MINISTRY OF ENVIRONMENT AND PARKS
COMPLIANCE AND ENVIRONMENTAL ENFORCEMENT BRANCH

**DETERMINATION OF ADMINISTRATIVE PENALTY**

March 5, 2025

File: 2024-14
7613

Email: kharmati@barrick.com, JNyland@lawsonlundell.com, ERussell@lawsonlundell.com

Barrick Gold Inc.
161 Bay Street, Suite 3700
Toronto, Ontario M5J 2S1

Attention: Barrick Gold Inc.

**RE: Determination of Administrative Penalty**

Further to the Notice Prior to Determination of Administrative Penalty issued to you on July 9, 2024, and your opportunity to be heard respecting the alleged contraventions, I have now made a Determination in this matter.

After reviewing the information available to me, I have concluded Barrick Gold Inc. has failed to comply with Section 1.1.1 (1) of Permit 7613, in respect of which an administrative penalty is being imposed pursuant to Section 115 of the *Environmental Management Act* ("EMA") and the Administrative Penalties (EMA) Regulation. The amount of the penalty, reasons for my decision, payment, and appeal information are provided in the attached decision document.

If you have any questions with regards to this Determination, please contact me at 250-312-7179 or Jason.Bourgeois@gov.bc.ca.

Sincerely,

Jason Bourgeois
for Director, *Environmental Management Act*

Attachments:
2024-07-09 2024-14 Penalty Assessment Form

cc: Natasha Olsoff, Environmental Protection Officer
Natash.Olsoff@gov.bc.ca

Kelly Mills, Section Head – Heavy Industry
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Ministry of Environment and Parks

BRITISH COLUMBIA

# DETERMINATION OF ADMINISTRATIVE PENALTY FILE: 2024-14

## Name of Party:

Barrick Gold Inc.

**AMOUNT OF ADMINISTRATIVE PENALTY:**

**$114,750**

## Contravention or Failure:

**Failure to comply with Permit 7613 Section 1.1.1 (Authorized Discharges):**

1.1. The discharge of effluent to which this Sub-Section is applicable is from an effluent biological treatment operation to Hedley Creek (Twenty Mile Creek), as shown on the attached **Site Plan C**. The reference number (EMS site number) for this discharge is E223876.

**1.1.1** The maximum rate at which effluent may be discharged is 600,000 cubic meters per year, and regulated according to the following three-level creek protection hierarchy:

1. The permittee must not discharge effluent in such a manner or quantity as to exceed the water quality objectives in Hedley Creek (see Appendix I);
2. The dilution ratio of effluent discharge must be in a manner or quantity that has a dilution ratio that is greater than a ratio of 40 cubic meters of Hedley Creek water to 1 cubic meter of discharge effluent;
3. The permittee must not discharge effluent at any time, which exceeds the characteristics of section 1.1.2.

**APPENDIX I – WATER QUALITY OBJECTIVES, HEDLEY CREEK**

Cobalt, total, for the protection of freshwater aquatic life maximum 0.9 µg/L

## Date of Contravention or Failure:

- September 8, 2021
- February 2, 2022
- March 2, 2022
- April 6, 2022
- August 3, 2022
- September 7, 2022
- October 5, 2022
- November 2, 2022
- December 7, 2022
- January 4, 2023
- February 1, 2023
- March 1, 2023
- April 4, 2023
- July 5, 2023
- August 2, 2023
- September 6, 2023
- October 5, 2023

The dates above represent **17** separate non-compliances.

## Directors Summary:

1. Barrick Gold Inc. ("Barrick") is a company registered in British Columbia ("BC") that owns the Nickel Plate Mine, located 3 km southeast of Hedley and 32 km west of Penticton. Barrick is an affiliate of Barrick Gold Corporation, which operates several gold and copper mines in North America, Latin America, and Asia Pacific, as well as Africa and the Middle East.

2. The Nickel Plate Mine was an underground and later open pit gold mine that has been in active care and maintenance since 1996. It consists of reclaimed open pits and waste rock dumps, a covered tailings storage facility ("TSF"), a seepage extraction system, a water treatment plant ("WTP"), and related support facilities.

3. The Nickel Plate Mine spans a drainage divide between the Hedley Creek and Cahill Creek watersheds, both of which drain to the Similkameen River. Tributary creeks to the Similkameen River in the area include Red Top Gulch, Cahill Creek, and Hedley Creek.

4. Ponded water and seepage from the TSF is treated by the WTP prior to discharge to Hedley Creek via a pipeline and diffuser. Hedley Creek, the focus of this Determination, flows alongside the west face of Nickel Plate Mountain and drains into the Similkameen River.

5. As a result of historical mining activity, a number of contaminants of concern are present in the effluent discharges into surface waters that occur at the Nickel Plate Mine, specifically heavy metals such as cobalt.

6. The provincial regulatory authorization governing the discharge of effluent from the Nickel Plate Mine is Permit 7613 (the "Permit") issued pursuant to the *Environmental Management Act*, S.B.C. 2003, c. 53 ("EMA").

7. The Permit was issued and is administered by the BC Ministry of Environment and Parks (the "Ministry").

8. The Permit authorizes effluent discharge from a gold mine and mill operation to a tailings impoundment and to the environment at the Nickel Plate Mine.

9. The Permit was first issued on June 16, 1987, and was most recently amended on August 15, 2021 (the "2021 Permit Amendment").

10. On October 24, 2023, the Ministry issued Inspection Report ("IR") 216202, a Referral for an Administrative Penalty ("AMP"). In IR 216202, Barrick was found to be out of compliance with Section 1.1.1 (1) for exceeding the total cobalt limit in Hedley Creek.

11. On July 9, 2024, the Ministry issued a Notice Prior to Determination of Administrative Penalty ("Notice") and accompanying Penalty Assessment Form ("PAF") to Barrick via email. The Notice recommended one penalty, AMP 2024-14, for $520,000 for failing to comply with Section 1.1.1 (1) on 18 dates.

12. In the Notice, Barrick was offered an Opportunity to be Heard ("OTBH") and given thirty (30) days to request an OTBH.

13. On August 12, 2024, the Ministry acknowledged Barrick's request for an OTBH, confirmed the OTBH would be by written submission.

14. On October 31, 2024, Barrick provided the OTBH submission ("OTBH Submission") to the Ministry.

## Reasons for Decision:

15. In making this Determination of Administrative Penalty ("Determination"), I have considered all of the information available to me, including the OTBH Submission provided by Barrick. In reaching this Determination, I have carefully considered all the arguments, relevant documents, evidence, and submissions before me, whether or not they are specifically referred to. I thank Barrick for providing a very thorough and well organized OTBH Submission.

16. My reasons for decision include a consideration of the failure as well as the matters listed in Section 7(1) of the Administrative Penalties (EMA) Regulation ("APR"), as applicable.

17. The "Ministry of Environment and Climate Change Strategy, Administrative Penalties Handbook – Environmental Management Act and Integrated Pest Management Act" ("AMP Handbook") provides high level guidance to Ministry staff considering the assignment of administrative penalties. Statutory Decision Makers consider, and decisions are informed by, this document. I have considered the AMP Handbook in making this Determination.

18. Considering the AMP Handbook in making my Determination is consistent with the Environmental Appeal Board's ("EAB") findings in *United Concrete & Gravel Ltd. v Director, EMA* (Decision No. EAB-EMA-21-A005(a), September 27, 2021):

    *"Throughout my reasons, I have referred to the Handbook. After having reviewed the Handbook, I find it to be a reasonable guide for determining the appropriate quantum of an administrative penalty under the Act. It fosters consistency and predictability in decision-making. No other resources or authorities were provided to me. For these reasons, I have found the Handbook persuasive in my reasoning.*"[1]

19. The detailed reasons for decision are provided in the penalty calculation(s) below.

## PENALTY CALCULATION FILE: 2024-14

## Section 1.1.1 (Authorized Discharges)

### The Contravention or Failure:

20. Under Section 1.1.1 (1), Barrick must not discharge effluent in such a manner or quantity as to exceed the water quality objectives in Hedley Creek, which includes a maximum total cobalt concentration of 0.9 µg/L (the "Cobalt Limit").

[1] EAB-EMA-21-A005a.pdf (bceab.ca), para. 72

21. Under Table 1 of the Permit, Hedley Creek water quality is assessed at Sampling Station "Hedley (Twenty Mile) Creek, d/s of Discharge (HDL CREEK D-S DIFSER) E223874." Sampling Station E223874 is located approximately 400 m downstream of the effluent discharge point into Hedley Creek (i.e., LT#1). In other words, effluent is discharged into Hedley Creek at LT#1 but the concentration of cobalt is actually measured approximately 400 m downstream after mixing and dilution. Under Table 1 of the Permit, sampling of total cobalt is required monthly at Sampling Station E223874.

22. Section 1.1.1 (1) means that Barrick must not discharge effluent that results in exceeding the Cobalt Limit in Hedley Creek. The Cobalt Limit was set by the Director in the Permit amendment dated July 23, 2004 (the "2004 Permit Amendment") and has not changed since then.

23. I find that Barrick has indirectly and informally taken issue with the Cobalt Limit for approximately 10 years now. This was previously based on water quality guidelines (provincial and federal) but now also includes the unique form of cobalt (i.e., speciation) that is present in Hedley Creek; Barrick continues to argue that the Cobalt Limit is too stringent and out-of-date.

24. Before I can consider each of the factors under Section 7(1) of the APR below, I must first consider Barrick's arguments on the validity of the Cobalt Limit in the Permit, which will necessarily require a consideration of the Ministry's permitting process versus the AMP process, of which this Determination is a part of.

25. In this Determination, Barrick's main argument can be summarized as, due to the unique "complexed" form of cobalt present in Hedley Creek, it is significantly less toxic to aquatic life. In the OTBH Submission, Barrick provides extensive technical and opinion evidence to support this argument, which will be considered in detail further below.

26. In "Section B. Cobalt Guidelines" of the OTBH Submission, Barrick identifies three "potentially relevant" criteria that can be used to assess total cobalt concentrations observed in Hedley Creek. These criteria are the Cobalt Limit of 0.9 µg/L, the long-term chronic BC Water Quality Guideline ("BC WQG") of 4 µg/L and the Federal Environmental Quality Guidelines ("FEQG") with a range between 0.78 µg/L to 1.8 µg/L, depending on water hardness. Barrick argues that none of these three criteria should be applied to this Determination, including the Cobalt Limit that was set in the Permit over 20 years ago.

27. In the OTBH Submission, Barrick submits that "[g]iven the lack of biological impact, there is no basis for imposing the BCWQG, the FEQG or indeed the current Permit objective" on its discharge of cobalt into Hedley Creek.[2]

28. I will consider the relevance of the BC WQG and FEQG in more detail further below in Factor b), Actual or Potential Adverse Effects. However, I must first consider whether the Cobalt Limit should be "imposed" because if I accept Barrick's argument, then there can be no failures to comply with Section 1.1.1 (1) and thus no basis for this Determination. Barrick is effectively arguing that, based on the information it has provided in its OTBH Submission, the Cobalt Limit in the Permit should not apply.

