ALBERTA ENERGY REGULATOR

PROCEEDING ID 449

IN THE MATTER OF the *Responsible Energy Development Act*, SA 2012, c R-17.3

AND IN THE MATTER OF Application Nos. 1945552 and 1945553 made under the *Coal Conservation Act*, RSA 2000, c C-17;

AND IN THE MATTER OF Application No. 001-00496728 made under the *Environmental Protection and Enhancement Act*, RSA 2000, c E-12;

AND IN THE MATTER OF Application Nos. 001-00496729 and 001-00496730 made under the *Water Act*, RSA 2000, c W-3;

AND IN THE MATTER OF Application No. 32212208 and 32903389 made under the *Public Lands Act*, RSA 2000, c P-40

WRITTEN SUBMISSION OF ALBERTA WILDERNESS ASSOCIATION

June 18, 2025

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Grande Cache Golf and Country Club

Ridgeview Restaurant and Lounge Willmore Wilderness Foundation

People and Peaks Productions Ltd.

Grande Cache Chamber of Commerce

Spruce & Bean

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I. OVERVIEW

1. Summit Coal Inc. (Summit) is seeking approvals under the *Environmental Protection and Enhancement Act* ("EPEA"), the *Water Act* ("WA"), the *Coal Conservation Act* (CCA) and the *Public Lands Act* (PLA) for an underground coal mine in west-central Alberta near the Hamlet of Grande Cache (the "Project"). The applications being sought include:

- *Coal Conservation Act* (1945552 / 1945553)
- *Environmental Protection and Enhancement Act* (001-00496728)
- *Water Act* (001-00496729 / 001-00496730)
- *Public Lands Act* (32212208 / 32903389)

(Hereinafter collectively referred to as the "Application")[1].

2. These submissions provide evidence and reasons regarding the impacts of underground coal mines and the inadequacies of the Application, in support of the conclusion that the AER must deny the Application. The onus must be on applicants, including Summit, to prove that their proposed underground coal mining activities will not have unacceptable impacts on the public and the environment. Simply stating that the mine will be underground, without producing any supporting evidence that this will not unacceptably harm the air, water, ecosystems, and communities within the region, nor examining how the Project will contribute to the cumulative effects on the environment is not adequate. For these reasons, the Application should be denied.

II. OUTCOME SOUGHT

3. AWA advocates for the denial of the Applications.

4. In the alternative, AWA advocates for the imposition of the following conditions. Prior to any approvals, the baseline conditions of the receiving environment must be better established, which requires more comprehensive environmental monitoring. This involves,

a. Conducting multi-season, site-specific sampling of groundwater, surface water, soils, vegetation, and air for full suite of Contaminants of Potential Concern (COPCs).

[1] Summit Coal Inc. *Application File: Regulatory Applications, Application Nos. CCA 1945552 / 1945553, EPEA 001-00496728, WA 001-00496729 / 001-00496730,* pdf ("Application").

b. Apply toxicity testing and risk-based monitoring to establish baseline conditions, using Environment and Climate Change Canada biological test methods for effluents, sediments, and soils.
c. Applying statistical methods to define pre-development conditions and natural variability.
d. To evaluate potential impacts to air quality from emissions and deposition of chemicals,
    i. Updated modeling using local monitoring stations (e.g., Milner Air Quality Monitoring Station) is required, and particulate-bound contaminants must be included in modeling.
    ii. The World Health Organization and Canadian Ambient Air Quality Standards (CAAQS) should be used as evaluation benchmarks.
    iii. The Air Quality Assessment must be revised to include haul truck fugitive coal dust emissions, uncovered transport impacts, and deposition modeling. It also must incorporate occupational health considerations, inclusive of traditional and recreational land users.
e. To evaluate potential impacts to surface water quality from mine wastewater discharges,
    i. Mass and concentration predictions for all COPCs must be provided.
    ii. The ecological effects using federal and provincial water quality guidelines must be modelled.
    iii. Discharge-based monitoring and triggers in the EPEA Approval must be incorporated and required.
    iv. The Water Quality Assessment must be revised to include all potential release points and characterize expected loadings over time, comparing predicted effluent concentrations against aquatic life and drinking water guidelines.
f. To evaluate potential impacts to groundwater quality,
    i. Full-scale groundwater modeling must be completed.
    ii. Both bedrock and shallow aquifers should be monitored.
    iii. Seep and spring locations must be included in the monitoring plan.

g. Groundwater monitoring must be adaptive and include trend analysis and early-warning triggers.

5. Predictive modelling for contaminant fate and transport must be undertaken to understand transport pathways from mine sources to receptors in groundwater, surface water, and soils. The predicative modelling outputs should be used to support ecological and human health risk assessments.

a. To characterize risks to ecological health,
    i. An ecological risk assessment for terrestrial and aquatic receptors must be completed, using the Canadian Council of Ministers of the Environment (CCME) and Health Canada toxicity reference values.
    ii. Accumulation and any effects of COPCs in indicator species must be monitored and reported.
b. To characterize risks to human health,
    i. The proponents must complete a Human Health Risk Assessment (HHRA), addressing all key contaminants, sensitive receptors, and multiple exposure pathways.
    ii. Any potential exposure to COPC via inhalation, ingestion, and dermal contact must be evaluated.
    iii. Local receptor scenarios should be used and compared to Health Canada benchmarks.

6. A cumulative effects assessment must be completed that includes all nearby industrial operations and legacy contamination. Climate changes modelling, predictions, and impacts must be incorporated into mine design, monitoring, maintenance, mitigation, and emergency planning.
To reduce effects to aquatic species and ecosystems,

a. Chemical-specific monitoring and management plans must be developed and tied to clear action levels and health-based benchmarks, including a robust selenium monitoring program for fish, amphibians, and invertebrates.
b. Tissue residue benchmarks for aquatic toxicity must be included.

7. EPEA approval conditions must,

a. Specify conservative health-based benchmarks, effluent toxicity tests, and quantitative baseline conditions.
b. Identify enforceable EPEA conditions for monitoring, limits, and mitigation based on results of assessments.
c. Enforce release limits (consistent with the Alberta Surface Water Quality Guidelines for Protection of Aquatic Life and the Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Aquatic Life) for each chemical identified as exceeding selected thresholds in the Application assessments.
d. Mandate regular reporting and adaptive management responses based on observed trends.

8. These conditions are described in further detail within the expert evidence appended to this written submission[2].

III. SUMMARY OF FACTS, TESTIMONY, AND EXPERT EVIDENCE

A. The lack of an environmental impact assessment for the Project severely limits AER's ability to assess the Application

9. Given its location and components, the Project should have undergone an Environmental Impact Assessment ("EIA"). To proceed now without an EIA leaves the AER without the ability to assess the full scope of the Project for the purposes of deciding on the Application.

10. Summit Coal Inc.'s (Summit) proposed Mine 14 Project has never undergone an EIA at either the federal or provincial levels. On November 14, 2022, the Minister of Environment and Climate Change Canada (ECCC) chose not to designate the Project under the *Impact Assessment Act*, citing a number of legislative processes and laws already applicable and deemed sufficient "to address the potential adverse aforementioned effects and impacts" of the Project[3].

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[2] Olsgard, M. (2025) *Technical Review of Summit Coal Inc. Regulatory Application (EPEA 001-00496728) for the Proposed Mine 14 Underground Coal Mine project – Toxicology and Health Risk Discipline*. Integrated Toxicology Solutions ("Expert Toxicology and Health Risk Report") [**Appendix 1**].
[3] Minister of Environment and Climate Change Canada (2022) *Summit Mine 14: Minister's Response*, accessed online.

11. The minister stated that the "Project must be carried out in compliance with provincial and federal legislation", specifying the following acts:

a. *Environmental Protection and Enhancement Act* ("EPEA")[4]
b. *Coal Conservation Act* ("CCA")[5]
c. *Water Act* [6]
d. *Public Lands Act* ("PLA")[7]
e. *Historical Resources Act*
f. *Fisheries Act*
g. *Species at Risk Act* ("SARA")[8]
h. *Migratory Birds Convention Act*
i. *Canadian Environmental Protection Act*

12. On September 6, 2022, the Alberta Energy Regulator declined to require an environmental assessment under section 44 of the EPEA. The AER stated that the Project was not "considered a mandatory activity for the purposes of environmental assessment", and that their decision considered precedence set by their 2006 counterpart, Alberta Environment and Parks, which similarly did not "require a screening report or an environmental impact assessment report"[9].

13. Under schedule 1 of the *Environmental Assessment (Mandatory and Exempted Activities) Regulation*[10], the Project is not considered under the mandatory activities, but it is also not listed under those that would be exempt.

14. Surface coal mines are considered within the Regulation, requiring an environmental assessment if they produce more than 45,000 tonnes of coal a year[11]. Similarly, all quarries, defined under the *Act* as "any opening in, excavation in or working of the ***surface or subsurface*** for the

[4] *Environmental Protection and Enhancement Act*, RSA 2000, c E-12 ("EPEA").
[5] *Coal Conservation Act*, RSA 2000, c C-17 ("CCA").
[6] *Water Act,* RSA 2000, c W-3 ("Water Act").
[7] *Public Lands Act*, RSA 2000, c P-40 ("PLA").
[8] *Species at Risk Act*, SC 2002, c 29 ("SARA").
[9] Application, p. 443-444.
[10] *Environmental Assessment (Mandatory and Exempted Activities) Regulation*, Alta Reg 111/1993 ("EA Reg").
[11] EA Reg, sch. 1.

purpose of working, recovering, opening up or proving any mineral other than coal…"[12] [emphasis added] are also listed as a mandatory activity above 45,000 tonnes per year[13].

15. While underground coal mines are not explicitly addressed, the Regulation implies that both surface and subsurface mining projects extracting more than 45,000 tonnes per year should warrant an environmental assessment, whether the target product is coal or minerals[14]. Summit estimates the Project will produce at 1,300,000 tonnes of run-of-mine ("ROM") coal per year, or 900,000 to 1,000,000 clean metric tonnes (CMT) of metallurgical coal annually, along with hundreds of thousands of tonnes of associated impurities removed at the Coal Processing Plant ("CPP")[15].

16. Further, "any coal processing plant within the meaning of the *Coal Conservation Act*" is a mandatory activity under the Regulation[16]. The CCA defines a "coal processing plant" as "an installation for upgrading the quality of coal or for producing a marketable solid fuel and includes any coal storage facility directly associated with it"[17]. A "mine site" refers to the "location at which a facility for extracting coal by underground, strip or open pit operations exists or is to be developed, and includes (i) ***a coal processing plant***, storage facility or discard disposal facility ***that exists or is to be developed in connection with the mine,*** and (ii) all connected access roads*"*[18] [emphasis added].

17. The EPEA's definition reaffirms this; "mine" describes "any opening in, excavation in or working of the surface or subsurface for the purpose of working, recovering, opening up or proving coal, a coal bearing substance, oil sands or an oil sands bearing substance, and ***includes any associated infrastructure***"[19] [emphasis added].

18. Summit's proposal to develop Mine 14 must be understood as inclusive of all its associated infrastructure, including the CPP to be built at the H.R. Milner Generating Station approximately 20 km north of the mine site.

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[12] EPEA, s.1.
[13] EA Reg, sch. 1.
[14] EA Reg, sch. 1.
[15] Application at p. 299.
[16] EA Reg, sch. 1.
[17] CCA, s.1(1).
[18] CCA, s.1(1).
[19] EPEA, s. 1.

19. Examining this and the other related mandatory activities suggests the AER erred in the decision to allow the Project to continue without an environmental assessment.

20. Under the EPEA, "the purpose of an environmental assessment process is:

a. to support the goals of environmental protection and sustainable development;
b. to integrate environmental protection and economic decisions at the earliest stages of planning an activity;
c. to predict the environmental, social, economic and cultural consequences of a proposed activity and to assess plans to mitigate any adverse impacts resulting from the proposed activity; and
d. to provide for the involvement of the public, proponents, the Government and Government agencies in the review of proposed activities."[20]

21. Without the benefit of an EIA, the Summit's Application is deficient, and the AER's ability to assess the Application is severely weakened. As discussed below, the environmental conditions have changed considerably since EPA first declined to require an assessment, as have the societal context in which this Project now takes place. Without an EIA included in the Application, the AER will encounter much more difficulty in assessing the full circumstances of the Project.

