ARTEMIS GOLD INC | Blackwater Mine

Incident Report

August 5, 2025

Impact Assessment Agency of Canada
22nd Floor, Place Bell
160 Elgin Street
Ottawa ON K1A 0H3

Dear sir or madam:

As per BW Gold's Accidents and Malfunctions Administration and Communication Plan, please see information below regarding an incident that occurred on the Blackwater Mine.

Due to persistent cold weather conditions at the beginning of February 2025, the Central Water Transfer Pond (CWTP) pump failed due to freezing conditions, and subsequently the discharge line froze. Maintenance of this system occurred from February 6, including the removal of ice blockages, and replacing the pump. Pumping from the CWTP resumed February 22nd.

On February 2nd, the breaker for the Water Management Pond (WMP) pump failed. A long lead time for the replacement parts results in a delay in return to pumping. Additionally, due to the conditions described above, the CWTP did not contribute flows to the WMP, resulting in limited water volumes to pump. Maintenance of this system occurred over the following days, and pumping from the WMP resumed February 21st.

In response to the pump failures in February, a review of pump and supply systems was done to identify:

1. Changes should be made to limit the potential for freezing during winter conditions; and,
2. Electrical components inventory for regularly used parts (such as breakers) to limit the potential of downtime for pumping infrastructure

Following this review, pipeline improvements for the CWTP and WMP were made in early March:

- Pipelines sections were re-graded to minimize low points for water accumulation and ice buildup during freezing weather
- Low point drains were maintained and heated with frost fighters for draining of sections during unexpected downtime.
- Select pipeline sections were buried under 3 meters of material to reduce freezing risk under frost line.

To support those activities, discharge from the CWTP and WMP occurred intermittently, until the pump at the CWTP was brought back online on March 18th.

Water from the CWTP and WMP discharge to Davidson Creek, and support meeting Construction Instream Flow Needs (CIFN) regulated by the Mine's *Fisheries Act Authorization*. The natural reduction in flow associated with those persistent cold periods in February and March, in conjunction with the limited pumping capacity of those facilities over this time resulted in flows below CIFN on February 6, 7, 9, and March 14 and 15. Details on these low flow events, including follow up actions, have been provided through the monthly *Fisheries Act Authorization* reports for February and March. A

subsequent review of potential impacts to fish and fish habitat during these events was done by a Qualified Professional and determined that the potential risk of a significant effect is low (attached).

To further reduce risks related to discharges the Freshwater Reservoir (FWR) will be commissioned in Q4, 2025. The FWR operates as a pipe discharge system where no pumping of water to meet IFN is required. Remaining critical piping infrastructure will be buried to ensure reduction in freezing risk. These changes were discussed and reviewed with the Independent Environmental Monitor (IEM) during the May inspection. As reflected in this conversation, BWG anticipates that these changes will reduce the potential for freezing events to limit pumping at the CWTP and the WMP.

Upon review of these occurrences the IEM indicated that based on their interpretation of an example included in the Accidents and Malfunctions Administration and Communication Plan that this event should be reported as a moderate occurrence. BW Gold does not align with this interpretation; however, this submission is the outcome associated with subsequent discussion with the IEM. It is important to note that while the timing of this submission is tied to this outcome, reviews of the pump failure and downstream risks were not similarly delayed. As outlined above, fulsome review of these events has occurred, including a review of the cause, identification and implementation of mitigations, and a review of potential downstream risks. This report, and attachment, include information needed to fulfill those follow-up reporting requirements and no additional follow-up will occur.

Please do not hesitate to contact the undersigned if there are any further questions.

Kind regards,

Mark Warbanski
Environment Manager
Blackwater Gold Mine

Attachment:

- Memorandum – Risk to Fish and Fish Habitat Due to Discharge Below CIFN Threshold

Whisky Jack Consulting

Memorandum

275072 Symons Valley Road
Rocky View County, AB, T4B 4N1
T:587.777.5667

Attention: Mark Warbanski, BW Gold Ltd.

Date: May 29, 2025

Project Name: Blackwater Gold

No. of Pages: 10

From: Robert St. Jean, P.Bio

Re: Risk to Fish and Fish Habitat Due to Discharge Below CIFN Threshold

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1. Introduction

BW Gold Ltd. (BW Gold) is currently constructing the Blackwater Project, an open pit mine located 112 kilometres (kms) southwest of Vanderhoof, and approximately 160 kms west-southwest of Prince George, British Columbia (BC).