[2] OTBH Submission, para. 162

29. Barrick relies on the opinion evidence of Brett Lucas, Registered Professional Biologist ("RPBio") of Hatfield Consultants LLP ("Hatfield"), dated October 29, 2024 ("Lucas Opinion") in support of this argument. The Lucas Opinion addresses the ecotoxicology of cobalt with respect to Nickel Plate Mine's discharge into Hedley Creek and concludes that "*risks to aquatic life from cobalt concentrations in Hedley Creek were low between 2021 and 2023.*"[3]

30. Barrick submits that it has had "ongoing engagement" with the Ministry about "elevated cobalt levels at the Nickel Plate Mine and potential treatment options" which resulted in a Permit amendment application in 2019 (the "2019 Application")".[4]

31. In 2018, Barrick submits that it "held a technical pre-application meeting" with the Ministry and the Upper Similkameen Indian Band (the "USIB") "to review the proposed permit amendment" but "an amendment to the cobalt discharge limit was not proposed at this time."[5]

32. Barrick submits that at the time when it filed the 2019 Application, "it was hopeful a new WTP could successfully address cobalt in the discharge, though the mechanism for doing so was still being researched at that time."[6] It further submits that that the 2019 Application "clearly stated that <u>cobalt treatment was not included in the treatment design, as no proven treatment solution had yet been found</u>." [original emphasis]

33. In 2021, Barrick withdrew the 2019 Application, but it submits it "continued its work to find a treatment for complexed cobalt."[7]

34. The Cobalt Limit, Barrick submits, is "not based on the biological effects of the released cobalt" and "not suitable for regulating this complexed cobalt."[8]

35. Barrick submits that "the regime for regulating complexed cobalt at the Nickel Plate Mine needs to be re-worked, based on scientific evidence that takes the properties of the discharge and its effects into account."[9] It further submits that the Permit "as currently written does not reflect this reality and is entirely disconnected from the scientific findings of the last several years."

36. Since 2017, Barrick submits that it has been working to both understand "the type of cobalt in the water at the Nickel Plate Mine" as well as "the effects of this type of cobalt on the receiving environment."[10] It further submits, in the OTBH Submissions provided on October 31, 2024, that "based on biological testing", it "expects to submit a Permit amendment application in the next 3 to 6 months to increase" the Cobalt Limit.[11]

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[3] Lucas Opinion, p. 22
[4] OTBH Submission, para. 45
[5] OTBH Submission, para. 45
[6] OTBH Submission, para. 47
[7] OTBH Submission, para. 51
[8] OTBH Submission, para. 113
[9] OTBH Submission, para. 163
[10] OTBH Submission, para. 126
[11] OTBH Submission, para. 126

37. This is the second AMP for Barrick for exceeding the Cobalt Limit. In 2022, Barrick was previously issued AMP 2021-43 for $35,000 for failing to comply with the Cobalt Limit on 52 occasions between February 6, 2019, and September 1, 2020.

38. I was the Director for AMP 2021-43 and in the 2021-43 Final Determination I found:

> "*19. I find that the decision to set the current Cobalt Limit was made by a Director in 2004. At that time, Barrick did not appeal the decision to the Environmental Appeal Board, within 30 days as required by EMA. Further, I did not make that decision in 2004 and cannot comment on how the water quality objectives in Hedley Creek were assessed and set, or what was considered in the cautious and technically rigorous process at that time.*
>
> *20. I find that the current Cobalt Limit has been a valid requirement since 2004. My jurisdiction in this Determination is limited to assessing whether the facts support an administrative penalty, and I cannot decide whether the Cobalt Limit should be less stringent.*"

39. In the 2021-43 Final Determination I further found:

> "*67. I find that Barrick was aware of the Cobalt Limit exceedances as early as 2013 and was aware of the option to apply to amend the Permit as early as 2015, after the Ministry first formally raised cobalt exceedances with Barrick.*
>
> *68. I find Barrick is aware of the Cobalt Limit, has been aware since 2013 that it has exceeded the Cobalt Limit, and that it believes that the Cobalt Limit was always too stringent.*"

40. When I referred above to the "*cautious and technically rigorous process*" that the Ministry followed in 2004 when the Cobalt Limit was set, I was considering the EAB findings in *Emily Toews; Elisabeth Stannus v. Director, EMA* (Decision Nos. 2013-EMA-007(g) and 2013-EMA-010(g), December 23, 2015) ("*Toews*"):

> "*…the Panel agrees with the Board's findings in previous cases that a "cautious" approach, involving a comprehensive technical analysis of the potential harm that the proposed emission may cause to human health and the environment, should be adopted in assessing applications for permits to emit waste, and amendments to such permits, under the EMA.*"[12]
>
> …
>
> "*Thus, when assessing an application under section 16 of the EMA to amend a permit authorizing the emission of air contaminants, a cautious and technically rigorous approach should be taken when assessing the potential risks of injury to human health or damage to the environment.*"[13]

41. Under Section 16 of EMA, a Director may amend any permit requirement for the protection of the environment. Permit amendments follow a cautious and technically rigorous process when assessing the potential risks of damage to the environment. Under Section 16 of EMA, the decision to amend a permit can take place on the Director's own initiative if considered

[12] 2013ema007g_010g_corrigendum_2.pdf, para. 232
[13] *Toews*, para. 235

necessary, or on application by a holder of a permit. While I found that the Cobalt Limit has been valid since 2004, that is not to say it could not have been changed since then or can be changed in the future. This was all previously brought to Barrick's attention in the 2021-43 Final Determination.

42. Further, as I have previously found, Barrick has been aware since at least 2015 of its option to apply to amend the Cobalt Limit in the Permit.

43. Regarding how I ought to consider the previous 2021-43 Final Determination, I am guided by the AMP Handbook:

    "*It is a principle of administrative law that each decision must be made on its own merits, unlike in a court of law where higher court decisions may be binding on lower courts. While previous administrative penalty determinations may be relevant and informative - and in general like files should be treated consistently - it is the duty of the SDM to make a decision based on the unique facts of each case and all relevant factors.*"[14]

44. I have considered 2021-43 Final Determination and, while I find it relevant and informative, I must make this Determination based on all relevant factors, which include for example, the benefit of much more extensive submissions from Barrick on the speciation and toxicity of the form of cobalt at Nickel Plate Mine and the lack of available treatment options for it.

45. In this part of the Determination, I must consider any new relevant information made available to me since AMP 2021-43.

46. In the OTBH Submission, Barrick submits that the 2019 Application was as a result of the ongoing engagement with the Ministry about elevated cobalt levels at the Nickel Plate Mine. However, Barrick also submits that the 2019 Application did not include an amendment to the Cobalt Limit. In the result, I find that the 2019 Application is not relevant to the issue of amending the Cobalt Limit. In any event, Barrick withdrew the 2019 Application in 2021.

47. The Permit was most recently amended in 2021 (the "2021 Permit Amendment"). There were three amendments in the 2021 Permit Amendment, which required Barrick to do the following:

    - develop site performance objectives ("SPO")[15] for a number of parameters in Cahill Creek and Red Top Gulch, which included cobalt;[16]
    - complete a Trigger Action Response Plan ("TARP")[17] for a number of parameters in Cahill Creek and Red Top Gulch, which included cobalt;[18] and,

[14] AMP Handbook, p. 49
[15] SPO is a target set for a location in the receiving environment to help ensure the performance of works and management practices. SPOs may be established as standards that must be met in the receiving environment (like a permit limit), conditions that must be true for a discharge to occur, or triggers for implementation of contingency measures or further investigations; Development and Use of Trigger Response Plans
[16] 2021 Permit Amendment, s. 2.7
[17] TARPs identify appropriate specific actions to be used in response to observed or measured changes in conditions that are approaching management objectives (i.e., to respond to increasing trends which may be approaching EMA permit limits, SPOs or WQGs); Development and Use of Trigger Response Plans
[18] 2021 Permit Amendment, s. 2.8

- assess Best Achievable Treatment ("BAT") Technology options to mitigate all parameters identified as parameters of concern ("POC"), which included cobalt.[19]

48. The SPO study design, TARP, and BAT Assessment were all required to be submitted to the director for approval by March 31, 2022.

49. In the 2021 Permit Amendment, Barrick did not request an amendment to, and the Director did not amend, the Cobalt Limit in Hedley Creek; it remained at 0.9 µg/L.

50. Since the 2021 Permit Amendment, Barrick and its qualified professional ("QP"), Hatfield, "recommended cobalt SPOs for both Cahill Creek and Redtop Gulch of 367 µg/L to protect against adverse effects to aquatic life."[20] That specific SPO was recommended because "cobalt concentrations in the LT#1 discharge (i.e., output from the WTP) as high as 367 µg/L (i.e., the maximum concentration tested) were not acutely toxic to rainbow trout and did not cause lethal or sublethal (i.e., reproduction) effects on *Ceriodaphnia dubia*." For context, I find that the Hatfield recommended SPO of 367 µg/L for Cahill Creek and Redtop Gulch to be approximately 41,000% greater than the current Cobalt Limit of 0.9 µg/L for Hedley Creek.

51. I understand that the SPOs for Cahill Creek and Redtop Gulch are nearing the end of the assessment process with the Ministry, the USIB and the Lower Similkameen Indian Band (the "LSIB") but the final SPOS are yet to be approved by the Ministry. However, on December 3, 2024, the Ministry provided a response to Barrick that included draft SPOs of 7.9 µg/L for Cahill Creek and 170 µg/L for Redtop Gulch ("2024 SPO Rationale").[21]

52. For context, I find that the Ministry's draft SPO proposed for Redtop Gulch to be approximately 19,000% greater than the current Cobalt Limit of 0.9 µg/L for Hedley Creek.

53. For additional context, I find that the Ministry's draft SPO proposed for Cahill Creek to be approximately 800% greater than the current Cobalt Limit of 0.9 µg/L for Hedley Creek. However, I find that Ministry did not propose this lower draft SPO due to any specific reason to protect the environment, but rather simply because the Barrick proposed SPO for Cahill Creek was orders of magnitude above the historical maximums from samples collected:

    "*As an example, the proposed SPO for cobalt in Cahill-2 is 0.367 mg/L, while the current trigger is 0.0079 mg/L and the historical maximum is 0.0107 mg/L. As such, I do not see a need to raise the current trigger to such a high concentration, despite the findings of the SPO report. There is no increased risk to the environment by adopting SPOs above the historical maximums, nor is there additional regulatory burdens placed on Barrick assuming the water quality of the discharge from the TSF remains consistent. However, should concentrations rise above historical maximums, there should be investigations completed as there are no additional inputs to the TSF, therefore there may be some changes to the site conditions, or there may be some fundamental misunderstanding of the fate and transport of contaminants that is not understood that should be addressed.*"[22]

[19] 2021 Permit Amendment, s. 2.9
[20] OTBH Submission, para. 97
[21] 2024-12-03 Nickel Plate SPO rationale
[22] 2024 SPO Rationale

54. While I have briefly considered the recent SPOs for Cahill Creek and Redtop Gulch here, I acknowledge they are different watercourses from Hedley Creek and are going through their own site-specific assessment process. While I find some relevance to this Determination, I find that their applicability to the current Cobalt Limit ought to be fully assessed through a separate and new permit amendment process. I find that conditions in Hedley Creek are unique and it warrants its own unique site-specific approach. I find that Barrick still has an option to formally apply to amend the Permit to increase the Cobalt Limit.