B. There must be consideration of biodiversity baselines

22. The Project will have negative impacts on critical biodiversity factors necessary for maintaining ecosystem function, in a location where biodiversity values are still high.

23. Biodiversity loss has been cited as one of the main drivers of global change that reduces ecosystem functioning[21]. When biodiversity is lost within an ecosystem, or when diversity of the landscape itself is lost (as is the case when landscapes are fragmented), the overall ecological community becomes more unstable, creating issues in the food chain and instability in the way

[20] EPEA, s. 40.
[21] Liu, J. et al. (2018) *How does habitat fragmentation affect the biodiversity and ecosystem functioning relationship?*, Landscape ecology, 33, 341-352 ("Liu et al. *Biodiversity and ecosystem relationship*") [**Appendix 2**].

resources are regulated and cycled[22]. Biodiversity directly drives how well an ecosystem functions and how effective it is at providing the ecosystem services produced through its function[23]. These services account for all of the value, economic and otherwise, that directly results from healthy ecosystems.

24. Some of the main ecosystem services associated with biodiversity include air purification (including reducing the particulate matter in the air that results from industrial activities), creating fertile soils, reducing disease transmission, filtering water systems to reduce toxins and improve overall water quality, sequestering carbon, and providing resilience to climate change impacts such as extreme weather events and flooding[24,25,26]. Additionally, biodiversity and intact landscapes are ecosystem services in themselves, providing people with a connection to nature that can help to reduce stress and improve human health and wellbeing, as well as providing opportunities for economic growth in the tourism and recreation sectors[27].

25. Four biological indicators have been developed by the provincial government and the Alberta Biodiversity Monitoring Institute ("ABMI") to monitor, report, and manage the cumulative effects on biodiversity in the province. Although a Biodiversity Management Framework, which would be completed under a regional land use plan, is not yet available for this area, these are the indicators that would inform how land is developed to support the conservation and management of biodiversity. It is essential these indicators and their respective trends are considered as they illustrate the current state of the site and surrounding area, and highlight the risks posed by the Project. These four biological indicators are: (1) native cover, (2) interior habitat, (3) landscape connectivity, and (4) stream connectivity.

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[22] Naeem, S. et al. (2016) *Biodiversity and human well-being: an essential link for sustainable development*, Proceedings of the Royal Society B: Biological Sciences, 283(1844), 1-10 ("Naeem et al. *Biodiversity and humans*") [**Appendix 3**].
[23] Liu et al. *Biodiversity and ecosystem relationship*.
[24] Liu et al. *Biodiversity and ecosystem relationship*.
[25] Chivian, E. (2002) *Biodiversity: Its importance to human health*, Center for Health and the Global Environment, 23, 6-49 [**Appendix 4**].
[26] Muringal, V., & Goddard, E. (2019) *Economic Benefits of Biodiversity to Crop Producers in Canada: A Literature Review*, University of Alberta, 1-76 [**Appendix 5**].
[27] Liu et al. *Biodiversity and ecosystem relationship*.

26. Each indicator is calculated as a proportion of 100, where 100 reflects the environmental state at desirable reference conditions for a given area. Each indicator is examined in both the watershed surrounding the Project Site, and the receiving watershed immediately downstream[28]. This was completed for two reasons:

a. The Project will have implications for both.
b. Including both watersheds is useful to demonstrate and compare the differences in ecological health and integrity that can exist in relatively close proximity on the landscape.

27. Each watershed has been delineated by their Hydrological Unit Code ("HUC"). All indicators have been reported for the second finest or sub-basin level (HUC 8), with the exception of stream connectivity which is reported at the watershed level (HUC 6). The most current data for each indicator is presented and discussed below in relation to the project.

i. Native Cover

28. The Native Cover ("NC") indicator identifies what proportion of an area is free from "visible anthropogenic alteration", also known as the human footprint[29]. NC is important as having more high-quality native habitat available is associated with greater species richness and resilience, as well as increased biodiversity. Retention of native cover is also important as reclaimed sites post-disturbance rarely reflect the full ecosystem function and biochemical processes of the pre-disturbed area.

29. This indicator quantifies biodiversity loss through landscape conversion from agriculture, municipalities, resource extraction, transportation, and other human activities, and has been determined for both Terrestrial Native Cover ("TNC") and Aquatic and Wetland Native Cover ("AWNC").

[28] Map: The surrounding and receiving sib-basins in relation to Summit Coal's Mine 14 Project **[Appendix 40]**.
[29] Environment and Protected Areas (2024) *Native Cover Indicator for Alberta*, accessed online, ("Native Cover").

TERRESTRIAL NATIVE COVER

Table 1.A: Changes in Terrestrial Native Cover Surrounding the Project Site[30]							
HUC_8	**Name**	**2010**	**2018**	**2019**	**2020**	**2021**	**Change (%)**
18020101	UPPER SMOKY RIVER	99.36	99.28	99.27	99.27	99.27	-0.09
18020102	JACKPINE RIVER	100.00	100.00	100.00	100.00	100.00	0.00
18020103	SULPHUR RIVER	99.69	99.69	99.68	99.68	99.68	-0.01
18020104	MUSKEG RIVER	89.92	85.29	85.27	85.38	84.59	-5.93
18020105	SHEEP CREEK	97.07	96.87	96.87	96.88	96.82	-0.26
Watershed Average (WSC: 07GA)		97.21	96.23	96.22	96.24	96.07	-0.01

30. As the "largest contributor to biodiversity loss on earth"[31] has been declining TNC, it is critical to retain what remains[32]. In the hydrological units surrounding the project site, TNC is still considerably high when compared to the latest provincial average of 66.8%[33] (Table 1.A). This is confirmed in the Application, "[t]he Project area is essentially undeveloped except a non-Project-related communications facility on the south peak of Grande Mountain, with a low-capacity power line running from Grande Cache to that facility. Several exploration roads and reclaimed drill sites are scattered across the Project area"[34].

31. Many of the units overlap with large, protected areas like Kakwa Wildland Provincial Park and Willmore Wilderness Park, which provides protection of TNC from development. Notably, TNC is lowest in HUC 8 #18020104, the Muskeg River basin, where the majority of project's footprint is located. It has seen an almost 6% decline since 2010 (Table 1.A).

Table 1.B: Changes in Terrestrial Native Cover Downstream the Project Site[35]							
HUC_8	**Name**	**2010**	**2018**	**2019**	**2020**	**2021**	**Change (%)**

[30] Alberta Biodiversity Monitoring Institute (2023) *Native Cover Indicator for Alberta Dataset*, Alberta Environment and Protected Areas, Government of Alberta, accessed online ("AMBI NC Dataset").
[31] Native Cover, p. 6.
[32] Banks-Leite, C., et al. (2020) *Countering the effects of habitat loss, fragmentation, and degradation through habitat restoration*, One Earth, 3, 672-676 ("Banks-Leite. *Countering habitat loss, fragmentation, and degradation*") [**Appendix 6**].
[33] Native Cover, p. 11.
[34] Application, p. 396.
[35] ABMI NC Dataset.

18020201	MIDDLE SMOKY RIVER	82.98	77.47	76.39	76.58	75.24	-9.33
18020202	KAKWA RIVER	85.50	82.30	82.26	82.55	81.65	-4.50
18020203	CUTBANK RIVER	67.79	60.07	60.73	61.41	60.93	-10.12
Watershed Average (WSC: 07GB)		78.76	73.28	73.12	73.51	72.61	-7.98

32. TNC is worse downstream from the Project site but is still higher than the provincial average. It has seen average declines of ~8 % since 2010 (Table 1.B).

33. The Project will result in the removal of further TNC considered high in biodiversity based on this indicator, across a variety of sub-alpine and montane ecosystem types. This will reduce habitat availability and biodiversity in the project site and create more land in the area impacted by human activity, that will be of reduced quality once eventually reclaimed.

AQUATIC AND WETLAND NATIVE COVER

34. Wetlands provide innumerable intrinsic and economic ecosystem services that benefit people and the integrity of other ecosystems. They are extremely important for maintaining and improving biodiversity, which in turn relates to higher overall ecosystem function and stability[36,37]. Wetlands act as one of the best natural climate change mitigation strategies, storing substantially more carbon than most other ecosystem types, holding around 40 % of the world's terrestrial carbon[38]. Importantly, within a changing climate, wetlands act as storage systems for freshwater that will absorb excess water and prevent flooding, and then slowly replenish both groundwater and freshwater systems gradually during times of drought[39].

35. Wetlands will also absorb excess sediment and toxic substances, retaining them within plant biomass and wetland soil systems, preventing contamination into water systems further downstream[40]. All of these functions are essential for other ecosystems and the health of the natural

[36] Naeem et al. *Biodiversity and humans*.
[37] Locky, D. (2011) *Wetlands, Land Use, and Policy: Alberta's Keystone Ecosystem at a Crossroads*. Presented at the Annual Conference of the Alberta Institute of Agrologists, 1-78 ("Locky. *Wetlands keystone ecosystem"*) [**Appendix 8**].
[38] Locky. *Wetlands keystone ecosystem*, p. 14.
[39] Locky. *Wetlands keystone ecosystem*.
[40] Locky. *Wetlands keystone ecosystem*.

world. They are also essential for human and economic prosperity, considering the need to reduce and mitigate negative climate impacts to society and the economy.

36. AWNC are generally biodiversity hotspots, and provide critical ecosystem services "including water purification, nutrient cycling, flood reduction, ground water recharge and shoreline protection"[41]. They are "disproportionally more threatened by anthropogenic disturbances"[42], which makes their conservation more critical.

Table 1.C: Changes in Aquatic and Wetland Native Cover Surrounding the Project Site[43]

HUC_8	Name	2010	2018	2019	2020	2021	Change (%)
18020101	UPPER SMOKY RIVER	99.20	99.12	99.06	99.05	99.05	-0.16
18020102	JACKPINE RIVER	100.00	100.00	100.00	100.00	100.00	0.00
18020103	SULPHUR RIVER	99.93	99.92	99.91	99.91	99.91	-0.02
18020104	MUSKEG RIVER	96.41	95.26	95.12	95.11	94.82	-1.65
18020105	SHEEP CREEK	98.90	98.77	98.70	98.70	98.65	-0.25
Watershed Average (WSC: 07GA)		98.89	98.61	98.56	98.55	98.49	-0.41

37. Much like TNC, AWNC is high surrounding the project site, with modest declines observed in the Muskeg River (Table 1.C). When comparing these values to the provincial average of 78.6 %[44], the watersheds surrounding the project site are high in AWNC, which reflects high biodiversity (Table 1.C).

Table 1.D: Changes in Aquatic and Wetland Native Cover Downstream the Project Site[45]

HUC_8	Name	2010	2018	2019	2020	2021	Change (%)
18020201	MIDDLE SMOKY RIVER	95.12	94.07	94.10	94.19	94.02	-1.16
18020202	KAKWA RIVER	87.56	84.70	84.95	85.23	85.22	-2.68
18020203	CUTBANK RIVER	93.97	92.56	92.40	92.48	92.21	-1.88
Watershed Average (WSC: 07GB)		92.22	90.44	90.48	90.63	90.48	-1.90

[41] Native Cover, p. 6.
[42] Native Cover, p. 6.
[43] ABMI NC Dataset.
[44] Native Cover, p. 10.
[45] ABMI NC Dataset.

38. Downstream, AWNC is slightly lower (though not as drastically as was observed for TNC), but still above the provincial average (Table 1.D). All sub-basins have seen declines since 2010, comparable to the Muskeg River sub-basin.