The Blackwater Project received Environmental Assessment Certificate (EAC) #M19-01 under the 2002 Environmental Assessment Act on June 21, 2019, and an Environmental Assessment Decision Statement (FDS) under the Canadian Environmental Assessment Act, 2012 on April 15, 2019, and on June 30, 2023, Fisheries and Oceans Canada (DFO) issued BW Gold a Fisheries Act Authorization (FAA) number 21-HPAC-01447. Condition 2.2.9 requires downstream flows in Davidson Creek to be always maintained during construction, with condition 2.2.9.1 establishing the Construction Instream Flow Needs (CIFN) for Davidson Creek during various periods throughout the year (DFO, 2023).

> *Condition 2.2.9: Downstream flows to Davidson Creek shall be maintained at all times during construction and commissioning of mine infrastructure, including diversion channels, reservoirs, and the freshwater supply system (FWSS), such that death of fish is avoided and impacts to fish habitat are limited to what is authorized:*
>
> *2.2.9.1: Prior to the operation of the FWR when the natural discharge in Davidson Creek exceeds the Construction Instream Flow Needs (CIFN) threshold (below), water withdrawals from Davidson Creek may occur at a rate such that the actual instream flow in Davidson Creek immediately downstream of the Freshwater Reservoir (FWR) meet the CIFN thresholds:*
>
> *- August 31 – May 14:* ***0.07m^3/s***
> *- May 15 – June 30 (min.21 days):* ***0.56m^3/s***
> *- May 15 – June 30 (remaining):* ***0.35m^3/s***
> *- July 1 – July 15:* ***0.30m^3/s***
> *- July 16 – August 31:* ***0.15m^3/s***

2. Background Information

Fisheries Act Authorization 21-HPAC-01447 was issued to BW Gold based on the Blackwater Project's application for authorization submitted to DFO under paragraph 35(2)(b) of the *Fisheries Act* (Palmer, 2023a). This application includes direct habitat losses as a result of the project and potential downstream impacts to Davidson Creek due to flow changes. Appendix D: Construction Phase Temporary Minimum Flow Threshold Memo of the FAA application describes in detail the rational in determining the temporary minimum instream flow thresholds, to minimize the potential for harm to fish during flow reduction, for Davidson Creek (Palmer, 2023b). Review of Appendix D is recommended to get a better understanding of the FAA condition 2.2.9.1 flow requirements.

The Davidson Creek watershed supports both Rainbow Trout (Oncorhynchus mykiss) and Kokanee (Oncorhynchus nerka). Rainbow Trout utilize Davidson Creek year-round for spawning, rearing and overwintering while Kokanee only utilize the lower Davidson Creek for spawning activity (Figure 1) (Palmer, 2023b). Kokanee eggs incubate throughout the winter months, hatching in spring and out-migrating to Tatelkuz Lake (ERM, 2023).

In accordance with the reporting requirements set out in the FAA, BW Gold submits a monthly compliance monitoring report to DFO. The February and March 2025 report provided CIFN flow measurements associated with monitoring station DC-05 in table 2 on page 7 and page 6, respectively. (BWG, 2025a; BWG, 2025b).

Table 1: Discharge data at DC-05 as per table 2 of February 2025 FAA 21-HPAC-01447 Compliance Report (BWG, 2025a).

Date (February)	IFN (m^3s)	Flow (m^3/s)
Feb 1	0.07	Flow measurement attempted and could not be collected. Daily temps below operating temperature for SonTek FlowTracker 2.
Feb 2		Flow measurement attempted and could not be collected. Daily temps below operating temperature for SonTek FlowTracker 2.
Feb 3		Flow measurement attempted and could not be collected. Daily temps below operating temperature for SonTek FlowTracker 2.
Feb 4		Flow measurement attempted and could not be collected. Daily temps below operating temperature for SonTek FlowTracker 2.
Feb 5		Flow measurement attempted and could not be collected. Daily temps below operating temperature for SonTek FlowTracker 2.
Feb 6		0.02
Feb 7		0.02
Feb 9		0.02
Feb 14		Flow measurement attempted and could not be collected. Daily temps below operating temperature for SonTek FlowTracker 2.
Feb 22		0.07
Feb 25		0.08

Table 2: Discharge data at DC-05 as per table 2 of March 2025 FAA 21-HPAC-01447 Compliance Report (BWG, 2025b).