55. In the OTBH submission, provided to me on October 31, 2024, Barrick "**expects to submit a Permit amendment application in the next 3 to 6 months to increase the cobalt objective for Hedley Creek**". [emphasis added]

56. On December 6, 2024, Barrick provided a letter to the Minister of Environment and Parks extending "*sincere congratulations on your appointment as Minister of Environment and Parks.*" Barrick stated further:

    "*Barrick is currently seeking regulatory approval to amend the cobalt discharge limit in the current water treatment permit (PE 7613) for the Nickel Plate Mine following comprehensive independent third-party studies demonstrating that the cobalt in the water is in a complexed, non-toxic form that does not harm the local ecosystem. Our current permit limit has proven unattainable with existing water treatment technologies despite significant investments by Barrick to test potential new solutions.*

    …

    *Once again, please accept my sincere congratulations on your role. My team and I are eager to meet with you and members of your cabinet at your earliest convenience to discuss our request for regulatory approval to amend our water treatment permit and the circumstances surrounding it.*"

57. On February 19, 2025, Barrick met with senior Ministry staff and presented a "Barrick Mine Closure Update". At that time, Barrick shared that it would submit a permit amendment application in 2025 to increase the Cobalt Limit.

58. As of March 5, 2025, Barrick has still not submitted a permit amendment application to increase the Cobalt Limit. Based on the information before me, it is not clear what strategic reason Barrick may have to continue delaying making this application since, as will be discussed in more detail below, I find that since at least 2021, it has been aware of cobalt speciation and toxicology evidence that would support its application.

59. I find that the AMP process, including any OTBH, is not intended to be a substitute for the Ministry's permitting and assessment process. The AMP process is not intended to be a "cautious and technically rigorous" process to fully assess all the potential risks of damage to the environment. That is what an application under Section 16 of EMA is for, where a Director may amend any permit requirement for the protection of the environment. I find that uncertainties still may exist around the impacts of cobalt in Hedley Creek and downstream wasters.

60. Based on the information above, I find that the Cobalt Limit currently remains as a clear and enforceable regulatory requirement in the Permit, as it has since 2004. However, Barrick's arguments regarding the lack of biological impact from the failures is relevant to this Determination and will be fully considered below in Factor b).

61. In the Notice, it was proposed that Barrick failed to comply with the Cobalt Limit on 18 dates. These 18 exceedances ranged from 11% to 7,011%, with an average exceedance of 1,155% over the Cobalt Limit. I have exercised my discretion under Section 7(1) of the APR and have removed the 11% exceedance that occurred on June 7, 2023 from this Determination.

62. For the purposes of this Determination, on the following 17 dates, Barrick discharged effluent in such a manner or quantity as to exceed the water quality objectives in Hedley Creek for total cobalt, as required by Section 1.1.1 (1):

- September 8, 2021
- February 2, 2022
- March 2, 2022
- April 6, 2022
- August 3, 2022
- September 7, 2022
- October 5, 2022
- November 2, 2022
- December 7, 2022
- January 4, 2023
- February 1, 2023
- March 1, 2023
- April 4, 2023
- July 5, 2023
- August 2, 2023
- September 6, 2023
- October 5, 2023

63. These 17 exceedances ranged from 122% (2 µg/L) to 7,011% (64 µg/L).

64. For this Determination, I have the discretion of determining a separate $40,000 penalty for each of these 17 failures to comply with the Cobalt Limit, applying a multiplier to a number of dates (up to 17), or consolidating into one penalty. I have decided to exercise my discretion to apply a multiplier to the failures, which will be explained below in the Multiplier Application section of this Determination.

65. My reasons for decision will address each factor individually. My considerations under Section 7(1) of the APR are as follows:

**Factor a): Nature of Contravention or Failure**

66. The Notice proposed that the failures were major.

67. Barrick disputes the characterization of the failures as major and submits they ought to be moderate. Barrick refers to the "outdated Permit objective" and that the "percentage exceedance calculations" for the purpose of Factor a) were based on the "extremely low permit objective of 0.9µg/L."[23]

68. Barrick submits that "comparing the sample values to the outdated permit objective does not give a useful or appropriate understanding of the nature of the contravention."[24]

69. Barrick relies on the Lucas Opinion to support its argument on this point and submits that "it has been scientifically demonstrated that this type of complexed cobalt at the Nickel Plate Mine does not have adverse effects at much higher concentrations than free cobalt does."[25]

[23] OTBH Submission, para. 108
[24] OTBH Submission, para. 109
[25] OTBH Submission, para. 112

70. Barrick submits that "the BCWQG and Permit objective for Hedley Creek are not based on the biological effects of the released cobalt and are not suitable for regulating this complexed cobalt."[26]

71. I have considered the AMP Handbook which describes a major nature of contravention as "*the most serious compliance issues that by their nature can result in an actual significant impact or very serious threat to the environment or to human health or where non-compliance undermines the basic integrity of the overarching regulatory regime and significantly interferes with the Ministry's capacity to regulate. Examples include… exceeding a discharge limit by a significant magnitude (50-100%+)*".[27]

72. I have considered the AMP Handbook which describes a moderate nature of failure as "*a failure to comply with operational requirements that at a minimum create a risk of harm to the environment or human health and safety."* Also included in the AMP Handbook description of moderate natures of contravention is "*Low to moderate exceedance of a discharge limit (for example, 50% or less of the authorized limit) with no sustained impact to the environment or human health may also fall in this category*".[28]

73. The nature of the failures, assessed at Notice as major, should not be confused with the actual or potential adverse effects, assessed at Notice as medium. While these two factors are somewhat linked, they represent two different assessments. Factor a) here deals with the nature of the failure, or as stated in the AMP Handbook, the *"regulatory importance of compliance for the protection of the environment and/or human health"*.[29]

74. As I have found above, the Cobalt Limit was set by the Director in 2004. It has been a valid regulatory requirement ever since. Despite Barrick providing some information in this Determination suggesting that the Cobalt Limit might be increased in the future, it has still failed to make a permit application amendment with its "cautious and technically rigorous" assessment process. As I have found above, this Determination is not a substitute for that process.

75. Until a proper permit amendment application is made by Barrick to increase the Cobalt Limit, which will include a comprehensive assessment by the relevant Ministry staff as well as public consultation, including the LSIB and USIB, I will enforce the current Cobalt Limit.

76. The characteristics of the exceedances further supports my finding of a major contravention. The 17 exceedances that form the basis of this Determination range from 122% to 7,011%. These exceedances of the Cobalt Limit by such a significant magnitude, are considered as the most serious type of non-compliances, undermine the basic integrity of the overarching regulatory regime and significantly interferes with the Ministry's capacity to regulate. The risk of harm to the environment will be considered in more detail below in Factor b).

[26] OTBH Submission, para. 113
[27] AMP Handbook, p. 37
[28] AMP Handbook, p. 37
[29] AMP Handbook, p. 37

77. After considering the relevant information above, I confirm the failures to comply are major.

**Factor b): Actual or Potential Adverse Effects**

78. Section 7(1)(b) of the APR requires that I must consider the real **or potential** adverse effect of the failure. A finding of potential adverse effect of the failure is enough to apply this factor.

79. The Notice proposed that the failures were medium.

80. Barrick disputes that the actual or potential adverse effects should be characterized as medium and submits that they ought to be classified as low.

81. Barrick submits that "all of the available evidence indicates that the complexed form of cobalt being discharged is not having any adverse biological impact in the receiving environment – even at concentrations exceeding the long-term chronic BCWQG."[30]

82. In support of its argument, Barrick relies on the 2020 benthic monitoring in Hedley Creek completed by Ecoscape Environmental Consultants Ltd. ("Ecoscape"), discussed at paras. 87 to 91 of the OTBH Submission.

83. Barrick submits that while there may be some differences in the benthic community up and downstream of the Nickel Plate Mine discharge in Hedley Creek, there is "no evidence of adverse impacts"[31] and these differences "*are not likely significant enough to be considered adverse*".[32]

84. In support of its argument, Barrick also relies on the site-specific toxicity assessment work carried out by Hatfield. A summary of this site-specific work is as follow:

- since 2021, Barrick has engaged Hatfield to "study the effects of complexed cobalt at the Nickel Plate Mine";
- the SPO work carried out for Cahill Creek and Redtop Gulch "has application to Hedley Creek, as the origin of the cobalt is the same (i.e., via TSF seepage passed through Nickel Plate Mine's WTP)";
- cobalt concentrations "as high as 367 µg/L (i.e., the maximum concentration tested) were not acutely toxic to rainbow trout and did not cause lethal or sublethal (i.e., reproduction) effects on Ceriodaphnia dubia";
- Hatfield "recommended cobalt SPOs for both Cahill Creek and Redtop Gulch of 367 µg/L to protect against adverse effects to aquatic life";
- toxicity testing in 2021 and 2022 "did not identify acute toxicity to organisms (rainbow trout and Daphnia magna) at cobalt concentrations as high as 504 µg/L" and "did not

[30] OTBH Submission, para. 119
[31] OTBH Submission, para. 91
[32] OTBH Submission, para. 88; 2020 Annual Data Collection and Interpretation Report, p. 57

identify sublethal toxicity to Ceriodaphnia dubia at cobalt concentrations as high as 230 µg/L";

- "statistically significant effects on *Ceriodaphnia dubia* reproduction" were only observed at "tested concentrations of 483 µg/L";
- "the anionic form of cobalt present at the Nickel Plate Mine appears to be less bioavailable than free cobalt – and, thus, less toxic"; and,
- given the type of cobalt in the effluent released from LT#1, "the Permit objective for cobalt in Hedley Creek is highly conservative, and risks to aquatic life from the cobalt concentrations in Hedley Creek were low during the Penalty Period."[33]

85. Barrick submits that "the Lucas Opinion concludes that adverse sublethal effects would not be expected at any of the cobalt concentrations measured in Hedley Creek during the Penalty Period, all of which are much lower than the safe concentrations identified in Hatfield's SPO work."[34]

86. In Section II(E) of the OTBH Submission, Barrick outlines the findings of studies it has undertaken on the effects of cobalt on the receiving environment. Barrick submits that "all of the evidence currently available indicates that the complexed cobalt present in the discharge is not resulting in adverse impacts on Hedley Creek."[35]

87. In Section III(B) of the OTBH Submission, Barrick submits that the complexed cobalt is less bioavailable when compared to free cobalt and therefore the actual or potential adverse effects are low. Barrick refers to the "mistaken assumptions that the type of cobalt in the effluent released to Hedley Creek will have the same properties and effects as free cobalt."[36]

88. Based on these conclusion Barrick argues that the cobalt guidelines used to assess compliance for this Determination are not appropriate for the discharge at the Nickel Plate Mine as they were developed using free cobalt rather than complexed cobalt.