39. Nine different wetland ecosites (5.76 ha) will be negatively impacted by the Project's Footprint[46], reducing high-quality AWNC available in the Muskeg River sub-basin. A Wetland Assessment and Impact Report (WAIR) has also not been provided in the Application. This was originally requested by the AER on November 15, 2023, and Summit stated they planned to submit one in the first quarter of 2024 accompanying a WA application[47]. Without the WAIR, this Application is incomplete.

ii. Interior Habitat

40. The Interior Habitat ("IH") indicator has been developed to quantify the "edge effects" of anthropogenic disturbance and reflect the "amount of habitat that lies outside the range of influence"[48]. Edge effects, which are changes to the environmental conditions of an area at the edges of habitat areas, such as higher wind speeds, more light availability, and higher temperatures, occur much more frequently in fragmented landscapes, which have local impacts to the species and ecosystem functions occurring there[49].

41. This indicator evaluates any impacts from human activities that extend beyond the boundaries of the human footprint, into what otherwise would be suitable habitat. Examples of edge effects include changes in microclimatic conditions from increased exposure to sun, wind, and precipitation, changes in temperature and moisture, increase traffic and/or human presence, and introduction of contaminants, invasive species, and noise[50].

Table 2.A: Changes in Interior Habitat Surrounding the Project Site[51]

HUC_8	Name	2010	2014	2016	2018	Change (%)
18020101	UPPER SMOKY RIVER	97.17	96.97	96.95	96.99	-0.19

[46] Application, p. 1318.
[47] Application, p. 1657.
[48] Environment and Parks (2022) *Interior Habitat Indicator for Alberta*, accessed online, ("Interior Habitat").
[49] Liu et al. *Biodiversity and ecosystem relationship*.
[50] Interior Habitat, p. 1.
[51] Alberta Biodiversity Monitoring Institute (2024) *Interior Habitat Indicator for Alberta Dataset*, Alberta Environment and Protected Areas, Government of Alberta, accessed online ("AMBI IC Dataset")

18020102	JACKPINE RIVER	99.94	99.94	99.94	99.94	0.00
18020103	SULPHUR RIVER	98.10	97.89	97.9	97.91	-0.19
18020104	MUSKEG RIVER	65.40	61.61	61.21	59.85	-8.49
18020105	SHEEP CREEK	91.50	91.22	90.97	90.95	-0.60
Watershed Average (WSC: 07GA)		90.42	89.53	89.39	89.13	-1.43

42. The provincial average for IH was 39.6% in 2018[52]. In the units surrounding the project site, the IH was considerably higher, with the exception of the Muskeg River, which has declined by more than 8% since 2010 to 59.85% (Table 2.A). This is notable as although 84.59% and 94.82% of the TNC and AWNC are available respectively (Table 1.A; Table 1.C), even relatively low levels of human footprint significantly reduce the available habitat unimpacted by human disturbance.

Table 2.B: Changes in Interior Habitat Downstream the Project Site[53]

HUC_8	Name	2010	2014	2016	2018	Change (%)
18020201	MIDDLE SMOKY RIVER	41.09	37.76	35.83	33.72	-17.94
18020202	KAKWA RIVER	58.19	56.76	55.17	55.05	-5.40
18020203	CUTBANK RIVER	26.35	24.22	20.34	19.37	-26.49
Watershed Average (WSC: 07GB)		41.88	39.58	37.11	36.05	-13.92

43. IH is worse downstream from the project site, rated less than the provincial average (Table 2.B). Each sub-basin has seen considerable declines, with average reductions of 13.92% since 2010 (Table 2.B).

44. Summit's project will increase both human footprint on the landscape and the associated edge effects, further reducing availability of IH in the region. As many local species are particularly sensitive to human disturbance, more so than what is even captured in the IH indicator, this could make much of the remaining habitat unusable to these species[54,55].

[52] Interior Habitat, p. 9.
[53] ABMI IC Dataset.
[54] Thompson, P., et al. (2024) *Integrating human train use in montane landscapes reveals larger zones of human influence for wary carnivores*, Journal of Applied Ecology, 62, 344-359 [**Appendix 9**].
[55] White, K., & Gregovich, D. (2017) *Mountain goat resource selection in relation to mining-related Disturbance*, Wildlife Biology, 1, 1-12 [**Appendix 10**].

iii. Landscape Connectivity

45. Landscape Connectivity ("LC") is a critical component for maintaining ecosystem function, biodiversity, and natural species behavior[56]. Connected landscapes are more adaptive and resilient compared to those that are fragmented, which is an especially important consideration in the face of global climate change[57]. It is "crucial to maintaining regional populations, gene flow, and overall landscape biodiversity and ecosystem health over time"[58]. As overall habitat availability reduces, habitat fragmentation also constrains ecosystem function and biodiversity[59].

46. Conversely, habitat fragmentation, which entails breaking up areas of habitat into smaller sections, creating separations that limit biotic and abiotic flow, causes a diverse array of issues within ecosystems and can introduce new stressors to the environment[60]. Biodiversity, including genetic diversity, is generally reduced when landscapes become more fragmented, as movement, reproductive success, and the ability for species to attain the necessities of survival are all restricted[61,62,]. Seed dispersal, seedling recruitment, and pollinator movement can be negatively impacted by landscape fragmentation and loss of connectivity between suitable habitat types, thereby reducing the reproductive success of native plant species and contributing to reduced biodiversity and biomass[63]. Additionally, disturbances associated with habitat fragmentation, such as creating roads or clearing sections of tree cover, can alter predator-prey dynamics in a way that increases mortality for prey animals including species at risk such as caribou[64].

47. As an indicator, LC measures both structural and functional connectivity, which captures the ability of both species and ecological processes to move and function freely a given area.

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[56] Liu et al. *Biodiversity and ecosystem relationship*.
[57] Liu et al. *Biodiversity and ecosystem relationship*.
[58] Environment and Protected Areas (2024) *Landscape Connectivity Indicator for Alberta*, accessed online, ("Landscape Connectivity"), p. 26.
[59] Rybicki, J. et al. (2020) *Habitat fragmentation and species diversity in competitive communities*, Ecology Letters, 23(3), 506-517 ("Rybicki et al. *Fragmentation and species diversity*") [**Appendix 11**].
[60] Liu et al. *Biodiversity and ecosystem relationship*.
[61] Liu et al. *Biodiversity and ecosystem relationship*.
[62] Rybicki et al. *Fragmentation and species diversity*.
[63] Liu et al. *Biodiversity and ecosystem relationship*.
[64] Johnson, C. et al. (2020) *Science to inform policy: Linking population dynamics to habitat for a threatened species in Canada*, Journal of Applied Ecology, 57(7), 1314-1327 [**Appendix 12**].

Table 3.A: Changes in Landscape Connectivity Surrounding the Project Site[65]							
HUC_8	**Name**	**2010**	**2018**	**2019**	**2020**	**2021**	**Change (%)**
18020101	UPPER SMOKY RIVER	96.05	95.77	95.75	95.75	95.76	-0.31
18020102	JACKPINE RIVER	100.00	100.00	100.00	100.00	100.00	0.00
18020103	SULPHUR RIVER	97.19	95.52	95.40	95.40	95.45	-1.80
18020104	MUSKEG RIVER	49.72	45.04	45.00	44.91	44.72	-10.06
18020105	SHEEP CREEK	82.43	82.19	82.10	82.08	81.98	-0.54
Watershed Average (WSC: 07GA)		85.08	83.70	83.65	83.63	83.58	-1.76

48. Compared to the provincial average of 33.3%, LC is much higher in the watershed surrounding the Project then in the rest of Alberta (Table 3.A). This is true even for the Muskeg River sub-basin, which has considerably worse LC compared to other units in the watershed and seen declines of ~10% to 44.72% between 2010 and 2021 (Table 3.A).

Table 3.B: Changes in Landscape Connectivity Downstream the Project Site[66]							
HUC_8	**Name**	**2010**	**2018**	**2019**	**2020**	**2021**	**Change (%)**
18020101	UPPER SMOKY RIVER	46.06	41.57	41.98	41.93	41.71	-9.43%
18020102	JACKPINE RIVER	17.23	13.51	14.13	13.92	13.77	-20.05%
18020103	SULPHUR RIVER	29.91	22.05	21.82	21.81	21.14	-29.31%
Watershed Average (WSC: 07GB)		31.06	25.71	25.98	25.89	25.54	-19.60%

49. In the downstream watersheds, LC is considerably worse and below provincial average, seeing large average declines of just under 20% since 2010 (Table 3.B).

50. This reveals that although there is a high proportion of TNC and AWNC available surrounding the project site, much may be difficult for species to use as linear disturbances and human development fragment the landscape. LC also helps better contextualize the IH indicator; because human disturbance in the Muskeg River is spread out, it has greater edge effects than if it were concentrated together.

[65] Alberta Biodiversity Monitoring Institute (2024) *Landscape Connectivity Indicator for Alberta Dataset*, Alberta Environment and Protected Areas, Government of Alberta, accessed online ("ABMI LC Dataset").
[66] ABMI LC Dataset.

51. The new access road and mine portal will further reduce LC in the sub-basin and contribute to further biodiversity declines in the Muskeg River (HUC 8 #18020104) and Upper Smoky River (HUC 8 #18020101) sub-basins.

iv. Stream Connectivity

52. Stream Connectivity ("SC") reflects how connected aquatic ecosystems are on both spatial and temporal scales, and "is important to support healthy populations and life histories of aquatic organisms at all trophic levels"[67]. The main threat to SC is barriers, as they fragment stream networks and restricts movement of species. This indicator is calculated at a coarser scale or watershed level (HUC 6), with the table below presenting the stream connectivity of the units surrounding the project (Sheep Creek, Upper Smoky, Jackpine, Sulphur, and Muskeg Rivers) as well as the downstream or receiving environment (Middle Smoky, Kakwa, and Cutbank Rivers).

Table 4: Changes in Regional Stream Connectivity[68]

HUC_6	Name	2010	2014	2016	2018	Change (%)
180201	SURRONDING PROJECT	66.15	66.35	66.35	66.33	0.26
180202	DOWNSTREAM PROJECT	52.83	51.66	51.66	51.04	-3.40

53. In Alberta, the predominant barriers are culverts[69]. In the watersheds surrounding the project site and upstream (HUC 6 #180201), SC was rated slightly above the provincial average (63.8%)[70] at 66.3% (Table 4). There has been no significant change (0.26% increase) in connectivity since 2010. Stream connectivity in the receiving watershed (HUC 6 #180202) is worse at 51.0% and has seen a 3.4% decline between 2010 and 2018 (Table 4).

54. The 10 culverts required in the project will reduce SC in the surrounding watershed, which has otherwise maintained its connectivity since 2010.

55. The biodiversity indicators reveal a number of critical considerations:

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[67] Environment and Parks (2022) *Stream Connectivity Indicator for Alberta*, accessed online, ("Stream Connectivity"), p. 1.
[68] Alberta Biodiversity Monitoring Institute (2021) *Stream Connectivity Indicator for Alberta Dataset*, Alberta Environment and Protected Areas, Government of Alberta, accessed online.
[69] Stream Connectivity, p. 1.
[70] Stream Connectivity, p. 10.

a. The project is sited within a watershed (HUC 6 #180201; WSC 07GA) that has relatively good ecological connectedness and interior habitat, as well as a high availability of terrestrial, aquatic, and wetland native cover.
b. The sub watershed in which the project is primarily situated (HUC 8 #18020104; Muskeg River) reports higher biodiversity scores than the provincial averages but is lower than its surrounding counterparts.
c. Downstream conditions from the site are considerably worse due to increased human footprint.
d. The majority of indicators reflect declines in biodiversity since 2010.
e. The project would have negative impacts on a number of biodiversity indicators.
f. Retention of remaining highly biologically diverse and intact landscapes is still possible if further human disturbance is avoided in the region.

C. Environmental conditions have changed, and human footprint has increased

56. In addition to the reductions in biodiversity indicated in the four ABMI factors as discussed above, the Project exists in a broader context of declining environmental conditions. Since 2006, the number of Species at Risk ("SAR") listed under Schedule 1 of the SARA in Alberta has increased by 148%[71], reflecting the continued and increased threat of biodiversity loss in the province.

57. Data from the nearest station within Alberta's Long Term River Monitoring Network (Wapiti River, Above Confluence With Smoky River) shows that many parameters monitored within the greater river basin have increased in the last 19 years, including bicarbonate, calcium, carbonate, chloride, chlorine, hydroxide, magnesium, nitrogen nitrate, nitrogen nitrite, potassium, selenium, sodium, sulphate, and total dissolved solids[72], which have negative implications on aquatic and watershed health.