Date (March)	IFN (m^3s)	Flow (m^3/s)
1	0.07	0.10
8		0.08
14		0.05
15		0.06
18		0.15
26		0.21
31		0.09

The data provided in table 1 & 2 shows flow measurements under the CIFN requirement of 0.07m^3/s outlined in Condition 2.2.9.1. DFO has requested BW Gold to have a Qualified Professional (QP) review relevant information and provide a memorandum on potential fish and fish habitat impacts due to measured flows being below CIFN.

2.1 Memorandum Objective

The purpose of this memorandum is to provide a suggested risk of impacts to fish and fish habitat through a review of available information and outline any follow up actions required.

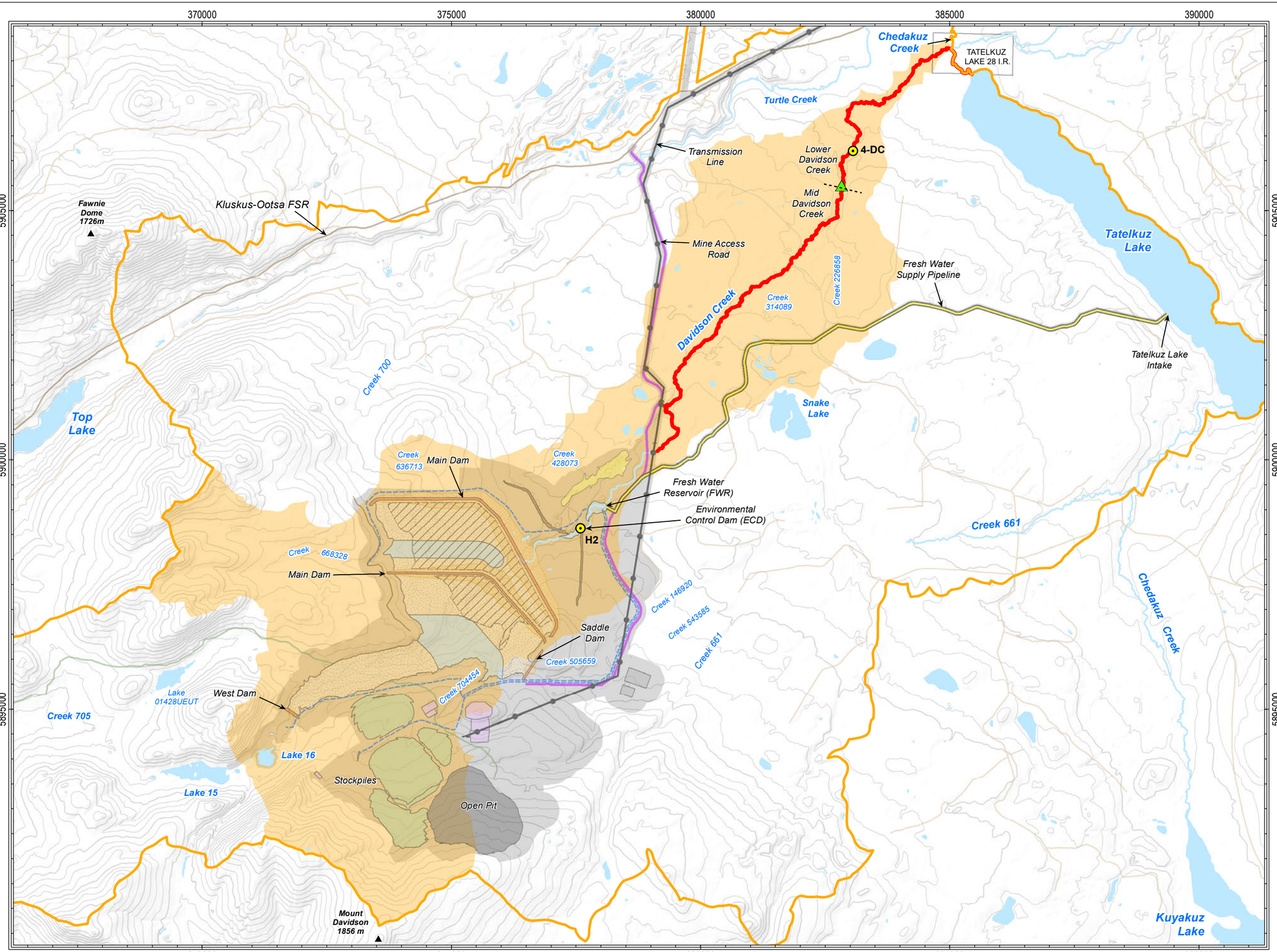
3. Risk to Fish and Fish Habitat

Utilizing the flow values presented in table 1 & 2 there is a period between February 6th – 9th, March 14th – 15th with recorded values shown to be below the CIFN threshold. With no field readings recorded between February 1st – 5th, February 10th – 21st, March 9th – 13th, and 16th – 17th, it is not possible to determine if flows on these days were below or above 0.07m^3/s. The duration of days below the CIFN threshold is a minimum of 4 days in February and 2 days in March. Assuming the days with no field measurements were below CIFN, the maximum low flow days would be 21 in February and 9 in March.