89. Barrick submits that "the BCWQG for cobalt being applied is based on biological data which demonstrably does not apply to the discharges to the Hedley Creek receiving environment."[37]

90. Before I make this Determination, I must consider whether there is any evidence of real adverse effects on the environment or human health. Under the AMP Handbook, I am guided to consider whether the real or potential adverse effects have a low to none, medium, or high classification.

91. I have considered the AMP Handbook, which describes a medium actual or potential adverse effect as "*the contravention interferes with the Ministry's capacity to protect the environment or human health, or has the potential to do so, but does not result in a*

[33] OTBH Submission, paras. 92 to 100
[34] OTBH Submission, para. 119
[35] OTBH Submission, para. 104
[36] OTBH Submission, para. 124
[37] OTBH Submission, para. 157

*significant adverse effect or the potential to do so is moderate. Any effect is localized, short-term and can be mitigated or damage repaired within a reasonable timeframe.*"[38]

92. I have also considered the AMP Handbook, which describes a low to none actual or potential adverse effect as "*the contravention does not result in an immediate adverse effect or interfere with the Ministry's capacity to protect the environment or human health, or the potential to do so is low… or it could include an unauthorized discharge or permit exceedance with no discernable environmental or human health impact.*"[39]

93. Cobalt is an essential element for human and animal life but is toxic in high concentrations. In freshwater aquatic ecosystems, aquatic invertebrates appear to be the most sensitive group of organisms to cobalt exposure, followed by fish and plants. High concentrations of cobalt can result in reduced growth and emergence and reproductive effects in aquatic invertebrates. Aquatic invertebrates are a food source for salmonids and considered good indicators of chronic long term contaminant impacts.

94. In the Notice, it was proposed that there were chronic and long-term effects on the Hedley Creek invertebrate community composition or abundance. Thirteen of the seventeen Cobalt Limit exceedances included in this Determination are higher, and thus less protective, than the 4 µg/L chronic BC WQG. The cobalt sample results also exceeded the FEQG, which is even lower, and thus more protective of the environment, than the BC WQG.

95. In the Notice, it was proposed that the repeated and documented exceedances of the FEQG and the chronic BC WQG for cobalt support a medium potential for adverse effects on the environment.

96. In considering Factor b), I am guided by the AMP Handbook that a relevant question to ask is "*How sensitive is the environment in the location where the violation occurred?*"[40]

97. My first consideration is the predominant form (i.e., species) of cobalt in the discharge from Nickel Plate Mine into Hedley Creek. I find this is to be a significant consideration for Factor b) because some species of cobalt are more toxic and bioavailable, while others are much less so. I find that this issue was noted back in 2021, when the Ministry recommended that Barrick "*conduct speciation for cobalt to determine what forms are present and how bioavailable they are.*"[41]

98. In response, I find that Barrick has performed some cobalt speciation work in the water discharging from the Nickel Plate Mine. Barrick relies on the opinion evidence of Bill Malyk, Professional Engineer ("PEng") of WSP Canada Inc., dated October 31, 2024 ("Malyk Opinion") to support this argument, which states:

"*Cobalt in mine water occurs in several chemical forms often influenced by the geochemistry of the surrounding environment (e.g., pH). The two mainly soluble forms of*

[38] AMP Handbook, p. 38
[39] AMP Handbook, p. 38
[40] AMP Handbook, p. 61
[41] 2021 Ministry Memo

*cobalt are uncomplexed cobalt ions (Co2+) and soluble cobalt complexes (Joven-Quintero, et al., 2020). Soluble cobalt complexes include hexacyanocobaltate [(Co(CN)6)3-], one of the strongest compounds that can be found in gold mining wastewater as a complex ion (Joven-Quintero et al., 2020 and Smith and Mudder 1991)…*

*…In February 2021, hexacyanocobaltate concentrations in the influent were 451 µg/L as cobalt and total dissolved cobalt concentrations were 659 µg/L. This suggests that hexacyanocobaltate represented more then 68% of the total cobalt concentrations measured, in agreement with earlier speciation studies. Samples had peaks present in addition to hexacyanocobaltate indicating additional unknown cobalt complex species. These data suggest that the majority of cobalt minerals in the Mine ore/tailings are readily complexed with the available cyanide within the tailings forming cobalt-cyanide complexes.*"[42]

99. While some uncertainty may still exist regarding the complete speciation of cobalt at Nickel Plate Mine, fore the purposes of this Determination, I accept that the majority of the cobalt in the discharge to Hedley Creek is in the form of cobalt-cyanide complexes and not as "uncomplexed" or "free" cobalt ions (e.g., $Co^{2+}$).

100. I must consider how the speciation of cobalt ought to inform my consideration of Factor b). I find that the majority of the cobalt in TSF water at Nickel Plate Mine is complexed with cyanide, which the scientific community believes significantly reduces its bioavailability and toxicity.

101. In 2021, the Ministry also recommended that Barrick conduct "*toxicity testing based on predicted cobalt levels*".[43] I find that Barrick has responded and performed some toxicity testing using water discharging from the Nickel Plate Mine. It relies on the Lucas Opinion to support this argument:

"*Results of the 2022 targeted site-specific toxicity assessment for Cahill Creek and Redtop Gulch SPO development indicated that cobalt concentrations in the LT#1 discharge as high as 367 µg/L (i.e., the maximum concentration tested) were not acutely toxic to rainbow trout and did not cause lethal or sublethal (i.e., reproduction) effects on C. dubia. Similarly, toxicity testing in 2021 and 2022 on samples from LT#1, as well as Hedley Creek stations HDL CREEK U-S DIFSER and HDL CREEK D-S DIFSER, did not identify acute toxicity to organisms (i.e., rainbow trout and D. magna) at cobalt concentrations as high as 504 µg/L (i.e., the greatest concentration tested for toxicity at LT#1). Toxicity testing in 2021 and 2022 did not identify sublethal toxicity to C. dubia at cobalt concentrations as high as 230 µg/L. Significant effects on C. dubia reproduction (i.e., ~11% effect relative the laboratory control) were only observed at tested concentrations of 483 µg/L. These toxicity data suggest that adverse sublethal effects would not be expected at cobalt concentrations measured in Hedley Creek (at HDL CREEK D-S DIFSER) between 2021 and 2023 (i.e., 1 and 64 µg/L).*"[44]

[42] Malyk Opinion, p. 3
[43] 2021 Ministry Memo
[44] Lucas Opinion, p. 22

102. For the purpose of this Determination, I find that comparing cobalt sample results from Hedley Creek to the FEQG and BC WQG may not be applicable. For example, the most recent BAT Assessment, dated February 2023 (the "2023 BAT Assessment") states that that "*30-day average BC WQG for freshwater aquatic life is 0.004 mg/L for total cobalt*" which is based on "*natural freshwater systems*" where cobalt is "*generally found in the form of Co2+, carbonate, hydroxide, sulphate, and adsorbed forms*".[45]

103. The 2023 BAT Assessment further states that "*the BC WQG, while potentially appropriate for Co2+, are not applicable for the stable cobalt cyanide complexes that are associated with TSF water at Nickel Plate.*"[46]

104. As I have found above, Barrick has proposed cobalt SPOs for both Cahill Creek and Redtop Gulch of 367 µg/L to protect against adverse effects to aquatic life. While the Ministry assessment is currently in progress, it has suggested draft SPOs of 7.9 µg/L for Cahill Creek and 170 µg/L for Redtop Gulch, both significantly higher than the Cobalt Limit for Hedley Creek and both federal and provincial guidelines. However, as I have found above, the conditions in Hedley Creek are unique and it warrants its own unique site-specific approach.

105. The AMP Handbook also provides guidance that potential effects "*are an important consideration to factor into the gravity of the contravention although they may not be given the same weight as actual adverse effects.*"[47]

106. I acknowledge that evidence of actual effects is not necessary to assess Factor b) since the assessment includes both actual or potential adverse effects. However, I find that there is insufficient evidence before me that Barrick's failure to comply with the Cobalt Limit on 17 occasions between September 8, 2021 and October 5, 2023 caused any actual adverse effects on the environment or human health.

107. I find that there is still some uncertainty regarding the speciation of, and toxicity from, cobalt in Hedley Creek. For example, the cobalt cyanide complex is known to degrade under ultraviolet ("UV") exposure. Factors such as atmospheric conditions, elevation, time of year, water depth, water clarity, and exposure duration may affect the strength of UV light and its ability to break down the cobalt cyanide complex in water. While Barrick performed chronic toxicity tests in the receiving environment, based on the information before me, I find uncertainty around whether they were during times or location of highest risk with respect to the breakdown of cobalt cyanide complexes.

108. Another uncertainty is around the stability of the cobalt cyanide complex. If and when this complex breaks down in the receiving environment, based on the information before me, I find uncertainty around whether the released cyanide will pose a risk to aquatic life. This merits additional research to better understand the risks.

109. And another uncertainty relates to the toxicity tests that Barrick relies on, which were performed using *Ceriodaphnia dubia*; Environment Canada suggests that *Hyallela azteca* is

[45] 2023 BAT Assessment, p. 22
[46] 2023 BAT Assessment, p. 23
[47] AMP Handbook, p. 61

more sensitive to cobalt and would be a preferred test species.[48] It might be prudent for Barrick to perform ecologically relevant toxicity testing with *H. azteca* as well.

110. However, for the purposes of this Determination, and without the benefit of all the addition assessment that would occur in a full permit amendment process, I find that the failures have resulted in potential adverse effects on the environment, but that potential is low.

111. After considering the relevant information above, the failures are reduced to low.

112. I have considered the base penalty table in the AMP Handbook and, based on the information above unique to this Determination, I find that the base penalty ought to be less than the guidance amount of $10,000 for a major and low failure.

113. The base penalty is therefore confirmed at $7,500 as adjusted above.

114. I will now address the application of the penalty adjustment factors that reflect the unique circumstances of this file, including what happened before, during, and after the failures, and the OTBH Submission from Barrick.

**Factor c): Previous contraventions or failures, penalties imposed, or orders issued:**

115. The Notice proposed an increase of fifty percent of the base penalty (+ $10,000) for Barrick's previous failures to comply with the Cobalt Limit.

116. In the OTBH Submission, Barrick disputes the proposed increase to the penalty.

117. Barrick "acknowledges its previous contraventions" of the Cobalt Limit and submits that it has been "working since 2017 to understand the type of cobalt in the water at the Nickel Plate Mine, to try to find a more effective treatment, and to understand the effects of this type of cobalt on the receiving environment."[49]

118. Based on biological testing, Barrick submits it has developed "SPOs for cobalt in Cahill Creek and Redtop Gulch" and it "expects to submit a Permit amendment application in the next 3 to 6 months to increase the cobalt objective for Hedley Creek, taking into account the SPO work." [50]

119. Barrick submits that:

> "Given: (i) the large body of work that BGI has undertaken to try to comply with the Permit objective for cobalt in Hedley Creek, (ii) the fact that no proven treatment for the type of complexed cobalt present at the Nickel Plate Mine has been found to date, despite extensive efforts, (iii) the unduly low Permit objective for cobalt in Hedley Creek, and

[48] Biological Test Method: Test for Survival, Growth and Reproduction in Sediment and Water Using the Freshwater Amphipod *Hyalella Azteca*, September 2017, p. 34 (Table 2) https://publications.gc.ca/collections/collection_2018/eccc/En49-7-1-33-2017-eng.pdf

[49] OTBH Submission, para. 126
[50] OTBH Submission, para. 126

(iv) the demonstrated lack of adverse effects in the receiving environment, BGI submits that it would be unfair to increase the penalty amount based on compliance history in this circumstance."[51]

120. I am guided by the AMP Handbook for this factor, to consider Barrick's compliance history. This factor could increase or decrease the penalty.