[71] Government of Canada (2025) *Species at risk public registry*, dataset accessed online.
[72] Government of Alberta (2025) *Water Quality Data Portal*, dataset accessed online.

58. Concurrently, anthropogenic development has increased; in the surrounding Municipality of Greenview, the human footprint grew by more than 8.6% (as of the latest available data from 2021) since 2010[73]. Today, it covers about 30% of the total area, or 100,000 hectares[7475].

59. Changes in land use and land cover outside of protected areas can substantially impact their overall health and function, as often the habitat, wildlife, and ecological processes extend past their borders[76]. Research recommends that regional land management maximize the area of functional habitats, identify and maintain ecological process zones, maintain key migration and source habitats, and manage human proximity and edge effects within buffer zones to better sustain existing protected areas[77,78]. In examining the extent of existing human footprint in the region, the Project exists in a useful buffer zone between the surrounding protected areas to the west and south, and the higher density levels of anthropogenic disturbance in the downstream watersheds to the north and east[79]. The ecological integrity of places like Kakwa Wildland Provincial Park and Willmore Wilderness Park would be reinforced and better supported by limiting further development in the region.

60. The Application does not account for this changing context and the increased pressures on the ecosystems in which the Project would operate, especially given that the Application does not include an EIA.

D. Provincial policy and goals have changed

61. The socio-political context and regulatory environment have also changed drastically since 2006. Many formative pieces of legislation and policy that are critical for decision-makers today, did not exist when the Project was first proposed. The Land-use Framework, which shifted Alberta's land-use planning and management systems to consider the cumulative effects of human

[73] Alberta Biodiversity Monitoring Institute (2025) *Status of Land Cover & Biodiversity: M.D. of Greenview No. 16*, accessed online ("ABMI. Regional Land Cover & Biodiversity").
[74] ABMI. Regional Land Cover & Biodiversity.
[75] Map: The Change in human footprint since 2010 in relation to Summit Coal Inc.'s Mine 14 [**Appendix 41**].
[76] Hansen, A., & DeFries, R. (2007) *Ecological Mechanisms linking protected areas to surrounding lands, Ecological Applications*, 17(4) 974-988 ("Hansen & DeFries. *Landscape surrounding protected areas*") [**Appendix 13**].
[77] Hansen & DeFries. *Landscape surrounding protected areas*.
[78] Banks-Leite. *Countering habitat loss, fragmentation, and degradation*.
[79] Map: The Change in human footprint since 2010 in relation to Summit Coal Inc.'s Mine 14 [**Appendix 41**].

62. development at the regional scale, was not adopted until 2008[80]. Its enabling legislation, the *Alberta Land Stewardship Act*[81], did not receive royal assent until 2009. The LUF recognizes that,

a. "Clean water and air, healthy habitat and riparian areas, abundant wild species and fisheries are all "public goods" that Albertans enjoy and value."[82]
b. "Our watersheds, airsheds and landscapes have a finite carrying capacity."[83]
c. "Land is a limited, non-renewable resource and so should not be wasted. Land-use decisions should strive to reduce the human footprint on Alberta's landscape. When it comes to land use, other things being equal, less is more—more choices for future generations."[84]

63. The Project represents a threat to the public goods outlined in the LUF. Parameters measured to establish the background conditions at the Project site indicate the area may have reached its carrying capacity if we are to retain the high biodiversity and associated ecosystem services currently present. Further, permitting a coal mine at this site will only serve to expand the human footprint, and lock the area further into a single land-use that will have persistent effects for decades, well after operations have ceased. This Project also does not preserve choice for future generations and will negatively impacts future land-uses and livelihoods in substantive ways (as discussed in the following sections).

64. Much like the LUF and ALSA, the Water for Life Action Plan was not available during the AEP's initial decision in 2006. Published in 2009[85], the Action Plan outlined three priorities for Alberta. The first was to ensure "safe, secure drinking water", where every Albertan is assured they have access to clean, quality drinking water[86]. This goal "recognize[s] our dependence on aquatic ecosystems as source water"[87]. The second priority was that "Albertans are assured that aquatic ecosystems are maintained and protected"[88]. The third and final assurance identified in the plan is that "water is

[80] Government of Alberta (2008) *Land-use Framework*, accessed online ("LUF").
[81] *Alberta Land Stewardship Act*, SA 2009, c A-26.8 ("ALSA").
[82] LUF, p. 37.
[83] LUF, p. 35.
[84] LUF, p. 24.
[85] Government of Alberta (2009) *Water for Life Action Plan*, accessed online ("Water for Life").
[86] Water for Life, p. 10.
[87] Water for Life, p. 10.
[88] Water for Life, p. 12.

managed effectively to support sustainable economic development"[89]. These priorities reflect something that has become increasingly more evident since the Action Plan was published, especially in the last couple years; "the safety and security of water supplies is paramount for many Albertans"[90].

65. As discussed in the following sections, the Project is a threat to both drinking water and the aquatic environment, the full risk of which is not established in the Application. Similarly, the Project does not reflect sustainable development principles, as is discussed later in relation to climate change realities and commitments. The Application does not account for these shifts in Alberta's priorities and policies, especially given that the Application does not include an EIA.

E. Global conditions and commitments have changed

66. The state of the global environment and its associated science has also change considerably since 2006. For example, it would not be until the fourth Assessment Report by the International Panel on Climate Change ("IPCC") published in 2007, that scientific consensus would confirm "warming of the climate system is unequivocal"[91] with high confidence this was "due to the observed increase in anthropogenic GHG concentrations"[92].

67. The report would also make clearer the connection between climate change and biodiversity loss, noting that "there are projected to be major changes in ecosystem structure and function, species' ecological interactions and shifts in species' geographical ranges, with predominantly negative consequences for biodiversity and ecosystem goods and services, e.g. water and food supply"[93].

68. It also reports that "the resilience of many ecosystems is likely to be exceeded this century by an unprecedented combination of climate change, associated disturbances (e.g. flooding, drought, wildfire, insects, ocean acidification) and other global change drivers (e.g. **land use**

[89] Water for Life, p. 14.
[90] Coal Policy Committee (2021) *Engaging Albertans About Coal,* p. 8. [**Appendix 7**].
[91] International Panel on Climate Change (2007) Climate Change 2007: Synthesis Report, accessed online ("IPCC 2007"), p. 2 [**Appendix 14**].
[92] IPCC 2007, p. 5.
[93] IPCC 2007, p. 48.

change, pollution, fragmentation of natural systems, over exploitation of resources)" [94] [emphasis added]. The Project is a prime example of these global change drivers in combination.

69. Since 2007, two further Assessment Reports have been published marking significant scientific advances in understanding in the profound impacts of climate change. Evidence of the twin biodiversity and climate crises has significantly increased in the last two decades, demonstrating rapidly changing local environmental conditions and with it, the need to reduce emissions, landscape degradation, and global change drivers to mitigate the severity of impacts[95]. While decision makers in 2006 may have disregarded this reality, no such excuses exist now.

70. The Sixth IPCC assessment report also documented the fast pace of development in advanced secondary steelmaking as well as low GHG primary iron ore reduction using methane-based syngas direct iron reduction, possibly with CCS, 100% hydrogen DRI reduction, and direct iron ore electrolysis, all of which do not need metallurgical coal.[96]

71. The Government of Canada signed onto the Paris Agreement in 2015, a legally binding international treaty that committed the country to achieve 40 to 45 % GHG reductions by 2030, and net zero by 2050[97]. As a part of Canada, these are commitment's Alberta is similarly bound to and must do their part to achieve.

72. Considering the current state of the environment and observed trends in biodiversity, species at risk, habitat loss, water quality, and climate change discussed above, it is clear that conditions are degrading and the status quo cannot continue. The Application does not account for this larger context and provides the AER with an inadequate basis on which to assess the Project.

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[94] IPCC 2007, p. 48.
[95] Pörtner, H., et al. (2023) *Overcoming the coupled climate and biodiversity crises and their societal impacts*, Science, 380(6642) 1-12 [**Appendix 15**].
[96] Bashmakov, I., et al. (2022). *Chapter 11 - Industry* in IPCC, 2022: *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press.
[97] United Nations (2015) *Paris Agreement*, accessed online.

F. The Application's study areas are inadequate

73. The Regional Study Area ("RSA") used in the Application are insufficient to fully capture the direct and indirect impacts of the project and cumulative effects of anthropogenic activity on the landscape.

74. The Application defines a Regional Study Area as "the area where there is the potential for cumulative and socio-economic effects, and that will be relevant to the assessment of any wider-spread effects of the project", but then declined to complete a cumulative effects assessment, which means many "wider-spread effects" are unlikely to be adequately captured within the RSA[98]. Consider two key contaminants associated with coal mining: selenium and polycyclic aromatic compounds (PACs).

75. Selenium is known to be capable of long-range transport downstream of coal operations, found over 575 river km away from source mines in recent research[99]; on the Smoky River system, this would mean any selenium released during operations could travel past the town of Peace River. Even applying more conservative estimates, where selenium was found to have a zone of influence of at least 6.7 - 28.7 km downstream, would suggest that the RSA should be expanded to include a greater extent of the drainage area downstream the site and into the Muskeg River[100]. Investigating the impacts of multiple coal mines in Alberta's McLeod River watershed, researchers observed that two mines could produce selenium exceedances at least 6.7 km downstream, while three mines in a watershed resulted in exceedances recorded 28.7 km downstream and potentially further[101], demonstrating the need to consider the Project through a cumulative lens and not in isolation, as the Application does.

76. Notably, selenium concentrations above acceptable Canadian Water Quality Guideline levels have been documented in the watershed already. The Application reports Carconte Creek has

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[98] Application, p. 1950.
[99] Foster, M., et al. (2024). *Evidence of Long-Range Transport of Selenium Downstream of Coal Mining Operations in the Elk River Valley, Canada*, Environmental Science & Technology 11(8), 856–861 [**Appendix 16**].
[100] Redmond, L. (2021) *Water quality in the McLeod River as an indicator for mining impacts and reclamation success (2005 to 2016)*, Government of Alberta, Ministry of Environment and Parks, 1-94 ("Redmond. *McLeod River Mining Impacts*") [**Appendix 17**].
[101] Redmond. *McLeod River Mining Impacts*, p. 46.

baseline selenium levels of 1.3 µg/L[102]. Two Cabin Creek was found to have higher concentrations at 1.8 µg/L[103]. Summit also notes that "elevated concentrations have been reported in runoff from waste piles in the Grande Cache area previously" which they attribute "to elevated median nitrate concentrations in the Gates formation (15-133 mg/L) that can serve to oxidize and mobilize selenium"[104].

77. As early as 2000, unacceptable concentrations of selenium were already being observed in the liver and ovary tissues of bull trout (*Salvelinus confluentus)*, mountain whitefish (*Prosopium williamsoni*), and rainbow trout (*Oncorhynchus mykiss*) in the Smoky River watershed (inclusive of the Upper Smoky River, Sheep Creek, Beaverdam Creek, and Muskeg River sub-basins), with heightened levels associated with watersheds impacted by existing coal activity[105].

78. Scientists with the government of Alberta have found PACs deposited in snowpack more than 50 km away from the source mines, transported via fugitive coal dust[106]. Applying a 50 km radius around the Project footprint shows that any fugitive coal dust released into the atmosphere from the operation could end up depositing in protected areas like Kakwa Wildland Provincial Park, Willmore Wilderness Park, and AWA's Areas of Concern[107].