The potential risk to fish associated with a period of reduced flow, below CIFN threshold, for February and March can be categorized as potentially either effecting Rainbow Trout overwintering or Kokanee egg incubation in lower Davidson Creek. This is supported by the life history information collected in Davidson Creek during the baseline surveys in 2011 and 2012 (Table 2, AMEC, 2015; Palmer, 2023b).

Table 2: Species and life stage utilization for Davidson Creek as reported by AMEC (2015).

Species	Life Stage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainbow Trout	Juvenile overwintering												
	Juvenile rearing and migration												
	Adult migration and spawning												
	Egg incubation												
Kokanee	Adult migration and spawning												
	Egg incubation												



Legend

- Watershed Model Node
- Upstream extent of kokanee in Davidson Creek
- Spot Height
- Elevation Contour (25 m interval)
- Indian Reserve
- Mine Footprint
- Local Study Area Boundary

Impacted Fish Habitat

- Downstream Flow

Watersheds

- Davidson Creek

Scale 1:75000
UTM Zone 10N
NAD 1983 Datum

0 1 2
kilometres

N

Prepared For:

CLIENT: Artemis Gold Inc.
PROJECT: Blackwater
DRAWN: B. Elder
CHECKED: S. Gronsdahl
PROJECT: 2006501
DATE: Feb 24, 2022

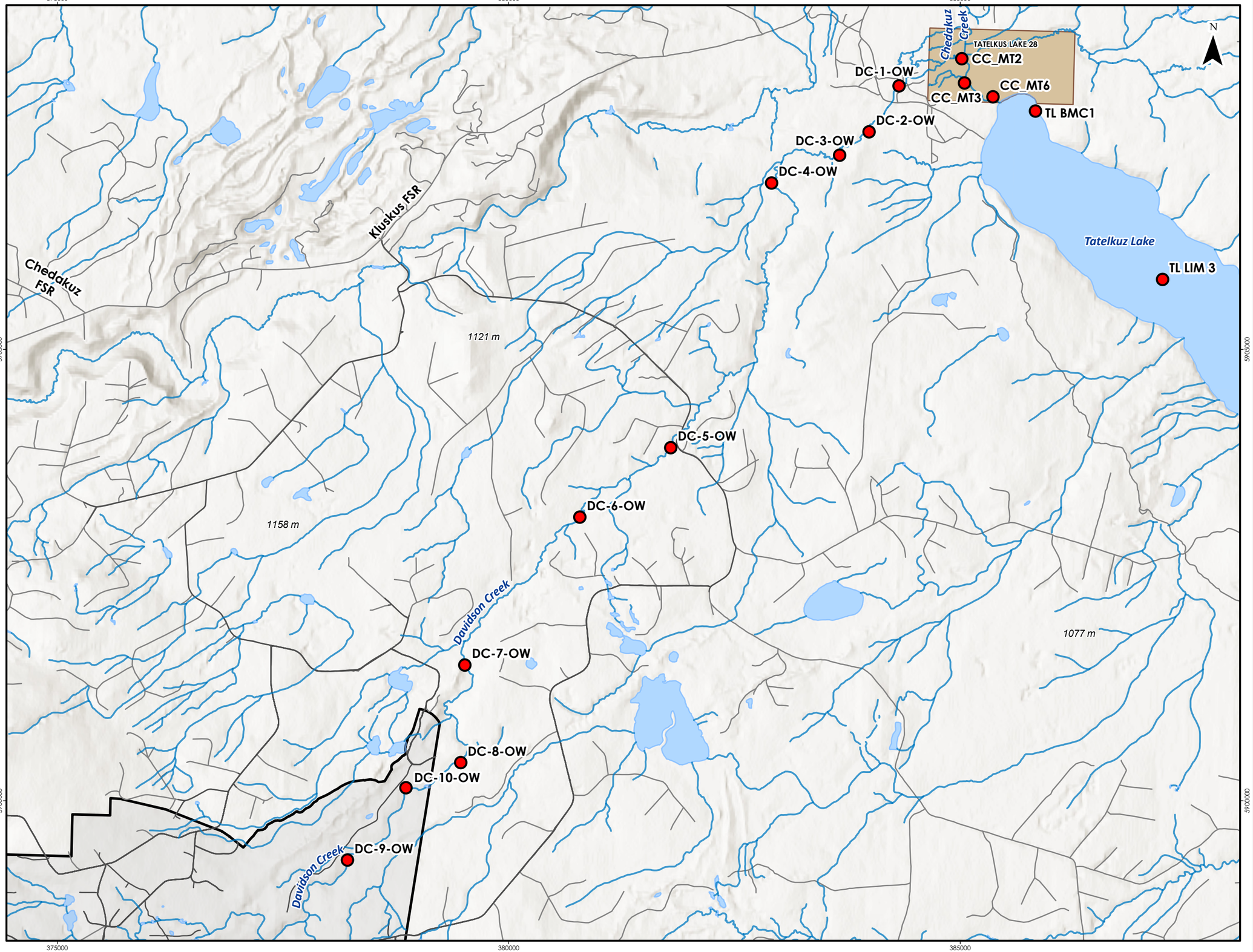
Prepared by:

Palmer

Portion of Davidson Creek Subject to Instream Flow Needs

FIGURE 1

Document Path: G:\Shared drives\Projects 2020\20065 - Artemis Gold Inc\2006501 - Blackwater Project 2020-2022\Mapping\Figures\5_ArcGIS\Figure 1 - Portion of Davidson Creek Subject to Instream Flow Needs.mxd



Blackwater Gold

Figure 1.
Davidson Creek Assessment
Site Locations

Project No.	Date	Revision
12009	May 23, 2024	00
Prepared By	Reviewed By	Page Size
TK	SH	11 x 17

- Overwintering RB Abundance
- BWG Certified Project Footprint

Transportation

- Gravel Road
- Project Access

Hydrology

- Streams
- Lake
- Indian Reserve

Figure 2

0 750 1,500 2,250 m

Scale: **1:40,000**

Projection: **NAD 1983 UTM Zone 10N**

Base map Source: **ESRI World Imagery**

TRITON
Environmental Consultants

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3.1 Rainbow Trout Overwintering

The flows within Davidson Creek did not cease but were reduced, to approximately 0.02m^3/s in February and 0.05m^3/s in March, from the CIFN threshold of 0.07m^3/s at the monitoring location DC-05. This reduction in flow would likely cause water elevations in Davidson Creek to also reduce, although not measured at the time of the event.

During the winter months Rainbow Trout, primarily overwinter in the deeper pools of Davidson Creek and are less likely to be found in the margins. This behaviour would reduce the likelihood of individuals being stranded due to a reduction in water elevation. BW Gold completed fish stranding and stream dewatering bank walks daily at DC-05 for at least 100m, with no observations of dewatering or fish stranding (BWG, 2025a; BWG, 2025b). At DC-05 flows continued through the period of reduced flow, mitigating any potential for Davidson Creek to freeze to the bottom.

Triton Environmental Consultants Ltd. (Triton), on behalf of BW Gold, were completing Rainbow Trout overwintering field assessments in Davidson Creek between March 4th and 11th in association with the long-term monitoring requirements set out in the Federal Decision Statement Condition 3.14. Established monitoring points DC-5-OW, DC-2-OW, and DC-3-OW (Figure 2) were visited March 9th, March 10th, and March 11th respectively (Triton, 2025). As part of the monitoring requirements, underwater cameras are set for up to 60 minutes, water quality and general observations are recorded. Triton noted live juvenile Rainbow Trout were observed at every site, no observations of fish mortality were recorded, and water quality was not a concern (Table 3) (Triton, 2025).

Table 3: Water quality for monitoring sites as reported by Triton (2025).