121. I have considered the AMP Handbook which states, "*[w]hen considering the relevance of previous contraventions, consider the degree of similarity and extent to which the previous enforcement action should have deterred the person from doing the same type of thing again.*"[52]

122. On March 2, 2020, Barrick received a Warning of Non-Compliance (IR 144537) for 16 exceedances of the Cobalt Limit in 2017 and 2018 ("2020 Warning").[53] In the 2020 Warning, Barrick was reminded to "*[i]mplement the necessary mitigation to meet the water quality objectives in Hedley Creek.*"

123. The 2020 Warning included the following statements:

"*I request that BARRICK GOLD INC. immediately implement the necessary changes or modifications to correct the noncompliance(s) listed above with the Environmental Management Act. Further, I request that BARRICK GOLD INC. notify this office in writing, by email or letter within 30 days of this letter, advising what corrective measures have been taken, and what else is being done, to prevent similar non-compliances in the future.*"

...

"*Finally, if you fail to take the necessary actions to restore compliance, you may be subject to escalating enforcement action. This Warning Letter and the alleged violations and circumstances to which it refers, will form part of the compliance history of BARRICK GOLD INC. and will be taken into account in the event of future violations.*"

124. On 27 March 2020, Barrick responded to the 2020 Warning and stated, "*Barrick is working to construct a replacement water treatment plant with a component to specifically address the cobalt concentrations in the discharge.*"[54]

125. The EAB in *Coeur Silvertip Holdings Ltd. v. Director, EMA,* (EAB-EMA-23-A021(a), February 26, 2025) ("*Coeur*"), considered the use Warnings under this factor:

"*In the above circumstances, I find that it was appropriate for the Delegate to take the 2020 and 2021 Warning Letters into account as previous contraventions or failures as an aggravating factor under Factor (c).*"[55]

126. The "*above circumstances*" referred to by the EAB regarding the Warnings in *Coeur*, included that the Permittee:

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[51] OTBH Submission, para. 127
[52] AMP Handbook, p. 63
[53] 2020-03-02 IR144537 Warning
[54] 2020-03-27 Response to IR144537
[55] EAB-EMA-23-A021a.pdf, para. 206

- was out of compliance with the Permit, subjecting it "*to possible prosecution or administrative penalties*";
- was required, within 30 days, to "*provide a response in writing, advising what corrective measures have been taken, and what else is being done, to prevent similar non-compliances in the future*";
- was "*given an opportunity to dispute or otherwise address the alleged non-compliances for purposes of Factor (c)*" which "*adequately addressed Coeur's procedural fairness*"
- in its written responses, "did not dispute that the alleged non-compliances had occurred."[56]

127. I find that the circumstances in *Couer* are the same as in this Determination and I will consider the 2020 Warning as a previous contravention or failure for Factor c).

128. In 2022, Barrick was previously issued AMP 2021-43 for $35,000 for failing to comply with the Cobalt Limit on 52 occasions between February 6, 2019, and September 1, 2020.

129. I find a high degree of similarity between the 2020 Warning and AMP 2021-43 for previous failures to comply with the Cobalt Limit and this current AMP. Further, the previous compliance and enforcement actions should have had, but did not seem to have had, a deterrent effect on Barrick's continued failures, nor have they resulted in Barrick making application to request an increase to the Cobalt Limit.

130. In the OTBH Submissions under this factor, Barrick refers to the lack of proven treatment for the type of complexed cobalt present at the Nickel Plate Mine. I will consider that in Factor f) below. Barrick also refers to the unduly low Permit objective and lack of adverse effects in the receiving environment, which I considered above in Factor a) and Factor b). Consideration under Factor c) here relates solely to the compliance history of Barrick.

131. After considering the relevant information above, including the OTBH Submission, I confirm that an increase of fifty percent of the base penalty (+ $3,750) is appropriate for Barrick's previous failures to comply with the Cobalt Limit at the Nickel Plate Mine.

**Factor d): Whether contravention or failure was repeated or continuous**

132. The Notice proposed no adjustment for this factor. Instead, a multiplier was proposed to account for the repeated nature of the failures that occurred between September 8, 2021 and October 5, 2023.

133. Although the failure was repeated on 17 occasions between September 8, 2021 and October 5, 2023, a multiplier was proposed for only 13 of the occasions where the total cobalt concentration in Hedley Creek exceeded the, higher and less protective, chronic BC WQG for cobalt.

[56] *Coeur*, paras 199-205

134. In the OTBH Submission, Barrick disputes the use of a multiplier in place of a penalty increase under this factor. I will consider Barrick's submissions further below in the Multiplier Application part of this Determination.

135. I am guided by the AMP Handbook for this factor, to consider whether there is any evidence indicating that the repeated or continuing nature of the failures should have alerted Barrick to the failure and the need to take action. If I am persuaded that Barrick failed to take action, this factor could increase the penalty.

136. I find that the repeated nature of the 17 separate failures should have alerted Barrick to the failures and Barrick failed to take action. I find that a higher penalty is justified, and the use of a multiplier will be discussed below in the Multiplier Application section of this Determination.

137. After considering the relevant information above, I confirm that no increase ought to be applied under this aggravating factor.

**Factor e): Whether contravention or failure was deliberate**

138. The Notice proposed no adjustment for this factor.

139. This factor was not disputed in the OTBH Submission.

140. I am guided by the AMP Handbook for this factor, to consider whether there is any evidence indicating that Barrick deliberately exceeded the Cobalt Limit. If I am persuaded that Barrick deliberately the Cobalt Limit, this factor could increase the penalty.

141. I find that as early as 2013, Barrick knew about the exceedances of the Cobalt Limit, when the 2013 Annual Report was reviewed by the Ministry and the 2014 "EQ Review"[57] was prepared. This was confirmed in March of 2015 when the Ministry issued an Advisory of Non-Compliance (IR 19968), which included exceedances of the Cobalt Limit that occurred in 2014. As early as 2015, Barrick knew of the option to apply to amend the Permit to increase the Cobalt Limit. In 2017, 2020, and 2021, Barrick was reminded again to implement mitigation measures to meet the Cobalt Limit or apply for a Permit amendment to increase it.

142. Despite the previous 2020 Warning and AMP 2021-43 in 2022 for previously failing to comply with the Cobalt Limit from 2017 to 2020, I find that Barrick continued to exceed Cobalt Limit on 17 occasions between September 8, 2021 and October 5, 2023 and still failed to apply for a Permit amendment.

143. The EAB in *93 Land Company v Director, Environmental Management Act* (Decision No. EAB-EMA-22-A007(a), December 23, 2022), considered the meaning of deliberate under this factor:

[57] 2014-05-07 EQ comments 2013 Annual WQ Report (MSokal)

"*The word "deliberate" as used in this factor requires a consideration of whether the person was intentionally in contravention, or at least willfully blind as to whether they were in contravention of the Act.*"[58]

144. As discussed below in Factor g), I will consider Barrick's due diligence in meeting the Cobalt Limit and applying for a Permit amendment to increase the Cobalt Limit. However, I find that the failures to comply were not deliberate.

145. After considering the relevant information above, I confirm that no increase ought to be applied under this aggravating factor.

**Factor f): Economic benefit derived by the party from the contravention or failure**

146. The Notice proposed an increase of $162,815 for the economic benefit that Barrick derived from the delayed and avoided costs associated with replacement of the WTP.

147. In Section III (F) of the OTBH Submission, Barrick vigorously disputes that it has derived an economic benefit from the contraventions "by avoiding the expenditure of substantial costs to upgrade the existing WTP or to extend the outfall to the Similkameen River."[59]

148. Regarding the costs to upgrade the existing WTP, Barrick submits:

"Despite numerous studies and tests, no proven treatment has yet been identified for the effective removal of complexed cobalt in the treated discharge. To be abundantly clear, there never was a design for a replacement WTP that was going to be capable of treating the complexed cobalt to the levels required by the Permit objectives for Hedley Creek or by the chronic BCWQG."[60]

149. Regarding extending the outfall to the Similkameen River, Barrick submits that "this option would require further consultation with stakeholders, including local First Nations, particularly as the Similkameen River is culturally significant" and "it cannot be said that BGI has avoided financial expenditures" from any delays.[61]

150. Barrick submits that the economic benefit proposed at Notice "bears no relation whatsoever to any potential solution" to the Cobalt Limit exceedances and that it has "invested millions of dollars into studies and programs to better understand and resolve this issue."[62]

151. Barrick further submits that it has made extensive efforts to monitor, investigate, treat, and manage the release of cobalt at the Nickel Plate Mine "as conventional treatment for free cobalt (i.e., $Co^{2+}$) has proven not to be effective at treating the complexed forms of cobalt that predominate in the Nickel Plate Mine's discharge."[63]

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[58] EAB-EMA-22-A007a.pdf (bceab.ca), para. 143
[59] OTBH Submission, para. 136
[60] OTBH Submission, para. 141
[61] OTBH Submission, para. 141
[62] OTBH Submission, para. 143
[63] OTBH Submission, para. 3

152. I am guided by the AMP Handbook for this factor, to consider whether is any evidence indicating that Barrick obtained an economic benefit from the failures. If I am persuaded that Barrick obtained an economic benefit from the failures, this could increase the penalty.

153. Based on Section 7(1)(f) of the APR, I must consider any economic benefit derived by Barrick from the 17 failures between September 8, 2021 and October 5, 2023. I am guided by the AMP Handbook that the test for estimating economic benefit is one of "*reasonableness*" and I should provide a "*best estimate*" based on a "*defensible methodology.*"[64]

154. Any consideration of economic benefit that Barrick may have derived from the failures to comply with the Cobalt Limit necessarily requires reviewing the treatment options that could remove the relevant forms of cobalt at the Nickel Plate Mine. The starting point is the existing treatment and why it has not been successful in removing the cobalt.