79. These distances reflect much larger potential terrestrial and aquatic zones of influence to be considered than those identified by the proponents. While the Application suggests that the risk of fugitive coal dust and selenium contamination[108] will be controlled by the nature of underground mining operations, there are still parts of the operation where these contaminants are at risk to enter the environment. For example, the Mine Water Pond ("MWP") will contain and regularly release water from the underground workings into Carconte Creek[109], which is predicted to have selenium concentrations exceeding the guidelines. The coal produced during operations will also be exposed

[102] Application, p. 1644.
[103] Application, p. 1644.
[104] Application, p. 1944.
[105] Mackay, W. (2006) *Selenium Concentrations in the Tissues of Fish from the Upper McLeod and Upper Smoky River Systems*, Alberta Sustainable Resource Development and Alberta Environment, 1-49.
[106] Cooke, C. (2024) *Mountaintop Removal Coal Mining Contaminates Snowpack across a Broad Region*, Environmental Science & Technology 58(26), 11718-11726. [**Appendix 18**].
[107] Map: The Change in human footprint since 2010 in relation to Summit Coal Inc.'s Mine 14 [**Appendix 41**].
[108] Application, p. 386.
[109] Application, p. 1782.

to the atmosphere and therefore pose risks to the surrounding environment through fugitive dust emissions during transport in haul trucks (and ultimately rail cars), and during processing at the CPP.

80. Research on coal trains has found that fugitive coal dust contributes to "significant increases in $PM_{2.5}$ … greater than those produced by freight trains and passenger trains… represent[ing] a significant public health hazard"[110]. In one study[111], coal trains were found to add over 8 μg/m^3 on average to ambient $PM_{2.5}$, with peak concentrations measured at over 17 μg/m^3. The researchers note that although standards are set for the tolerated $PM_{2.5}$ levels by federal and global authorities, the same authorities recognize "there is no threshold or safe level for ambient $PM_{2.5}$"[112]. They state that,

> Incremental concentrations would subsequently increase the risk of a wide range of health effects including: premature mortality, cardiovascular and respiratory hospitalization or urgent care visits, increases in or exacerbation of asthma, adverse birth outcomes (e.g., low birth weight, prematurity, birth defects and neurodevelopment), possible neurological impacts in children and adults (autism, Alzheimer's, Parkinson's) as well as functional impacts such as days with respiratory symptoms, restricted activity, and work or school loss[113].

81. The Application proposes to use Tier 4 haul trucks within their operations[114]. As the surface area of coal exposed in the truck's dump bed is comparable to that of open hopper coal rail cars, this suggests that the haul trucks will be an additional source of fugitive coal dust to the surrounding environment. In the project's Air Quality Assessment, the three emissions cases presented do not consider the fugitive coal dust emissions and PACs that will be generated while the trucks haul coal from the mine portal to the CPP, during storage and processing at the CPP, or in transport by rail for export[115].

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[110] Ostro, B., et al. (2023) *The impact of coal trains on PM2.5 in the San Francisco Bay area*. Air Quality, Atmosphere & Health 16, 1173–1183 ("Ostro et al. *Coal transport and air quality*"), p. 1179 [**Appendix 19**].
[111] Ostro et al. C*oal transport and air quality,* p. 1173.
[112] Ostro et al. *Coal transport and air quality,* p. 1173.
[113] Ostro et al. *Coal transport and air quality*, p. 1179.
[114] Application, p. 668.
[115] Application, p. 686-704.

G. The negative environmental impacts associated with underground coal mines have not been captured

i. The assessments completed are inadequate to establish baselines, predict effects, and address impacts.

AIR

82. The Air Quality Assessment employs questionable methodology, did not identify or include all potential emissions sources, and does not adequately consider the current deterioration of and predicted changes in air quality from particulate matter and future deteriorated conditions to propose mitigation and management activities[116].

83. The Air Monitoring Station used to establish the local ambient conditions was over 100 km from the Project site, despite the Milner Power ambient air quality monitoring station ("Milner Power AMS") being in much closer proximity[117]. The reasoning provided for this decision was to "avoid double counting of emissions and conservative model predictions as the HR Milner Power Generating Station, the CST Canada Coal Limited Coal Mine and coal processing facility are already explicitly included in the modelling"[118].

84. This approach, of using predictive modelling to calculate the emissions from existing operations (with the exception of the yet to be constructed CPP) when observed data is readily available from the Milner Power AMS and regularly reported by the existing operations, is confusing. The provided wind rose plot[119] shows high speed winds most frequently originate from the north and are likely to move emissions from the Milner and CST Coal facilities towards the Project site, suggesting they would be appropriate surrogates to represent ambient air quality at the site. Further, the Application could have undertaken a comparison of the Milner Power AMS and the predictive modelling, to validate the chosen approach. The choice to circumvent the Milner Power AMS data also obscures information that would be useful to quantify the cumulative effects multiple mines and processing facilities would have on air quality.

[116] Expert Toxicology and Health Risk Report.
[117] Application, p. 43.
[118] Application, p. 43.
[119] Application, p. 676.

85. The Air Quality Assessment predict concentrations of particulate matter (PM2.5, PM10, and TSP) that exceed both provincial and international health-based guidelines for safe air[120]. Notably, the Project's operations alone were predicted to exceed the provincial criteria for total suspended particles[121]. This suggests that the project will negatively impact air quality and contribute chemical substances via deposition to local ecosystems.

86. This also has serious implications for occupational safety and human health. As parameters for air quality guidelines are predicted to be exceeded, the Application should have included an assessment to identify potential risk pathways and determine the magnitude and likelihood of risks to human health[122]. Without this assessment, the necessary information to propose risk-based monitoring, mitigation, or management plans and address potential health risks if the project were approved is not available. This is particularly concerning, considering recent research has demonstrated that the negative health impacts from coal are more extensive, pervasive, and damaging than previously thought. Concisely,

> "All phases of the coal use continuum (mining, processing, combustion, and waste disposal) create adverse public health and environmental impacts. Public health impacts include cancer, cardiovascular disease, respiratory disease, kidney disease, mental health problems, adverse birth outcomes, impaired child development, and others."[123]

87. These negative health outcomes are found to be felt most acutely by the communities nearest and downstream the mines, who report increased rates of disease, among other reduced social outcomes:

> "Evidence of increased prevalence of chronic diseases and poor self-reported health status was reported in the mining communities. Relationship breakdown and poor family health, lack of social connectedness and decreased access to health services were also reported. Changes to the physical landscape; risky health behaviours; shift work of partners in the mine industry; social isolation and cyclical nature of 'boom and bust' activity contributed to poorer outcomes in the communities."[124]

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[120] Expert Toxicology and Health Risk Report.
[121] Expert Toxicology and Health Risk Report.
[122] Expert Toxicology and Health Risk Report.
[123] Hendryx, M., et al. (2020) *Impacts of Coal Use on Health*, Annual Review of Public Health, 41, p. 12 [**Appendix 21**].
[124] Mactaggart, F., et al. (2016). *Examining health and well-being outcomes associated with mining activity in rural communities of high-income countries: A systematic review*, Australian Journal of Rural Health, p. 1 [**Appendix 20**].

GROUNDWATER

88. The groundwater assessment included in the Application is incomplete[125]. Site specific data to establish the pre-development background condition has not been collected, and modelling to predict potential changes induced by the project was not undertaken[126].

89. Given the major ions, trace elements, heavy metals, and organics that naturally occur alongside coal deposits, the number of domestic use wells in the study area with water sourced from quaternary and bedrock aquifers, and that groundwater from the underground workings will be stored at the surface and discharged into Carconte Creek, a much more comprehensive groundwater assessment is required. Additional investigation must by undertaken to establish baseline conditions, and modelling completed to predict how the mine could impact groundwater while in operation.

90. In the absence of robust, site-specific data and modelling of future conditions, there is nothing to support the Application's assertion that "adverse [e]ffects to the groundwater are not expected to be significant"[127]. Summit's plan to conduct groundwater monitoring only after final approvals and permits are granted[128] is not acceptable, as the findings of such a program are critical to understanding the full risks, cumulative effects, and impacts to the environment posed by the project. Approval of the project based on the limited groundwater assessment could result in contamination of groundwater by substances associated with coal mines which could have long term impacts on aquifers, hydraulically connected surface water, and all who rely on these watersheds.

SURFACE WATER

91. The Application's surface water management plan is based on inconsistent sampling efforts and incomplete data analysis and modelling[129]. Important chemical substances of concern are excluded from much of the modelling and in turn, the resulting predictions do not capture the full potential impacts on the receiving environment. Worryingly, the Project still anticipates it will

[125] Expert Toxicology and Health Risk Report.
[126] Expert Toxicology and Health Risk Report.
[127] Application, p. 597.
[128] Application, p. 1920.
[129] Expert Toxicology and Health Risk Report.

contribute to increased chemical loads and changes in concentration downstream of the site. With no aquatic effects assessment to predict potential risks to aquatic biota and wildlife completed in relation to these expected changes in conditions, there are limitations in relying on the information provided by Summit to adequately assess the Application.

92. As mentioned previously, the MWP along with the Storm Water Pond ("SWP") will discharge into Carconte Creek, which drains into the source of Grande Cache's drinking water and ultimately into the Smoky River. The purpose of the MWP is to contain the groundwater from the underground workings, which will be used within the mine and for any dust control and fire protection required[130]. As "the underground workings will produce more water than the Project requires, … routine releases are anticipated" into the Carconte Creek drainage system[131]. The proponent's originally state that the water samples (AQ18 and AQ19) collected from the adit seepage "are expected to have comparable water chemistry to the water pumped from underground workings. Thus, they can be used to predict the water chemistry for groundwater pumped to ponds, with eventual release to the aquatic environment"[132].

93. The water chemistry of these samples reveals concentrations of fluoride, iron, and selenium elevated above the Canadian Water Quality Guidelines for the Protection of Aquatic Life ("CWQG")[133]. If the AQ18 and AQ19 samples are indeed comparable to the water quality expected from the MWP, this means that water with concentrations of fluoride, iron, and selenium exceeding what is considered protective of aquatic life, could be readily discharging and accumulating in the surrounding environment during operations[134].

94. The Application then contradictorily states that only AQ19, is "representative of the adit groundwater chemistry while AQ18 is not, as it was taken from a ditch outside the adit"[135]. AQ19 was only associated with elevated fluoride levels, while AQ18 had high selenium and iron concentrations.

[130] Application, p. 1787.
[131] Application, p. 1787.
[132] Application, p. 1644.
[133] Expert Toxicology and Health Risk Report.
[134] Expert Toxicology and Health Risk Report.
[135] Application, p. 1998

95. Regardless of the which samples reflect the underground workings, only a single vial was collected during one day in August 2022 for samples AQ18 and AQ19[136], which is a wholly inadequate effort to characterize the water in the underground workings and fully establish the quality of water to be stored in the MWP and subsequently discharged into the watershed. Further, these AQ18 and AQ19 were not analysed for chemical substances of potential concern including inorganics, hydrocarbons, and organic compounds, even though other samples in the Application do consider these parameters[137].

96. The Application's inconsistent choice and scope of water quality parameters is evident elsewhere; in the anticipated discharge quality and receiving water quality predictions for the MWP, many of the metals and inorganics detected in the samples are not reported. These incomplete predictions cannot be relied on to assess the impacts to receiving environments from MWP discharges as proposed in the mine design [138] . Predictions for each of the persistent, bioaccumulative, and toxic substances detected in the samples (as well as those that have been originally omitted from analysis) is required prior to a decision on the application being made by the AER.

97. Without consideration of the full scope or parameters associated with coal mining that could be present, the Application cannot provide reliable data to support identification of wastewater treatment technologies or development of EPEA Approval conditions for release limits, monitoring, or management related to the MWP and approved discharges.

98. The Application's later comparisons to CST Coal's neighbouring operations provides sufficient evidence that the water management program proposed for Mine 14, which has been informed and is comparable to Mine 7-4's water monitoring and management procedures, is likely to cause alterations in water chemistry in Carconte Creek and increase potential risks of adverse effects in aquatic and semi-aquatic biota from MWP releases. Many water quality parameters monitored downstream of Mine 7-4's operation, including aluminum, bicarbonate, boron, cadmium, calcium, chloride, copper, hardness, iron, magnesium, selenium, titanium, total alkalinity, TOC,

[136] Application, p. 1092.
[137] Expert Toxicology and Health Risk Report.
[138] Application, p. 1931.

true colour, and turbidity show marked differences from upstream conditions or exceed surface water guidelines[139].

