective water coverage.</li> <li>Reassessment TL AQDMP may be required.</li> </ul>
	Material handling,	None	<ul style="list-style-type: none"> <li>Minor localized dust during construction and normal operations.</li> </ul>	<ul style="list-style-type: none"> <li>No action. Continue work in accordance with site management procedures.</li> </ul>

Component	Location	Level	Trigger	Management Response
	transfer locations, screening	Low	<ul style="list-style-type: none"> <li>Visible dust plumes rising over 2 m above the ground for longer than 30 minutes.</li> </ul>	<ul style="list-style-type: none"> <li>Turn on spray bar sprinklers or apply other water application where applicable.</li> <li>During periods where temperatures are below freezing add reagents to control dust.</li> </ul>
		Medium	<ul style="list-style-type: none"> <li>Triggers per level 1 but with dust plume extending beyond local area for periods longer than half a day.</li> </ul>	<ul style="list-style-type: none"> <li>Increase the rate of water application.</li> <li>During periods where temperatures are below freezing, add reagents to control dust.</li> </ul>
		High	<ul style="list-style-type: none"> <li>Extensive areas of dust generation with large dust plumes for periods longer than 1 day or when dust plumes extend beyond the active construction area.</li> </ul>	<ul style="list-style-type: none"> <li>Examine the possibility of re-engineering the spray bar sprinklers, or reassessment of water application to provide more effective water coverage.</li> <li>Reassessment TL AQDMP may be required.</li> </ul>

## 7.4 Record Keeping

A copy of the following documents will be kept on hand and available on site:

- Transmission Line Air Quality and Fugitive Dust Management Plan;
- Transmission Line Industrial and Domestic Waste Management Plan;
- Transmission Line Fuel Management and Spill Control Management Plan; and
- Transmission Line Emergency Response Plan.

Records of all updates to these plans and audits performed to determine the adequacy of the plan must be stored with the plan for the entirety of the Transmission Line construction. If a Level 3 Alert is triggered by TARP, a record of the incident submitted to the CM and EM must include:

- Date, time, and location of dust event;
- Managers or people involved/reported to;
- Triggers observed and potential activity/activities contributing to the event; and
- Record of any immediate actions taken.

For a Level 3 Alert the CM and EM shall keep a record of:

- Dates and times of received and distributed documents;
- Responses and actions taken to address submitted incidents; and
- Records of the EM or CM follow ups with individuals involved to find out where improvements to the plan or training are required.

The EM will be responsible for ensuring dust events are logged, including details of the on-site activities, meteorological conditions, and the management actions taken. Records will be maintained for public complaints and dust visual observations.

## 8.0 Adaptive Management

The TL AQDMP is a “living” document and any plan revisions will be made in accordance with the plan this is appended to (Condition 20 – Air Quality and Fugitive Dust Management Plan) . The review will evaluate the effectiveness of the TL air quality and fugitive dust management. Performance metrics that will result in adaptive management are:

- Non-compliance with this plan;
- Measure of mitigation success;
- Response time;
- Number of un-reported events;
- Number of reported events;
- Timely completion of maintenance and inspections;
- Completion of required training; and
- Regulatory non-compliance orders associated with plan.



## 9.0 Reporting

Observations related to air quality and fugitive dust management will be:

- Reported by construction staff to their supervisors;
- Documented in an Observation Logbook; and
- Reported monthly by the Construction Manager to BW Gold on the content of the Observation Logbook.

All incidents of concern with air quality, fugitive dust emissions, along with spills, accidents, or observed instances of odour and/or petroleum product sheen in a watercourse will immediately be reported to the Construction Manager and the BW Gold EM regardless of quantity or location. The BW Gold EM is responsible for any required reporting to outside agencies. If TARP triggers are observed, the EM is responsible for notifying the EAO, EMPR, NHA, Indigenous Groups, and the public. The notifications to the EAO, EMPR, NHA, Indigenous Groups, and the public will include both a technical report and a plain language summary of the technical report.

Incidents related to air quality will be reported. Incidents reported on will also include any air quality complaints. Significant events will trigger an incident investigation (including a root cause analysis). Investigations will be done by senior staff from relevant Managers. Remedial action may involve:

- Additional training for personnel;
- Enhanced equipment maintenance or inspection program;
- Additional preventative infrastructure (containment berms, oil/water separators), etc.; and
- Review and/or revision of the TL AQDMP.

Annual reports generated for submission to regulatory agencies, First Nations, the public, and TARP reporting will include:

- Confirmation that the TL AQDMP is being implemented as written;
- The monitoring results;
- The effectiveness of mitigation measures;
- The number of dusting events that occurred;
- Any complaints received and the actions taken to address complaints; and,
- Any deficiencies identified in the TL AQDMP and corrective actions taken.

## 10.0 Qualified Professionals

This management plan has been prepared and reviewed by the following qualified professionals:

Prepared by:

Reviewed by:

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Craig Vatcher, CET, B. Tech., EP  
Triton Environmental Consultants

A handwritten signature in black ink, appearing to read 'David Watt', with a long horizontal flourish extending to the right.

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David Watt, R.P.F.  
Project Development Manager  
Allnorth

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Nadine de Bruyn, M.A.Sc., EPt  
Triton Environmental Consultants

## 11.0 References

- BC Environmental Assessment Office [EAO]. 2013. *The Guideline for the Selection of Valued Components and Assessment of Potential Effects*.  
<https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/guidance-documents/eao-guidance-selection-of-valued-components.pdf> (accessed March 2022).
- BC Ministry of Energy, Mines and Low Carbon Innovation [EMLI]. 2021. *Health, Safety and Reclamation Code for Mines in British Columbia*: Victoria, BC. [https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/code-review/feb2021\\_health\\_safety\\_reclamation\\_code\\_2021\\_rev.pdf](https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/code-review/feb2021_health_safety_reclamation_code_2021_rev.pdf) (accessed April 2021).
- BC Ministry of Energy, Mines and Petroleum Resources & Ministry of Environment and Climate Change Strategy [EMPR & ENV]. 2018. *Developing a Fugitive Dust Management Plan for Industrial Projects*. [https://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/mining-smelt-energy/guidance-documents/dust\\_management\\_plan\\_guidance.pdf](https://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/mining-smelt-energy/guidance-documents/dust_management_plan_guidance.pdf) (accessed March 2022).
- United States Environmental Protection Agency (US EPA). 2021. *Health and Environmental Effects of Particulate Matter (PM)*. <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm> (accessed March 2022).