155. I have considered the Malyk Opinion, where the following statements provide an overview of the water treatment systems at Nickel Plate Mine:

- "*Water management and water treatment systems were developed following closure of the Site. The water management system includes collection and pump-back of TSF seepage by a site-wide system of groundwater interception wells, collection channels, and sumps (SRK, 2023). Intercepted water is collected in the TSF using a dedicated set of lined collection ponds and pumped from there to the original mill building where water is treated by aerobic and anoxic biological treatment for removal of nitrogen nutrients and by lime precipitation for removal of dissolved metals.*"[65]
- "*The Mine Water Treatment System comprises of a biological treatment to address constituents of concern including cyanide, thiocyanate, ammonia and nitrate, followed by a chemical treatment of a high-density sludge (HDS) tank for removal of metals and arsenic.*"[66]

156. I find that the following statements from the 2023 BAT Assessment, summarizes why the existing WTP at the Nickel Plate Mine has been ineffective in meeting the Cobalt Limit in Hedley Creek:

- "*Dissolved cobalt (Co2+) is readily removed from water by hydroxide precipitation (i.e., lime treatment) or sulphide precipitation and carbonate, hydroxide, sulphate, or adsorbed forms of cobalt can be removed by simple coagulation and sedimentation.* ***Because cobalt is readily removed using simple and conventional treatment processes, it is generally not a parameter of concern from a water treatment perspective.***"[67] [emphasis added]
- "*Furthermore,* ***the existing water treatment process at Nickel Plate****, which would readily remove Co2+ and other naturally-occurring forms of cobalt, and as such would be*

[64] AMP Handbook, p. 66
[65] Malyk Opinion, p. 2
[66] Malyk Opinion, p. 7
[67] OTBH Submission, para. 77; 2023 BAT Assessment, p. 22

*considered a BAT,* ***is unable to remove the recalcitrant cobalt cyanide complex****.*"[68] [emphasis added]

157. I find that the following statements from the Malyk Opinion further explain the limitations of the current WTP to remove the form of cobalt present at the Nickel Plate Mine:

- "*It is known that free cobalt ions can be relatively easily removed from water by precipitation. The lime precipitation treatment used at the Mine is a well-known effective method to remove dissolved metals including the free uncomplexed Co2+ (EPA, 2014). Lime (calcium hydroxide) can remove dissolved cobalt by precipitation in the form of cobalt hydroxide, which is poorly soluble.*"[69]

- "*The Lime Treatment used for removal of dissolved metals at the Mine is known for being effective for removing ionic cobalt by precipitation of cobalt hydroxide at high pH levels. For cobalt present in complex forms, such as hexacyanocobaltate, hydroxide precipitation is not effective and additional treatment is required to remove or break down these complexes.*"[70]

158. I find that the existing WTP at the Nickel Plate Mine has been unsuccessful in consistently meeting the Cobalt Limit in Hedley Creek. My next consideration is whether Barrick ought to have chosen another water treatment option to successfully remove the relevant forms of cobalt at the Nickel Plate Mine. Barrick has provided extensive evidence, both documentary and opinion, to support its argument that another option was simply not feasible.

159. I have considered the first version of the BAT Assessment, dated February 2022 (the "2022 BAT Assessment"), which stated:

"*The reason cobalt removal at Nickel Plate is challenging is that the metal is present as a cobalt-cyanide (Co-CN) complex, which is classified as a strong-acid dissociable cyanide species. Such cyanide complexes are very stable and can only be broken by strong acids, strong oxidizers or reducing agents or by irradiation by ultra-violet light. The stability of the Co-CN complexes also makes them less toxic than simple cobalt cations. However, the reduced toxicity and environmental fate of the Co-CN complexes are not considered in this BAT assessment although such considerations may become pertinent in case feasible options for removing Co-CN cannot be identified.*"[71]

160. I find that the 2023 BAT Assessment concluded that "*[N]o options for removal of cobalt were identified*" at the Nickel Plate Mine because cobalt in the TSF water "*is complexed with cyanide, which makes it very stable, inert, and therefore very difficult to treat.*"[72]

161. I have further considered the 2023 BAT Assessment, which stated:

[68] OTBH Submission, para. 79; 2023 BAT Assessment, p. 23
[69] Malyk Opinion, p. 3
[70] Malyk Opinion, p. 3
[71] 2022 BAT Assessment, p. 46
[72] OTBH Submission, para. 21; 2023 BAT Assessment, p. iii

"*As indicated by the conclusions of the BAT assessment, there is no clearly preferred BAT for managing TSF discharges. Barrick intends to continue to evaluate the performance of semipassive treatment methods, assessing site-specific bio-availability of cobalt cyanide species (to inform discharge criteria), and continue to evaluate opportunities to optimize the existing water management and water treatment system.*"[73]

162. I have considered the Nickel Plate Mine 2022 Annual Water Quality Report, which stated:

"*There were no viable solutions found for removing cobalt from Nickel Plate's TSF water. The cobalt in the TSF water is bound with cyanide, which renders it highly stable, inert, and thus challenging to treat.*"[74]

163. Barrick relies on the Malyk Opinion in support of its argument that there are no feasible options to treat cobalt at Nickel Plate Mine. The Malyk Opinion reviewed Barrick's efforts to identify potential cobalt treatments and opines on whether any proven treatments are available.

164. I have considered the following statements from the Malyk Opinion, which supports Barrick's argument that no technology is currently available that can remove the form of cobalt observed at the Nickel Plate Mine:

- "*Any technologies proposed must be demonstrated to be at a maturity level that can be implemented to meet the regulatory requirements and site-specific conditions expected. Technologies at a technology readiness level (TRL) of TRL-8 or TRL-9 are viewed as proven technologies and are accepted to meet the requirements for Mines Act and Environmental Management Act applications.*"[75]
- "*I have reviewed available literature on commercially viable cobalt treatment methods and their effectiveness in relation to the cobalt complex found at the Mine and using the BC Technology Readiness Level assessment I conclude that a technology for the removal of the cobalt complexes observed at the Nickel Plate Mine Site is not currently available.*"[76]

165. The Malyk Opinion concludes:

- "*Barrick has undertaken an extensive array of testing and literature review by firms specializing in mine water treatment to find a treatment technology capable of removing the form of cobalt observed at the Nickel Plate Mine Site as conventional mine water treatment methods are not effective in removing/treating the observed cobalt complexes.*
- *For cobalt present in complex forms, such as hexacyanocobaltate, the current Nickel Plate treatment system using hydroxide precipitation is not effective and additional treatment is required to remove or break down these complexes.*

[73] OTBH Submission, para. 80; 2023 BAT Assessment, p. 68
[74] OTBH Submission, para. 103; Nickel Plate Mine 2022 Annual Water Quality Report, p. 22
[75] Malyk Opinion, p. 4
[76] Malyk Opinion, p. 17

- *A technology for the removal of the cobalt complexes observed at the Nickel Plate Mine Site is not currently available.*"[77]

166. I have considered the Wood Scoping Study for an Interim Water Treatment Plant Replacement, dated September 2019, which stated that "*[c]urrently not included in these prices is the Cobalt removal, which still requires further work in the next phase to determine its applicability.*"[78] It further stated that the cobalt removal was "*estimated at approximately $290,000.*" I find that this $290,000 estimate in 2019 was before the results of both the BAT Assessment and cobalt speciation work described above were known. I find it was based on the information available at that time, which has since been shown to have been deficient and incomplete.

167. However, I find that the BAT Assessment was not exhaustive and did identify additional options that were "*potentially plausible*" but "*subsequently screened for fatal flaws.*"[79] Some examples of fatal flaws included "*technical issues or risks deemed unacceptable to Barrick*" and "*excessive cost for little to no additional protection.*" Barrick only carried on options without fatal flaws to the technology assessment stage.

168. At para. 83 of the 2021-43 Final Determination, I previously found:

> "*While Barrick's QPs have provided it with some options for a solution to the water treatment issues at Nickel Plate Mine, I note it may have rejected implementation because they may not align with Barrick's corporate values- "not compatible with Barrick's commitment to implement more sustainable passive treatment (socio-cultural fatal flaw)", or cost too much- "likely to be very costly (financial fatal flaw)" (OTBH Submission, Tab 2, Appendix J: Best Achievable Treatment Technology Assessment Report, p. 47).*"

169. After considering the relevant information above, I am convinced that Barrick likely derived some economic benefit from the failures to comply with the Cobalt Limit. However, I find that any specific economic benefit derived from Barrick's failure to pursue options that it deemed to have fatal flaws, would be difficult to estimate or quantify. To attempt to do so, in the context of these failures, and without the benefit of a full permit amendment assessment process, would be entirely speculative and not defensible. This specific economic benefit has been considered but will not be pursued in this Determination.

170. After considering the relevant information above, I am convinced that Barrick likely derived some economic benefit from failing to pursue a Permit amendment to increase the Cobalt Limit, which it has been arguing since 2015. However, I find that any specific economic benefit derived from Barrick's failure to pursue a Permit amendment, would be difficult to estimate or quantify. To attempt to do so, in the context of these failures, and without the benefit of a full permit amendment assessment process, would be entirely speculative and not defensible. This specific economic benefit has been considered but will not be pursued in this Determination.

171. I have considered the AMP Handbook which states:

[77] Malyk Opinion, p. 1
[78] OTBH Submission, para. 137; Wood Scoping Study for an Interim Water Treatment Plant Replacement, p. 1-8
[79] OTBH Submission, para. 80; 2023 BAT Assessment, p. ii

"*Removing economic benefit is one of the most important objectives of an AMP. It sends the message to operators as well as the public that it is not ok to profit from breaking the law; the intent is to deter individuals and companies from 'taking their chances' of getting caught by ensuring the consequence (penalty) is equal or greater than the benefit of not complying.*"[80]

172. For the purposes of this Determination, I find that Barrick has not profited from breaking the law and has not taken its chances on getting caught. Further, I find that Barrick did not obtain any economic benefit from not complying with the Cobalt Limit in the Permit. For the purposes of this Determination, and without the benefit of a full permit amendment assessment process, I accept that a technology for the removal of the cobalt complexes observed at the Nickel Plate Mine is not currently available. In the result, I find that it is not reasonable to now increase Barrick's penalty under this factor for the period September 8, 2021 and October 5, 2023.

173. After considering the relevant information above, I confirm that no increase will be applied under this factor.

**Factor g): Exercise of due diligence to prevent the contravention or failure**

174. The Notice proposed no adjustment for this factor.

175. Barrick submits that "it has taken all reasonable measures to prevent the failures to comply with" the Cobalt Limit.[81]

176. In Section III (G) of the OTBH Submission, Barrick lists the efforts it has taken to prevent the failures, including:

"a. Over the course of 2017 to late 2023, [Barrick] worked with various consulting firms to explore four potential treatments for the cobalt in the mine water…

b. From 2018 to 2019, [Barrick] hired Wood to work on a plan for replacing the WTP, which was aging. Although [Barrick's] intention was for the proposed replacement WTP to include treatment for complexed cobalt, the proposed replacement did not include a design for this, as work was still underway to explore potential cobalt treatments.

c. From 2018 to 2023, [Barrick] or its consultants sent various samples of mine water to Brooks Applied Labs in Washington State to conduct cobalt speciation analysis to identify the species of cobalt present and inform the search for a treatment.

d. In 2021, the existing WTP was repaired to improve reliability and extend its life. No proven cobalt treatment had been identified for the replacement WTP by this time.