99. Key alterations include increased hardness and calcium carbonate concentrations, which are a precursor to calcite formation. Associated with removal of spawning habitat by substrate concretion, calcite formation is known to impact invertebrate populations by decreasing food sources for higher trophic organisms, altering aquatic ecosystem structure and function[140].

ii. The project will negatively impact the surrounding ecosystems

100. Mine water discharge from underground coal mines has been found to negatively impact freshwater ecosystems. Studies in otherwise pristine river systems have found that downstream a single underground coal mine, aquatic ecosystems were significantly degraded, with "reduced abundance, taxonomic richness, and loss of pollution-sensitive macroinvertebrate groups"[141]. Increased thermal pollution, salinity, and concentrations of metals like zinc and nickel as well as changes to the river's ionic composition was observed[142]. Notably, this degradation occurred even though the permissible concentration of water quality parameters within the discharge was similarly regulated by the government.

101. The Application includes the original letter of advice they received from Fisheries and Oceans Canada ("DFO") in 2009, stating that "the Project remains essentially the same today as it was at the time of the DFO's conclusion", and "is not likely to result in impacts"[143]. In the DFO's letter, their recommendations were based on the understanding that the SWP and MWP "will not be discharged to the surrounding environment"[144]. The application now plans regular releases from the ponds, which is a significant change from when DFO's advice was first sought. DFO's letter ends with the

[139] Application, p. 2070-2072.
[140] Hocking, M., et al. (2021). *Calcite. Evaluation of Cause – Decline in Upper Fording River Westslope Cutthroat Trout Population*, Report prepared for Teck Coal Ltd. by Ecofish Research Ltd., Lotic Environmental Ltd., and Larratt Aquatic Consulting Ltd [**Appendix 22**].
[141] Wright, I., et al. (2017) *Coal Mine Water Pollution and Ecological Impairment of One of Australia's Most 'Protected' High Conservation-Value Rivers*, Water Air Soil Pollution, 228(90),1-18, ("Wright et al. *Underground coal mine impairing rivers*") p. 1 [**Appendix 23**].
[142] Wright et al. *Underground coal mine impairing rivers*.
[143] Application, p. 375.
[144] Application at p 454.

acknowledgement that "if the plans have changed… you should contact this office to determine if the advice in this letter still applies"[145].

102. The proponent should have submitted an updated Request for Review to DFO when substantive changes in their water management plan were made in 2024. This would ensure that DFO's assessment, decision, and recommendations were still applicable, and aligned with the current versions and provisions of the *Fisheries Act* and SARA. In the absence of this updated advice from DFO, the Application is incomplete.

103. Along with mine water discharge, research has found underground coal mines negatively impact terrestrial and aquatic ecosystems through subsidence disturbance. Subsidence caused by underground mining operations is known to affect aquifer connectivity, alter surface flows, disrupt hydrological processes, increase the risk of erosion and water logging, and cause physical and chemical changes to soil[146,147,148].

104. Another study found that underground "coal mining will break the dynamic balance between key ecological factors, such as surface topography, soil physical and chemical properties, moisture in the air pocket, and vegetation in local coal mining subsidence areas, and cause a series of surface subsidence" issues[149].

105. Studies of wetlands above underground coal mines have found they "were persistently drier, retained water for shorter durations and exhibited less spatial differentiation than unmined wetlands" from subsidence [150]. The researchers here note that no amount of restoration, remediation, or offsetting strategies could effectively mitigate these impacts, and that "greater emphasis on avoidance strategies within the mitigation hierarchy, … could improve outcomes that

[145] Application at p 454.
[146] Lechner, A., et al. (2014) *The Impact of Underground Longwall Mining on Prime Agricultural Land: A Review and Research Agenda*, Land Degradation & Development, 27(6), 1650 – 1663 [**Appendix 24**].
[147] Mason, T., et al. (2021) *Persistent effects of underground longwall coal mining on freshwater wetland hydrology*, Science of the Total Environment, 772, 1-8 ("*Mason et al: underground coal mine impacts wetlands*") [**Appendix 25**].
[148] Zhang, K., et al. (2022) *Effects of Underground Coal Mining on Soil Spatial Water Content Distribution and Plant Growth Type in Northwest China*, American Chemical Society Omega, 7(22), 18688–18698 ("*Zhang et al: underground coal mine impacts on water and plants*") [**Appendix 26**].
[149] *Zhang et al: underground coal mine impacts on water and plants,* p. 18688-18689.
[150] *Mason et al: underground coal mine impacts wetlands,* p. 1.

limit persistent, cumulative, landscape-scale, intergenerational loss of high-value public ecosystem services and assets including water resources and biodiversity"[151].

106. The Application predicts that "irregular and minor surface subsidence will most likely occur within the centre of the mining area", including "tension cracks", "smaller sinkholes", and "gentle subsidence depressions" following depillaring activities[152]. The Application does not have plans to reclaim or mitigate this, citing that other neighbouring operations have not been required to address it. Research investigating subsidence at those same operations identified nearly constant rates of "ground deformation due to underground mining"[153], with the highest amount observed at a mine wall "located right above the Smoky River" and Highway 40[154]. The researchers emphasize that "potential failure may result in significant impact"[155] here, due to horizontal creep.

107. As "induced ground deformation can continue for many years after cessation of underground mining and can precede large ground deformation, including sinkholes and slope failures"[156], potential subsidence at the site must be considered in addition to the progressing deformations at CST's operations, as well as any future implications and risks posed by this subsidence to the watershed, environment, and public.

iii. The project will negatively impact the watershed and pose unnecessary risks

108. The Application confirms that other similar operations in the region have been unable to reduce selenium concentrations through monitoring and mitigation measures[157], and presume that the exceedances of "fluoride, total and dissolved selenium concentrations" observed in "background samples collected in the Grande Cache area" are naturally occurring[158]. If the baseline conditions at the site already exceed the parameters set to maintain healthy aquatic ecosystems and drinking water standards, the precautionary principle embedded within the LUF would

[151] *Mason et al: underground coal mine impacts wetlands*, p. 7.
[152] Application, p. 1731-1732.
[153] Samsonov, S., et al. (2024) *Ground deformation due to natural resource extraction in the Western Canada Sedimentary Basin, Remote Sensing Applications: Society and Environment*, 34, 1-17 ("Samsonov et al. *Subsidence at CST*") p. 11 [**Appendix 27**].
[154] Samsonov et al. *Subsidence at CST,* p. 7.
[155] Samsonov et al. *Subsidence at CST,* p. 14.
[156] Samsonov et al. *Subsidence at CST,* p. 2.
[157] Application, p. 2053.
[158] Application, p. 2201.

recommend no further development occur; the ecological thresholds or carrying capacity of the region have been reached[159].

109. The main water quality parameter the proponent's plan to manage is total suspended solids ("TSS"). The proponent's state they will monitor other parameters as well, and "if elevated concentrations are observed, Summit will assess to determine if additional mitigation is required"[160].

110. In a previous draft water monitoring plan[161], numerous chemical parameters were set to be monitored either monthly or twice year. While grab samples collected at intermittent frequencies can capture the state of the ponds at the time they are collected, a caveat of this monitoring protocol is that any changes occurring between samples may be missed if water is released from the ponds in the interim.

111. Research has found that monthly sampling regimes are associated with "relatively high errors in seasonal statistics"[162, 163]. Intermittent grab sampling as proposed can underestimate actual concentration and is associated with high variability, despite the need for monitoring to reflect "rapid temporal changes" in the environmental conditions[164]. Others have noted that "higher frequency sampling" is required, as monthly sampling requires years to decades of data to be statistically rigorous enough to detect changing trends in contaminant concentrations[165].

112. In 2015, a Source Water Protection Plan ("SWPP") was commissioned for the town of Grande Cache to protect Victor and Grande Cache Lake[166]. In its evaluations of hazards and their associated risks to the town's water sources, transportation corridors, flooding, heavy rain, mining, forestry, and

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[159] LUF, P. 35.
[160] Application, p. 2053.
[161] Application, p. 1295-1297.
[162] Anttila, S. et al. (2012) *Assessing temporal representativeness of water quality monitoring data*, Journal of Environmental Monitoring, 14, p. 589 [**Appendix 28**].
[163] Cassidy, R. & Jordan, P. (2011) *Limitations of instantaneous water quality sampling in surface-water catchments: Comparison with near-continuous phosphorus time-series data*, Journal of Hydrology, 405, 182-193 ("Cassidy & Jordan. *Limitations of instantaneous grab sampling*") [**Appendix 29**].
[164] Cassidy & Jordan. *Limitations of instantaneous grab sampling,* p. 182.
[165] Wellen, C. et al. (2020) *An analysis of the sample size requirements for acceptable statistical power in water quality monitoring for improvement detection*, Ecological Indicators, 118, p. 1 [**Appendix 30**].
[166] Associated Engineering (2015) Source Water Protection Plan: Victor Lake and Grande Cache Lake, accessed online ("SWPP") [**Appendix 31**].

water availability were among the top concerns[167]. The hazard with the highest risk score was found to be transportation corridors; the plan notes that "the contaminant transfer potential for runoff from Hwy 40 to reach Victor Lake when flow conditions is rated as **high** during spring freshet and heaving rainfall events, and **moderate** for the rest of the year"[68][168]. The consequences of which are that,

> "Sediment reaching the lake could increase turbidity levels in water at the intake, which has implications for treatment as high turbidity makes filtration and disinfection more difficult. Spills from the highway that reach the lake directly could result in detectable levels of hydrocarbons and other substances at the intake."[169]

113. The Project would increase truck traffic within the watershed, with an anticipated "96 trips per day, or 4 per hour"[170] along the newly constructed and paved 6.5 km (47.8 ha) haul road and access corridor[171]. As it will cross a number of tributaries to Victor and Grande Cache Lake, this increases the threat posed by transportation corridors and risks to Grande Cache's water supply.

114. Another significant hazard identified in the SWPP is the threat posed to water quality by heavy rainfall, runoff and floods. The plan notes that "high-intensity storms are not uncommon", particularly throughout region's wet summer months when precipitation can carry sediment and other contaminants into the town's water sources and increase turbidity[172]. This is also a risk during the spring snowmelt[173]. High turbidity negatively impacts the town's water supply as it "makes filtration and disinfection more difficult", while run-off can introduce contaminants of concern into the source lakes[174]. Much "of the runoff and sediment originates from the Hwy 40 corridor" due to the design of its culverts and the "steep embankment slopes" adjacent to the road[175].

115. The SWPP rates mining activity as posing a moderate risk to the watershed, as "three tributaries to Carconte Creek flow from Summit Coal's Mine 14 site; therefore, any drainage water generated on-site could be transported from the site and into Grande Cache Lake, once the mine is in operation"[176]. Another risk identified in the SWPP is the new mining access road. The plan finds

[167] SWPP, p. 2-1.
[168] SWPP, p. 4-1.
[169] SWPP, p. 4-1.
[170] Application, p. 380.
[171] Application, p. 360.
[172] SWPP, p. 4-5.
[173] SWPP, p. 4-5.
[174] SWPP, p. 4-1.
[175] SWPP, p. 4-5.
[176] SWPP, p. 4-7.

that with precipitation, the road could be a source of sediment and contaminants during construction and when the mine is in operation, with "the potential to enter Grande Cache Lake" [177]. The contaminants of concern identified in the plan "include but are not limited to heavy metals, sediment, polycyclic aromatic hydrocarbons (PAHs), and compounds used in processing"[178].

116. The logging required to construct the access road and mine portal is an additional threat to Grande Cache's water sources. The main hazards associated with logging are "erosion and sedimentation from roads and landings," as well as the "potential increases in peak flows of Allen Creek and Carconte Creek within any future harvested areas that eventually drain into Grande Cache Lake" [179]. These increases have "the potential to increase channel and bank erosion and the subsequent deposition of sediment into the lakes which can negatively impact the raw water quality by elevating turbidity levels" [180].