Site	Date	Pool Location	Depth (m)	Temperature (°C)	DO (%)	DO (mg/L)	Conductivity (µS)	Specific Conductivity (µS)	pH	Turbidity
DC-2-OW	2025-03-10	Head	0.08	0	94.8	13.84	59.7	114.2	7.56	3.64
DC-2-OW	2025-03-10	Middle	0.52	0	90.1	13.15	59.7	114	7.57	4.03
DC-2-OW	2025-03-10	Tailout	0.27	0	94.6	13.82	59.7	114.1	7.55	3.59
DC-3-OW	2025-03-11	Head	0.21	0	91.6	13.38	64.2	122.9	7.54	5.26
DC-3-OW	2025-03-11	Middle	0.35	0	86.7	12.64	64.8	124	7.9	5.45
DC-3-OW	2025-03-11	Tailout	0.19	0	94.3	13.78	64.9	124.1	7.47	5.54
DC-5-OW	2025-03-09	Head	0.09	0.1	94.2	13.73	57.8	110.1	7.84	7.5
DC-5-OW	2025-03-09	Middle	0.3	0.3	93	13.48	57.9	109.6	7.84	3.48
DC-5-OW	2025-03-09	Tailout	0.11	0.3	93.1	13.5	57.8	109.6	7.82	2.85

The dissolved oxygen (DO, mg/L) recorded by Triton (table 3) are similar to the 12.9 mg/L value provided by BW Gold in the March 2025 FAA compliance monitoring report (BWG, 2025b).

A reduction in flow below 0.07m^3/s at DC-05 is not outside the parameters of the natural flow drop in Davidson Creek for the month of March with flows only having exceeded the CIFN threshold 35% of the time within the data set between 1981-2020 (Figure 3, Palmer, 2023b). Appendix D: Construction Phase Temporary Minimum Flow Threshold Memo of the FAA application states, "*The proposed temporary threshold is significantly more conservative during winter than it is during summer.*" (page 10, Palmer, 2023b). The CIFN being conservative provides a buffer if flows are reduced to be closer to the mean discharge of approximately 0.06m^3/s.

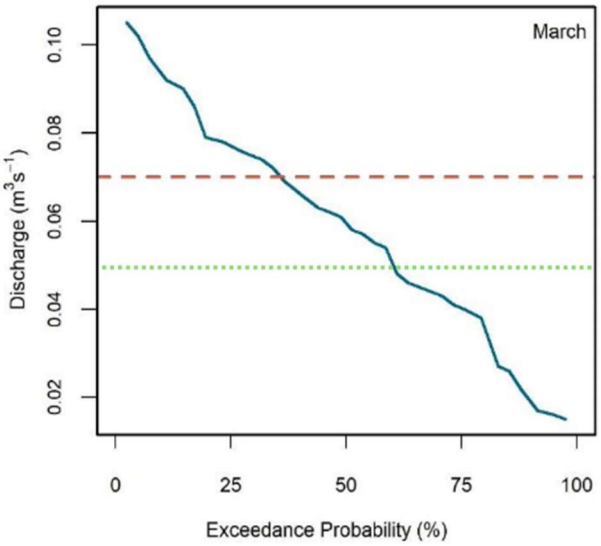

Figure 3: March flow-duration curve (solid blue line) for Davidson Creek, using modelled monthly data (1981-2020). The dashed red line represents CIFN and dotted green line representing lowest flow recorded on March 14th, 2025 (Palmer, 2023b).

Although a similar figure, was not available for February it is likely the historical February flows would be similar to what is has been seen in March. A discharge rate of 0.02m^3/s in Davidson Creek has been shown to naturally occur, occasionally.

Flow below the CIFN threshold may reduce the wetted channel width and overwintering pool depth but the risk of causing a significant effect on overwintering Rainbow Trout in Davidson Creek is low as flows downstream were maintained.

3.2 Kokanee Egg Incubation

Kokanee spawning habitat and the location of potential redds is restricted to the lower Davidson Creek area (Figure 1). Lower Davidson Creek will see less influence from reductions in flow at DC-05 due to receiving other water inputs such as, additional groundwater, tributary inputs and runoff. As previously discussed, and seen in figure 3, the reduction of flow down to 0.02 - 0.05m^3/s is within the historical range of discharge in upper Davidson Creek.

BW Gold monitors the Kokanee fry spring outmigration through the Aquatic Effects Monitoring Program (AEMP) with one measurement being the calculated total fry abundance for the outmigration period (ERM, 2023). Triton is completing this component of the AEMP in spring 2025 and at the time of writing this memo the results are not available for review.