[80] AMP Handbook, p. 41
[81] OTBH Submission, para. 144

e. In 2022 to 2023, [Barrick] worked with SRK to submit a BAT Assessment to [the Ministry], which was followed by two revisions in response to [the Ministry's] comments. Unfortunately, despite the aforementioned work to explore cobalt treatments, a proven treatment for the complexed cobalt present at the Nickel Plate Mine was not found."[82]

177. Barrick further submits that, "from 2020 to 2024", it "commissioned numerous other studies related to water quality at the Nickel Plate Mine", including:

"a. SRK, IDZ Assessment for Hedley Creek (2020);

b. Hatfield, SPO Development Plan (February 2022);

c. Hatfield, Trigger Action Response Plan (February 2022); and

d. Hatfield, SPOs for Cahill Creek and Redtop Gulch (January 2024)."[83]

178. In addition, during this period from 2020 to 2024, Barrick submits that it undertook extensive additional work at the Nickel Plate Mine, including "studies of water treatment alternatives (including semi-passive treatment), toxicity investigation, influent and effluent analysis, geochemical modelling, geotechnical work, water pipeline location/alignment studies, wildlife studies, archaeological assessments, seepage capture studies, tailings analysis, and water balance modeling."[84]

179. Barrick submits that it has spent $15.4 million on studies, reports and work and countless hours of staff time "in an effort to resolve the cobalt exceedances and understand their effects or potential effects on the receiving environment."[85] Barrick further submits that this is a matter of having "worked with leading experts in the field of mine water treatment to explore option after option, at great financial cost, to no avail."

180. Barrick respectfully requests "a significant adjustment to reduce the penalty on account of the extensive due diligence measures" that it has taken in an effort to prevent the contravention and that "such an adjustment for this factor is appropriate in this circumstance."[86]

181. I am guided by the AMP Handbook for this factor, to consider whether there is any evidence that Barrick took reasonable measures to prevent the failures. If I am persuaded that Barrick took some reasonable measures to prevent the failures, this factor could decrease the penalty.

182. I have considered the AMP Handbook which states, "*the SDM must consider due diligence in deliberations on the quantum of the penalty and reduce the penalty if the person provides persuasive testimony or evidence that they exercised due diligence. The extent of the*

[82] OTBH Submission, para. 145
[83] OTBH Submission, para. 146
[84] OTBH Submission, para. 147
[85] OTBH Submission, para. 147
[86] OTBH Submission, para. 149

*reduction would depend on how compelling their evidence is and its weight relative to other factors the SDM must consider...*"[87] [original emphasis]

183. For the purposes of considering due diligence in this Determination, I will only consider measures taken by Barrick prior to September 8, 2021, when the failures to comply began. I note that in the OTBH Submission, Barrick has provided much more detailed evidence on its efforts to prevent reoccurrence of the failures, which I will consider below in Factor i). These are efforts made by Barrick after September 8, 2021, and after the failures began.

184. However, in considering due diligence in this Determination, I am limited to considering measures taken by Barrick after AMP 2021-43 was issued for the previous failures to comply with the Cobalt Limit between February 6, 2019 and September 1, 2021.

185. At the time of the Notice, I was not aware of any specific reasonable measures that Barrick took to prevent the failures. Since then, in the OTBH Submission, Barrick has provided additional evidence that it took some reasonable measures to prevent the failures.

186. I find that the period of failure from February 6, 2019 and September 1, 2021, has been previously considered in AMP 2021-43, and is not relevant to this Determination. For the purposes of considering due diligence in this Determination, I must separate and distinguish the facts that are only relevant to the period from September 8, 2021 to October 5, 2023.

187. Some of the reasonable measures that Barrick took to prevent the failures may only apply to AMP 2021-43 for the period of February 6, 2019 and September 1, 2021 and some may also apply to this Determination for the period of September 8, 2021 to October 5, 2023. I must make that distinction in this factor.

188. I find that the following were only relevant for consideration in the previous AMP 2021-43 for the period of February 6, 2019 and September 1, 2021:

- March 2018 Projected Long-Term Geochemical Performance of Waste Rock Dumps and Tailings, Nickel Plate Mine, prepared by SRK
- April 17, 2018 Nickel Plate Mine, Bench-Scale Ferrate (VI) Treatability Study
- April 17, 2018 Nickel Plate Mine, Bench-Scale Peroxide Treatability Study
- September 5, 2019 Wood – Nickel Plate Mine Interim Water Treatment Plant Replacement (P2)
- 2020 Jacobs Water Management Alternatives Study
- March 30, 2022 Hemmera Nickel Plate Mine 2021 Annual Water Quality Report

189. In the result, for this Determination I cannot consider these studies or reports.

190. In Section III (G) of the OTBH Submission, Barrick lists the efforts it has taken, before September 8, 2021, to prevent the failures, which includes:

- its work with consulting firms to explore four potential treatments for the cobalt in the Nickel Pate Mine water;

[87] AMP Handbook, p. 66

- sending various samples of mine water to Brooks Applied Labs in Washington State ("Brooks Lab") to conduct cobalt speciation analysis to identify the species of cobalt present and inform the search for a treatment;
- working with SRK to submit the BAT Assessment to the Ministry, which was followed by two revisions in response to the Ministry's comments; and,
- the IDZ Assessment for Hedley Creek (SRK, 2020).

191. After considering the relevant information above, including the OTBH Submission, I confirm that a decrease of ten percent of the base penalty (- $750) is an appropriate reduction for Barrick's efforts to prevent the failures to comply with the Cobalt Limit.

**Factor h): Efforts to correct the contravention or failure**

192. The Notice proposed no adjustment for this factor.

193. In Section III (H) of the OTBH Submission, Barrick refers to its submissions for Factor g) and Factor i) and requests a reduction of the penalty.

194. Barrick submits that it has "exercised diligence in trying to correct the issue of exceedances" of the Cobalt Limit.[88]

195. Barrick further submits that it "has done everything practical to understand, prevent, eliminate or ameliorate the adverse effects" of the Cobalt Limit exceedances and that "[b]iological test results" confirm that "there are no adverse effects on aquatic life in the receiving environment."[89]

196. I am guided by the AMP Handbook for this factor, to consider what Barrick did **after** the failures to restore compliance or reverse or mitigate the impacts. If I am persuaded that Barrick did take actions after the failures to restore compliance or reverse or mitigate the impacts, this factor could decrease the penalty.

197. Any due diligence that Barrick exercised to prevent the failures was considered above in Factor g). Any adverse effects on aquatic life in the receiving environment from the Cobalt Limit exceedances were considered above in Factor b). Any efforts that Barrick made to avoid the failures happening again in the future will be considered next in Factor i).

198. After considering the relevant information above, I confirm no adjustment of the base penalty for Barrick's efforts to correct the failures to comply.

**Factor i): Efforts to prevent reoccurrence of the contravention or failure**

199. The Notice proposed no adjustment for this factor.

200. In Section III (H) of the OTBH Submission, Barrick requests a reduction of the penalty based on some its efforts that I considered above in Factor g) of this Determination.

[88] OTBH Submission, para. 152
[89] OTBH Submission, para. 153

201. I am guided by the AMP Handbook for this factor, to consider whether Barrick has taken any action to avoid the failures happening again in the future. If I am persuaded that Barrick has taken any action to avoid the failures happening again in the future, this factor could decrease the penalty.

202. For the purposes of this factor, I will only consider actions taken by Barrick after September 8, 2021, and after the failures started. Further, I will only consider actions taken that I find were most likely related to avoiding the failures happening again in the future.

203. In Section III (G) of the OTBH Submission, Barrick lists the efforts it has taken to prevent the failures, after September 8, 2021 including:

- its work with consulting firms to explore four potential treatments for the cobalt in the Nickel Pate Mine water;
- sending various samples of mine water to Brooks Lab to conduct cobalt speciation analysis to identify the species of cobalt present and inform the search for a treatment;
- working with SRK to submit the BAT Assessment to the Ministry, which was followed by two revisions in response to the Ministry's comments; and,
- Hatfield, SPO Development Plan (February 2022);
- Hatfield, Trigger Action Response Plan (February 2022);
- Hatfield, SPOs for Cahill Creek and Redtop Gulch (January 2024);
- the 2024 Lucas Opinion; and,
- the 2024 Malyk Opinion.

204. I find that these efforts ought to be considered here under Factor i).

205. After considering the relevant information above, including the OTBH Submission, I confirm that a decrease of forty percent of the base penalty (- $3,000) is an appropriate reduction for Barrick's efforts after September 8, 2021 to prevent reoccurrence of the failures to comply with the Cobalt Limit.

**Factor j): Other**

206. The Notice proposed no adjustment for this factor.

207. In Section III (J) of the OTBH Submission, Barrick submits that there is an additional factor that I should consider in that the BC WQG "for cobalt being applied is based on biological data which demonstrably does not apply to the discharges to the Hedley Creek receiving environment."[90]

208. Based on these findings, Barrick further submits that given "the lack of biological impact", there is no basis for imposing the BC WQG, the FEQG or the Cobalt Limit and "if a penalty is determined to be necessary, this factor certainly justifies a downward adjustment to the penalty."[91]

[90] OTBH Submission, para. 157
[91] OTBH Submission, para. 162

209. I am guided by the AMP Handbook for this factor, to consider any additional factors which could increase or decrease the penalty. Such factors could include self-reporting, cost to government, cooperation, remorse and accountability, ability to pay, and financial impact of other obligations.

210. I find that the validity of the Cobalt Limit and the lack of biological impact have been properly consider above in The Contravention or Failure part of this Determination as well as under Factor a) and Factor b); I will not consider these points again in Factor j).

211. In the AMP Handbook, I am guided to consider how cooperative a party has been and that cooperative behaviour "*may be rewarded by the SDM by reducing the penalty*".[92] While there are no examples of cooperative behaviour in the AMP Handbook, some examples of being "uncooperative" include "*actively evading contact with the investigator; attempting to hide evidence or obstructing the investigation*".

212. Somewhat related to "cooperation" in the AMP Handbook is "self-reporting" and whether the party self-reported the failure.

213. After reviewing Ministry files, I find that Barrick has consistently self-reported its Cobalt Limit exceedances, as it is required to do under Section 5.2.1 of the Permit, and this is an example of cooperative behaviour.

214. Further, I find that Barrick has been cooperative in providing several updates to the Ministry to keep it "apprised of progress", which include:

- February 3, 2022: Jacobs and Barrick presentation to the Ministry and EMLI on semi-passive treatment design;
- May 10, 2022: SRK, Hatfield, and Barrick presentation to the Ministry on the BAT Assessment; and
- March 2023: Barrick presentation to the Ministry providing an update on cobalt complex speciation and treatment challenges observed in bench and field scale treatment pilot.[93]

215. After considering the relevant information above, including the OTBH Submission, I confirm that a decrease of ten percent of the base penalty (- $750) is an appropriate reduction for Barrick's cooperative behaviour under this additional factor.

**Total Penalty after base penalty determination and Factors c) to j) considered:**

216. After determining a base penalty of $7,500 and applying the mitigating and aggravating factors (-$750) discussed above, the penalty is established at $6,750, prior to determining the application of a multiplier.

[92] AMP Handbook, p. 68
[93] OTBH Submission, para. 148

**Multiplier Application:**

217. The Notice proposed the application of a multiplier on a daily basis for 13 of the failures that exceeded the chronic BC WQG for cobalt.