117. Following tree removal or logging, numerous impacts to local ecosystems, and especially watersheds, can be felt. Removal of large forest stands can increase the amount of snow accumulation in an area, while also reducing the water that infiltrates into and is stored by forest soils, ultimately reducing ecosystem resiliency, impacting hydrological fluctuations, and contributing to flooding events[181,182]. These impacts are more likely when tree removal is coupled with soil compaction from machinery [183]. Related to these changes, increased erosion and sedimentation runoff into water systems is common when harvesting occurs, as more open soil is exposed to the elements, and the soil structure is reduced as biomass is removed[184]. This has many negative impacts on water systems, such as reducing habitat suitability for species at risk, such as native coldwater fish. Increased sedimentation will disrupt bull trout feeding patterns, growth,

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[177] SWPP, p. 4-7.
[178] SWPP, p. 4-6.
[179] SWPP, p. 4-11.
[180] SWPP, p. 4-12.
[181] Birtwell, I. (2000). *The effects of sediment on fish and their habitat*, Fisheries and Oceans Canada ("Birtwell. *Sediment Fish and Habitat*") [**Appendix 32**].
[182] Wei, X., et al. (2022). *Forest harvesting and hydrology in boreal Forests: Under an increased and cumulative disturbance context*, *Forest Ecology and Management*, *522*, 120468 ("Wei et al. *Forest harvesting, hydrology, and cumulative effects*") [**Appendix 33**].
[183] Wei et al. *Forest harvesting, hydrology, and cumulative effects*.
[184] Shah, N., et al. (2022). *The effects of forest management on water quality*. *Forest Ecology and Management*, *522*, 120397 [**Appendix 34**].

reproductive success, and movements, as well as make them more susceptible to various forms of disease[185].

118. Forests within the watershed have been cut in the last decade, necessitating any further logging undertaken by Summit be assessed in combination with that existing human footprint[186]. When considering the size and effects of logging disturbance, the 100.3 ha footprint that would be cleared for the project is in addition to the 204 ha cleared in 2017. There is also the 75 ha of historical forestry disturbance to consider. This reality highlights another important deficit of the application; the failure to provide a cumulative effects assessment is a failure to capture the full impacts and implications of the Project.

H. The Application has failed to consider cumulative effects

119. In the Alberta government's definition of cumulative effects, they emphasize that "although each activity may seem small on its own, when all of these activities are combined and interact with each other, the pressure on Alberta's environment can exceed the environment's ability to recover from disturbance"[187]. They also note that "some impacts may not become evident until many years later"[86]. The Government of Canada states that cumulative effects consider "the combined effects from past, present, and reasonably foreseeable future activities and natural processes", while recognizing "effects that may be individually minor, but collectively significant"[188].

120. In the Application, Horse Lake First Nation were assured that "Summit will **address all potential Project related and cumulative effects**"[189] [emphasis added]. Summit was directed to assess cumulative impacts "using a pre-industrial baseline to assess the past, current condition to assess the present and all potential future industrial development to assess the future"[190].

[185] Birtwell. *Sediment Fish and Habitat*.
[186] ABMI. Regional Land Cover & Biodiversity.
[187] Environment and Parks (2021) *Cumulative Effects Management and Environmental Management Frameworks*, accessed online.
[188] Government of Canada (2025). *About cumulative effects,* accessed online.
[189] Application, p. 303.
[190] Application, p. 303.

121. The Application states that the because the "project effects will be controlled at the local level", they do not anticipate any contribution to cumulative effects[191]. This assertion reflects a misunderstanding of cumulative effects, is not backed evidence, and is an insufficient response as to why the Application failed to include a cumulative effects assessment. Evaluating cumulative effects even in its most basic application, where it is understood that the Project will increase the number of coal mines operating the region, reveals potential effects that must be addressed. For example, in the McLeod River system, both mines in operation and reclamation stages were found to interact and contribute to substantially worsened water quality downstream[192]. Metal concentrations were found to be significantly exceeding guidelines in comparison to unaffected sites upstream[193]. The researchers found that these negative conditions can be long lasting, where legacy operations were continuing to contribute to cumulative effects even while undergoing reclamation[194]. These are potential impacts that must be clarified and considered alongside all the other land-uses in the region; the Project does not exist in isolation.

122. This Application considers neither the pre-industrial baseline, nor the current or future conditions. As previously discussed, the Project will contribute to cumulative effects at a variety of scales. Locally, it will result in the direct loss of habitat, reduce ecological connectivity, contribute edge effects, increase linear density, and displace wildlife. In addition to existing land-uses and human development that are already present, it will be another source of air, water, and soil pollution in the region, and add to the province's ever-expanding human footprint. It also contributes impacts at a global scale, producing a fossil fuel that is the single largest contributor to the greenhouse gas emissions driving climate change.

I. The Application did not include climate change considerations in the project design

123. Despite directions within the Application to "describe and evaluate the current environmental conditions, and characteristics and features within the area of both the site and proposed receiving watercourses for the area with reasonable potential to be affected by the

[191] Application, p. 413.
[192] Redmond. *McLeod River Mining Impacts*.
[193] Redmond. *McLeod River Mining Impacts*.
[194] Redmond. *McLeod River Mining Impacts*.

activity", including "anthropogenic effects on the aquatic ecosystem due to previous disturbances and releases, including the various environmental influences, effects and trends to water quality in the area resulting from other industrial and municipal releases, increased water use and **climate change***"* emphasis added] in section 4.6[195], no discussion of climate change in relation to the project is provided in the application documents.

124. Summit states in their project design that "future trends that may occur due to climate change have not been considered at this time"[196] and "since the proposed mine life is 10 years, future trends in precipitation that may occur due to climate change have not been considered at this time"[197], seemingly suggesting that their project will be short enough in nature to avoid climate change impacts.

125. This belief is unfounded and increases the risks associated with the project. It must be emphasized and understood that climate change is not something that is happening in the future, it is happening now. As the latest IPCC assessment reports,

> "Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred. Human-caused climate change is already affecting many weather and climate extremes in every region across the globe. This has led to widespread adverse impacts and related losses and damages to nature and people."[198]

126. The Application's assumptions mean that key elements of the project, including those for the water management ponds, mine access road, culverts, and non-contact diversion channels have not been designed to accommodate changing climate conditions and their consequences. The Application asserts that "the recency of the annual maxima precipitation dataset should suffice for the design"[199].

127. The proposed SWP and MWP are designed to contain 1:10 year precipitation events, which the proponent's modelling estimates to be 94.2 mm in 24 hrs. At the same time, the contact water ditches and culverts have been sized to pass 1:100 peak flow events, with the Application assuming

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[195] Application, p. 47.
[196] Application, p. 2125.
[197] Application, p. 2123.
[198] International Panel on Climate Change (2023) *Climate Change 2023 Synthesis Report: Summary for Policymakers*, 1-42 ("IPCC Sixth Report") p. 11 [**Appendix 35**].
[199] Application, p. 2123.

"an event of this frequency could reach the SWP and MWP"[200]. The spillway is sized for a 1:200 peak flow event, and "would be activated during an event that is greater than a 1-in-10-year, 24-hour rainfall"[201].

128. Climate models show that under likely emission trajectories (RCP 4.5 and 8.5), annual average temperatures and precipitation at the project site are set to increase. There is a projected increase in the number of heavy precipitation days per year, a 6-9% increase in daily precipitation maximums, an 8 - 10 % increase in max 3-day precipitation, and an 8-11% increase in max 5-day precipitation[202].

Table 5: Predicted Changes in Temperature and Precipitation from 2021 to 2050 at Project Site based on Climate Change Modelling

Model		**CanDCS-U6[203]**		**BCCAQv2[204]**	
Emissions Scenario		RCP 4.5	RCP 8.5	RCP 4.5	RCP 8.5
Annual Mean Temperature Change (°C)		+1.7	+2.1	+1.7	+2.0
Seasonal Mean Temperature Change (°C)	*Winter*	+1.5	+2.0	+1.7	+2.0
	Spring	+1.5	+1.9	+1.7	+2.0
	Summer	+1.9	+2.3	+1.8	+2.1
	Fall	+1.9	+2.1	+1.5	+1.7
Annual Total Precipitation Change (%)		+23.5	+28.7	+7.0	+6.2
Seasonal Total Precipitation Change (%)	*Winter*	+6.6	+6.5	+7.65	+6.0
	Spring	+14.7	+11.9	+3.5	+9.8
	Summer	-0.4	+0.8	+10.0	+4.4
	Fall	+8.1	+10.1	+5.6	+6.9
Winter = Dec – Feb; Spring = Mar – May; Summer = Jun – Aug; Fall = Sep – Nov					

[200] Application, p. 2131.
[201] Application, p. 2133.
[202] Climate Atlas of Canada (2019) *Version 2 using model BCCAQv2*, data accessed online ("Climate Atlas").
[203] Government of Canada (2025) *Climate Data Viewer: CMIP6 high resolution future climate simulations*, data accessed online.
[204] Climate Atlas.

129. In failing to consider how climate change is impacting conditions in the region, the proponents have likely underestimated the intensity, duration, and frequency of future precipitation events, and elements in their project design therefore may be insufficient to accommodate flows and prevent associated harm from unanticipated releases.

130. The neighbouring CST operation has had 8 wastewater incidents resulting in accidental releases or TSS exceedances since December of 2022, many of which have been attributed to heavy precipitation in the regio[205]. While one of such incidents occurred during what Summit's modelling[206] characterizes as greater than a 1-in-10-year precipitation event (108.4 mm of rain fell on June 19th, 2023), others occurred under considerably less daily and cumulative rainfall.

131. In the incident on August 7, 2024, where there was a "major daily TSS exceedance due to [a] storm event", TSS was measured at 91000 mg/L (260x higher than the daily limit of 350 mg/L), the area had received 0.2 mm that day and 13.4 mm in the three days preceding[207].

132. On August 31, 2024, when the TSS lab results reported monthly exceedances with concentrations measured at 3148 mg/L, the cumulative precipitation received within the month was 91.8 mm[208]. These incidents make evident that even regular precipitation in the region can contribute to unacceptable water quality conditions from mining operations. A Senior Limnologist/Water Quality Specialist at AER noted in their investigation of the release, high TSS concentrations into the surrounding aquatic environment can harm local fish species through "gill abrasion and behavioural changes" and that even "settled sediment could be a risk to aquatic life if it continues to release harmful substances"[209].

133. In failing to complete a cumulative effects assessment, the Application has left out important considerations for the AER about how another coal mine, in addition to CST's existing operations, may contribute to elevated TSS concentrations and depositions of sediment in the

[205] CST Coal Wastewater Incidents [**Appendix 42**].
[206] Application, p. 2119.
[207] Alberta Climate Information Service (2020) *Current and Historical Alberta Weather Station Data Viewer*, data accessed online ("ACIS").
[208] ACIS.
[209] Alberta Energy Regulator (2024) *Administrative Penalty Director's Decision: 2023-018*, p. 2.

watershed, particularly during heavy precipitation events that are only expected to become more frequent and intense with climate change.

i. The project contributes to global emissions and climate change

134. 2024 was the hottest year on record and was accompanied by similarly record-breaking emissions of carbon dioxide, methane, and nitrous oxide in the atmosphere[210]. Last year, the World Meteorological Organization "estimated that the average global temperature was between 1.34°C and 1.41°C higher than pre-industrial levels (1850-1900)"[211].

135. It is now considered extremely unlikely that we will limit warming to under 1.5°C in this century and some research suggests we've already exceeded 1.5°C[212]. With current policies in place, we are projected to see temperature increases that exceed 2°C, closest to Representative Concentration Pathway 4.5 (RCP 4.5). This matters in the context of this application because "projected adverse impacts and related losses and damages from climate change escalate with every increment of global warming", and "with every increment of warming, climate change impacts and risks will become increasingly complex and more difficult to manage"[213].

136. It is well established that fossil fuel production must decline to keep global warming below the desired thresholds and within still liveable levels, with the federal government acknowledging that "powering past coal is one of the single most important climate steps the world can take"[214]. Both types of coal, thermal and metallurgical, release climate warming emissions into the atmosphere when burned.