The risk of causing a significant effect on Kokanee egg incubation in lower Davidson Creek is low, however; it is recommended that the results of the AEMP total fry abundance survey be reviewed to determine if outmigration numbers were within confidence intervals of previous years including the baseline data.

3.3 Fish Habitat

Fish habitat downstream of DC-05 remained in place throughout the reduction in flow in February & March 2025. The temporary reduction in flow down to 0.02 - 0.05m^3/s would likely cause a decrease in wetted channel width depending on channel morphology and amount of additional water inputs as you progress downstream.

Any reduction in usable habitat by overwintering Rainbow Trout would be temporary and fall within natural flow fluctuations during the winter months. The risk of a significant effect on fish habitat in Davidson Creek is low.

4. Recommendations

Summary of follow up recommendations:

1) Continue to monitor CIFN discharge and Davidson Creek per BW Gold FAA application Appendix D section 6: Proposed Monitoring Strategy (Palmer, 2023b).

2) Review the 2025 Kokanee fry total abundance results, compiled by Triton under the AEMP, to see if estimates are within expected confidence range.

5. Conclusion

This memo provides background information on the CIFN, monitoring information collected during the period of reduced flows below the CIFN threshold, follow up recommendations and potential risk to fish and fish habitat.

Table 4: Summary of potential risk of significant effect to fish and fish habitat.

Environmental Aspect	Potential Risk of Significant Effect
Rainbow Trout Overwintering	Low
Kokanee Egg Incubation	Low (with follow up data review)
Fish Habitat	Low

6. Statement of Limitations

This memorandum was prepared for BW Gold Ltd. in connection with the Blackwater Gold Mine Project. The material in this memo reflects Whisky Jack Consulting Ltd. best judgment in light of the information available to us at the time of preparing this memo. Conclusions and recommendations in

this report are based on an analysis of the best available information and professional judgement that is subject to a degree of scientific uncertainty and therefore cannot be used as absolute fact. Whisky Jack Consulting has made the findings and conclusions set out in this report in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession practicing under similar conditions at the time the work was performed.

The report author believes this report to be accurate. However, he cannot guarantee the completeness or accuracy of information supplied to him. Any use which a third party, other than the parties mentioned above, makes of this report, or any reliance on, or decisions to be made based on it, are the responsibility of such third parties. The author accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken.

Prepared By:

Name	Signature	Title	Phone	Date
Robert St. Jean, P.Bio	<original signed by>	Senior Biologist, Whisky Jack Consulting Ltd.	587.777.5667	May 29, 2025

7. References

AMEC. 2015. Blackwater Gold Project – Instream Flow Study. Appendix 5.1.2.6D. Prepared for New Gold Inc.

BWG. 2025a. *Fisheries Act* Authorization 21-HPAC-01447 - Monitoring Report – February 2025. Prepared by BW Gold Ltd. February, 2025.

BWG. 2025b. *Fisheries Act* Authorization 21-HPAC-01447 - Monitoring Report – March 2025. Prepared by BW Gold Ltd. March, 2025.

DFO. 2023. Paragraphs 34.4(2)(b) and 35 (2)(b) *Fisheries Act* Authorization, Path No.: 21-HPAC-01447. Prepared by Fisheries and Oceans Canada., Vancouver, BC. June 30, 2023.

ERM. 2023. Blackwater Gold Project: Aquatic Effects Monitoring Program Plan, Version 1.0. Prepared for BW Gold Ltd. by ERM Consultants Canada Ltd., Vancouver BC. July, 2023.

Palmer. 2023a. Blackwater Gold Project Application for Authorization under Paragraph 35(2)(b) of the *Fisheries Act* (Non-Emergency Situations). Prepared by Palmer Environmental Consulting Group Inc., Vancouver, BC. March 7, 2023.

Palmer. 2023b. Appendix D: Blackwater Fisheries Offsetting Plan, Construction Phase: Temporary Minimum Flow Threshold in Davidson Creek. Memorandum prepared for Blackwater Gold Ltd. by Palmer Environmental Consulting Group Inc., Vancouver, BC. February 23, 2023.

Triton. 2025. *Email*: RE: Winter Overwintering Assessment. Prepared by Triton Environmental Consultants Ltd. Prince George, BC. May 16, 2025.