218. Barrick disputes the use of a multiplier and submits that "given the extreme disproportionality of the proposed penalty amount as compared to the lack of harm caused, no multiplier should be applied."[94] It submits that "such a large penalty" of $520,000 "is plainly disproportionate and unreasonable".[95]

219. Barrick repeats this proportionality argument later in the OTBH Submission and submits that the proposed penalty is "grossly disproportionate to the nature of the contravention, does not reflect a proper understanding of the low potential for adverse effects, and runs contrary to the purposes animating the administrative penalty regime."[96]

220. Barrick submits that the proposed penalty "is entirely disproportionate to incidents which have not caused any harm and have largely come about due to circumstances beyond the permitholder's control (i.e., the lack of proven treatment options despite many years of scientific investigation).[97]

221. The totality of the penalty, Barrick submits, is "inappropriate to the circumstances for the many reasons canvassed in this submission, including BGI's extensive work to understand the cobalt in its discharge, the lack of demonstrated harm in Hedley Creek, and the absence of proven treatment options."[98]

222. Barrick submits that an increase in Factor d) is more appropriate for the "multiple instances of the same contravention."[99] Barrick refers to the AMP Handbook to support its argument, which states that a "*contravention could be considered repeated if the same incident or behaviour occurs at two or more separate times... The events are separate, but the contravention is the same.*"[100]

223. The multiple exceedances of the chronic BC WQG for cobalt in Hedley Creek, Barrick submits, are the "same in character to the examples of repeated contraventions discussed" in the AMP Handbook. While the exceedances may have occurred on multiple dates, it submits that the failures "are otherwise indistinguishable – they are based on the same substance, alleged to be originating from the same location (i.e., the WTP), as measured at the same sampling point (i.e., HDLDS)."[101]

224. In conclusion, Barrick submits that the penalty be "reduced to the range of $19,500 to $27,000 in total, with no multiplier."[102]

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[94] OTBH Submission, para. 133
[95] OTBH Submission, para. 130
[96] OTBH Submission, para. 165
[97] OTBH Submission, para. 170
[98] OTBH Submission, para. 171
[99] OTBH Submission, para. 131
[100] AMP Handbook, p. 40
[101] OTBH Submission, para. 132
[102] OTBH Submission, para. 172

225. I am guided by the AMP Handbook that I must "turn my mind" to all the factors in Section 7(1) of the APR:

> "*Not all factors will be relevant, and some will be neutral, having no effect on the quantum of the penalty. On the other hand, other factors may be so important that they have a proportionally greater effect on the penalty amount than other factors. All that is required is that the SDM consider each factor – this 'consideration' may amount to a decision that the factor does not affect the penalty amount.*"[103]

226. For the purposes of this Determination, I have calculated a total penalty of $6,750, prior to determining the application of a multiplier. As described in detail above, I find that this total penalty was calculated in a "rational and reasonable manner" after turning my mind to all the factors in Section 7(1) of the APR. After considering submissions from Barrick, I made downward adjustments under Factors b), f), g), i), and j), as described above.

227. The most significant downward adjustment was in Factor f), where I removed any economic benefit that Barrick may have derived from not complying with the Cobalt Limit, between September 8, 2021 and October 5, 2023. I was also persuaded by Barrick that, for the purposes of this Determination, the potential for adverse effects were low and the base penalty ought to be reduced. Also significantly, I was persuaded by Barrick that it made substantial efforts to prevent a reoccurrence of the failures through its speciation and toxicity work and the BAT Assessment.

228. I find that applying a multiplier to the penalty is necessary to deter Barrick's future non-compliance with the Cobalt Limit. A multiplier is an efficient and fair option to increase the quantum of the AMP for deterrence purposes.

229. The application of a multiplier is consistent with the AMP Handbook which states:

> "*Where the maximum penalty for the contravention specified in Part 2 of the APR is likely inadequate to be a deterrent for the totality of the person's non-compliance, imposing separate penalties for repetitive contraventions would be an option for increasing the quantum. Using an example of multiple exceedance of a permitted discharge limit, on different dates, a penalty could be applied per discharge, each up to the maximum penalty prescribed in the APR."*[104]

230. This Determination is for 17 separate failures to comply with the Cobalt Limit during the period of September 8, 2021 to October 5, 2023. For the purposes of this Determination, Barrick has persuaded me that the BC WQG for cobalt may have limited applicability to Hedley Creek, and therefore I will not use it in applying a multiplier. I will exercise my discretion and apply a 17-day multiplier to the penalty for all 17 separate failures to comply with the Cobalt Limit between September 8, 2021 and October 5, 2023.

231. I find no practical or administrative fairness issues created by applying a multiplier for separate failures that are repeated. I find that all 17 separate failures included in this

[103] AMP Handbook, p. 58
[104] AMP Handbook, p. 33

Determination are exactly the same, specifically I find them all to be major and low failures. In the result, using one common shared chronology of relevant facts (i.e., evidence) and Section 7 APR factor analysis organized into a coherent single package is an efficient and appropriate approach to adequately support each individual failure.

232. I find that this approach is consistent with the AMP Handbook which sates, "*When multiple related contraventions or failures are included in a single PAF, take care to provide sufficient evidence to support all asserted facts, and address the factors in s. 7 of the APR in relation to each contravention or failure.*"[105]

233. In the 2021-43 Final Determination, I previously found:

"*34. I have considered the guidance from the AMP Handbook and find that the Cobalt Limit exceedances are 52 separate contraventions. For this Determination, I have the discretion of determining a separate penalty for each of the 52 contraventions or consolidating into one penalty. Since this is the first administrative penalty for Barrick regarding exceedances of the Cobalt Limit, I have decided to exercise that discretion in favour of Barrick and consolidate into one penalty, with a maximum of $40,000.*

*35. However, I note that if Barrick continues to contravene the Cobalt Limits, a subsequent statutory decision maker could review the relevant facts and this Determination and determine a separate penalty for each separate contravention in the future as a necessary response to deter non-compliance.*"

234. Based on this previous penalty to Barrick for the exact same circumstances, I find that the $40,000 maximum penalty has been shown to be "*inadequate to be a deterrent for the totality*" of Barrick's non-compliance and I will exercise my discretion and impose separate penalties for the 17 repetitive failures in order to increase the quantum.

235. In the result, after applying a 17-day multiplier, I have determined a total penalty of **$114,750**. I find that this amount is necessary to deter Barrick's future non-compliance with the Cobalt Limit.

236. In the circumstances unique to this Determination, and based on the information above, I further find that a total penalty of approximately **$114,750** is reasonable and proportionate to both the nature of the failure and the harm caused.

237. Finally, as I have found above, this Determination is not a substitute for the Permit amendment process. Now that Barrick has performed the speciation and toxicity work described above, including the process of setting SPOs for Cahill Creek and Redtop Gulch, I see no reason for further delay, and I strongly encourage it to apply to increase the Cobalt Limit in the Permit. Until then, a future decision maker may continue to issue penalties to Barrick for future non-compliances with the Cobalt Limit.

238. The final penalty calculations are summarized in the table below:

[105] AMP Handbook, p. 33

| Factors to be considered in penalty calculation | Notice | Final Determination |
|---|---|---|
| a) Nature of contravention or failure | major | major |
| b) Actual or potential adverse effect | medium | **low to none** |
| Base Penalty: | $20,000 | **$7,500** |
| c) Previous contraventions or failures, penalties imposed, or orders issued | + $10,000 | + **$3,750** |
| d) Whether contravention or failure was repeated or continuous | $0 | $0 |
| e) Whether contravention or failure was deliberate | $0 | $0 |
| f) Economic benefit derived by the party from the contravention or failure | + $162,815 | **$0** |
| g) Exercise of due diligence to prevent the contravention or failure | $0 | **- $750** |
| h) Efforts to correct the contravention or failure | $0 | $0 |
| i) Efforts to prevent reoccurrence of the contravention or failure | $0 | **- $3,000** |
| j) Additional relevant factors | $0 | **- $750** |
| *(add factors (c) to (j)* Total Penalty Adjustments: | + $172,815 | **- $750** |
| Penalty after considering all factors: *(base penalty plus penalty adjustments)* | $192,815 *The APR prescribes $40,000 as the maximum daily penalty for this contravention or failure. Accordingly, the calculated penalty has been adjusted from $192,815 to $40,000.* | **$6,750** |
| Application of multiplier: Yes | 13 x $40,000 | **17 x $6,750** |
| **Final Penalty:** | $520,000 | **$114,750** |

## DUE DATE AND PAYMENT

Payment of this administrative penalty is due within thirty (30) calendar days after the date of service of this Determination of Administrative Penalty (Determination). You will be sent an invoice, to be paid via cheque or money order made **payable to the Minister of Finance.** Payment can be mailed to Business Services at:

Financial Services Branch
Corporate Services for the Natural Resource Ministries
Ministry of Water, Land and Resource Stewardship

PO Box 9356 Stn Prov Govt
Victoria, BC V8W 9M2

Please do not mail cash. A $30 service fee will be charged for dishonoured payments.

If payment has not been received in the thirty (30) calendar day period, interest will be charged on overdue payments at a rate of 3% + the prime lending rate of the principal banker to the Province per month and the amount payable is recoverable as a debt due to the government. In the event of non-payment you will be ineligible for a permit or approval, or to amend a permit or approval, until the penalty is paid in full. Further, I am authorized by Section 18 of EMA to cancel or suspend your current authorization in the event of non-payment and if I decide to do so, you will be notified accordingly.

## RIGHT TO APPEAL

If you disagree with this Determination, Division 2 of Part 8 of EMA provides information for how to appeal my decision to the Environmental Appeal Board (EAB). In accordance with EMA and with the EAB Procedures Regulation, the EAB must receive Notice of the Appeal no later than 30 calendar days after the date you receive this Determination of Administrative Penalty. The notice must include:

a. Your name and address and the name of the person, if any, making the request on your behalf;
b. The address for serving a document to you or the person acting on your behalf;
c. The grounds for appeal;
d. A statement of the nature of the order requested; and
e. The notice of appeal shall be signed by you, or your counsel or agent if any, and be accompanied by a fee of $25, payable to the Minister for Finance by cheque, money order or bank draft.

The Notice of Appeal form is available online at https://www.bceab.ca/resources/forms-and-templates. It should be completed and filed by registered mail or by leaving a copy at the EAB office during normal business hours. The street address is 4th Floor, 747 Fort Street, Victoria, BC, and the office is open from 8:30 am – 4:30 pm Monday through Friday, excluding public holidays.

Notice may also be sent by email or fax, provided the original Notice of Appeal and the appeal fee follows by mail. The mailing address of the EAB is:

Environmental Appeal Board
PO Box 9425 Stn Prov Govt
Victoria, BC V8W 9M6

For further information, please consult the EAB website at https://www.bceab.ca. If the administrative penalty is appealed to the EAB and the penalty is upheld, payment is due within 30 calendar days after receiving a copy of the order or decision of the appeal board, or, if the EAB has sent the matter back to the decision maker, within 30 calendar days after a new Determination of Administrative Penalty is served.

## PUBLICATION

Seven days after the date of service, this Determination will be published on the Natural Resource Compliance and Enforcement Database (NRCED) Website: https://nrced.gov.bc.ca/

Dated this 5th day of March, 2025.