137. As the 14th largest producer of coal in the world, Canada's (and therefore Alberta's) participation in reducing emissions is not optional[215]. Back in 2015, research found the country must keep 82 per cent of its 6.58 billion tonnes in remaining coal reserves unburned and underground

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[210] Deng, Z., et al. (2025) *Global carbon emissions and decarbonization in 2024*, Nature Reviews Earth & Environment, 6, 231-233 [**Appendix 36**].
[211] United Nations (2025) *Climate change: World likely to breach 1.5°C limit in next five years*.
[212] McCulloch, M., et al. (2024) *300 years of sclerosponge thermometry shows global warming has exceeded 1.5 °C*, Nature Climate Change, 14, 171-177 [**Appendix 37**].
[213] IPCC Sixth Report, p. 14.
[214] Government of Canada (2024) *Powering Past Coal Alliance: phasing out coal,* accessed online.
[215] Natural Resources Canada (2024) *Coal facts*, accessed online.

before 2050[216]. Alberta's mines have extracted over 180 million more tonnes since this research was published, making up a third of Canada's total coal production in the same timeframe[217,218].

138. This means that in a single decade, Canada has extracted 527.8 Mt, and 44 per cent of the country's 35-year coal budget[219,220]. Canada and Alberta are significantly outpacing what has been determined to be scientifically sustainable. This trend is consistent with IPCC findings, which observe that "estimates of future CO_2 emissions from existing fossil fuel infrastructures already exceed remaining cumulative net CO_2 emissions in pathways limiting warming to 1.5°C with no or limited overshoot"[221].

139. It is therefore not responsible to approve new mining operations that will increase Canada's rate of coal extraction and consequently decrease our remaining coal budget, particularly when many existing operations still have considerable lifespans left.

140. Should Project move forward, it is expected to produce 1,300,000 tonnes of raw/run-of-mine coal per year, for 9 years. This is approximately 900,000 – 1,000,000 clean metric tonnes (CMT) annually, and 8.1 – 10 million CMT throughout the project's lifetime. This is equivalent to 17.9 – 22.1 MT in CO_2e emissions, (the Emissions Factor of Canadian Bituminous Coal from Alberta is 2,212 kg CO_2/ tonne[222]) before considering emissions associated with processing and transportation to overseas markets. If the coal were to be used in Alberta, the Project alone would contribute to ~1 % of the entire province's total annual emissions.

141. The "polluter pays principle", which states that polluters must pay for damage caused to the environment, is adopted and applied widely within provincial and federal policies and frameworks. This is evident within the *Water Act*, EPEA, and *Public Lands Act*; offences where the environment is

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[216] McGlade, C. & Ekins, P. (2015) *The geographical distribution of fossil fuels unused when limiting global warming to 2°C*, Nature, 517, 187-190 ("McGlade & Ekins. *Geographical fossil fuels extraction limitations*") [**Appendix 38**].
[217] Alberta Energy Regulator (2024) *Coal Production*, data accessed online.
[218] Statistics Canada (2025) *Table 25-10-0046-01 Coal, monthly production and exports (x 1,000)*, accessed online ("Stats Canada")
[219] Stats Canada.
[220] McGlade & Ekins. *Geographical fossil fuels extraction limitations*.
[221] International Panel on Climate Change (2022) *Emissions Trends and Drivers*, p. 5 [**Appendix 39**].
[222] Government of Canada (2025) *Canada's Official Greenhouse Gas Inventory: Emission Factors*, data accessed online.

impacted are subject to investigation and fines of the responsible party[223,224,225]. It is the basis behind the Orphan Well Association, and applied collectivity to the oil and gas industry to ensure any associated liabilities on the landscape are not left unaddressed by collecting funds from solvent companies[226]. It is inherent in the Mine Financial Security Program, which was established to ensure the "financial burden to abandon and reclaim mine sites remains with the mine approval holder"[227]. It is recognized under the federal government's *Greenhouse Gas Pollution Pricing Act*, which puts a price on greenhouse gas emissions to incentivise behavioural changes like "increased energy efficiency, … cleaner energy, … adoption of cleaner technologies and practices, … necessary for effective action against climate change"[228]. Summit has opted into Alberta's equivalent Technology Innovation and Emissions Reduction program, demonstrating a commitment to the polluter pays principle[229].

142. The Alberta government recently enacted the *Extended Producer Responsibility Regulation* ("EPRR") under the EPEA[230]. While the regulation applies to recycling of consumer products, it reflects the government's position that producers are responsible for the waste associated with their products for the entirety of the product's lifecycle.

143. If the reasoning behind the EPRR were to extend to industrial production, these emissions would (and should) be the responsibility of Summit. Although this air pollution will be exported and will not be considered in Alberta's or Canada's emissions reporting, this is an additional cumulative impact of the project; the associated emissions will be released into the shared global atmosphere and contribute to global warming as greenhouse gases don't recognize anthropogenic borders or jurisdictions.

[223] *Water Act*, s. 142.
[224] EPEA, s. 227.
[225] PLA, s. 56.
[226] Orphan Well Association (202) *Who we are*, accessed *online*.
[227] Alberta Energy Regulator (2025) *Mine Financial Security Program*, accessed online.
[228] *Greenhouse Gas Pollution Pricing Act*, SC 2018, c 12, s 186, preamble.
[229] Application, p. 413.
[230] *Extended Producer Responsibility Regulation*, Alberta Regulation 194/2022.

144. The AER is responsible and mandated to regulate the protection of all parts of the environment[231], including "all layers of the atmosphere"[232]. The Project's life cycle emissions and contributions to climate change must be considered in the AER's assessment of this application.

145. It is critical that the AER recognize in their role as Alberta's responsible energy regulator, under the REDA, that they are mandated under Section 2(1)(a)"to provide for the efficient, safe, orderly and environmentally responsible development of energy resources and mineral resources in Alberta through the Regulator's regulatory activities" and regulate (b)(i)"the protection of the environment", where,

> (k) "environment" means the components of the earth and includes,
>
> (i) air, land and water,
>
> (ii) all layers of the atmosphere,
>
> (iii) all organic and inorganic matter and living organisms, and
>
> (iv) the interacting natural systems that include components referred to in subclauses (i) to (iii)

146. Climate change affects the environment in all its REDA definitions; it is therefore the mandate of the regulator exercise its powers to protect the environment from this threat and any development that would contribute to it.

J. Nature and extent of testimony

147. AWA reviewed relevant peer-reviewed scientific literature, environmental data, and government policies, regulations, and reports in compiling this submission. The following expert report is provided as testimonial evidence to support AWA's written submission. The author of the report, Mandy Olsgard, will attend the hearing as a witness to provide oral testimony in support of the expert report.

K. Expert evidence

148. As evidence in support of this written submissions, AWA attaches the following expert report:

[231] REDA, s. 2(1)(b)(i).
[232] REDA, s. 1(k).

a. Technical Review of Summit Coal Inc. Regulatory Application (EPEA 001-00496728) for the Proposed Mine 14 Underground Coal Mine project – Toxicology and Health Risk Discipline.

IV. LIST OF WITNESSES

149. AWA's witness panel for the hearing will include:

a. Mandy Olsgard, M.Sc., P. Biol., Integrated Toxicology Solutions Ltd., Edmonton, AB [**Appendix 1**].

V. REASONS THE REGULATOR SHOULD DENY THE APPLICATION

150. In deciding whether to approve the Application, the AER must follow the applicable provisions in the *Responsible Energy Development Act* ("REDA"), [233] the *Responsible Energy Development Act General Regulation* ("REDAGR"), [234] the *Environmental Protection and Enhancement Act* ("EPEA"),[235] the *Approvals and Registrations Procedure Regulation* ("ARPR"),[236] and the *Water Act*[237].

151. For the reasons set out below, the flaws and gaps in the Application contradict the requirements set out in the REDA, REDAGR, EPEA, ARPR, and *Water Act*. The Regulator should therefore deny the Application.

A. The applications do not meet the REDA requirements

152. The Application is not in accordance with specified enactments for the purposes of the REDA, and would contravene the AER's mandate under the REDA to provide for the efficient, safe, orderly and environmentally responsible development. The Application must therefore be denied. The AER's mandate is governed under s. 2(1) of the REDA:

> **Mandate of Regulator**
>
> **2(1)** The mandate of the Regulator is

[233] *Responsible Energy Development Act*, SA 2012, c R-17.3 [REDA].
[234] *Responsible Energy Development Act General Regulation*, Alta Reg 90/2013 [REDAGR].
[235] *Environmental Protection and Enhancement Act*, RSA 2000, c E-12 [EPEA].
[236] *Approvals and Registrations Procedure Regulation*, Alta Reg 113/1993 [ARPR].
[237] *Water Act*, RSA 2000, c W-3.

(a) to provide for the efficient, safe, orderly and environmentally responsible development of energy resources and mineral resources in Alberta through the Regulator's regulatory activities, and

(b) in respect of energy resource activities, to regulate

(i) the disposition and management of public lands,

(ii) the protection of the environment, and

(iii) the conservation and management of water, including the wise allocation and use of water,

in accordance with energy resource enactments and, pursuant to this Act and the regulations, in accordance with specified enactments.[238]

153. Under s. 1(1)(s), "specified enactments" include the EPEA and *Water Act* and regulations made under the EPEA and *Water Act*, such as the ARPR.

154. In exercising its mandate to consider the Application, the AER must adhere to s. 3 of the REDAGR:

3 For the purposes of section 15 of the Act, where the Regulator is to consider an application or to conduct a regulatory appeal, reconsideration or inquiry in respect of an energy resource activity under an energy resource enactment, the Regulator shall consider

(a) the social and economic effects of the energy resource activity,

(b) the effects of the energy resource activity on the environment, and

(c) the impacts on a landowner as a result of the use of the land on which the energy resource activity is or will be located[239]

155. As explained further below, the evidence provided in these submissions, including evidence regarding the social, economic, and environmental effects of the Project, shows that the Application contravenes s. 2 of the EPEA, s. 3 of the ARPR, and s. 2 of the *Water Act*. To approve the Application would therefore not be "in accordance with specified enactments" per s. 2 of the REDA, and would exceed the AER's mandate.

156. Also, as explained further below, by contravening the EPEA and the *Water Act* on grounds including social, economic, and environmental[240] effects, the Application runs counter to the AER's mandate to "provide for the efficient, safe, orderly, and environmentally responsible development".

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[238] REDA, s. 2(1).
[239] REDAGR, s. 3.
[240] Under s. 1(1)(k) of the REDA, "environment" means the components of the earth and includes,

157. Because the Application contravenes the REDA, the AER must deny the Application.

B. The Application does not meet the EPEA requirements

i. The Application contravenes s. 2 of the EPEA

158. The Application does not adequately recognize the factors under s. 2 of the EPEA, and thus contravenes the EPEA's purpose of supporting and promoting the protection, enhancement and wise use of the environment. The Application therefore does not satisfy the requirements of the EPEA, and must be denied.

S. 2 of the EPEA sets out the relevant purposes to which project approvals must adhere:

> **Purpose of Act**
>
> **2** The purpose of this Act is to support and promote the protection, enhancement and wise use of the environment while recognizing the following:
>
> (a) the protection of the environment is essential to the integrity of ecosystems and human health and to the well-being of society;
>
> (b) the need for Alberta's economic growth and prosperity in an environmentally responsible manner and the need to integrate environmental protection and economic decisions in the earliest stages of planning;
>
> (c) the principle of sustainable development, which ensures that the use of resources and the environment today does not impair prospects for their use by future generations;
>
> (d) the importance of preventing and mitigating the environmental impact of development and of government policies, programs and decisions;[241]

159. In applying s. 2 of the EPEA, the AER must have regard to the application requirements under s. 3 of the ARPR, and should also consider the factors listed under s. 6 of the ARPR.[242]

160. The socio-economic and environmental factors under s. 3 of REDAGR are also relevant to the application of the EPEA, and are discussed throughout the analysis in this section.

> (i) air, land and water,
> (ii) all layers of the atmosphere,
> (iii) all organic and inorganic matter and living organisms, and
> (iv) the interacting natural systems that include components referred to in subclauses (i) to (iii)

[241] EPEA, s. 2.
[242] ARPR, ss. 3, 6.

ii. The Application does not satisfy s. 2(a) of the EPEA

161. As the evidence above establishes, the Application fails to recognize that the protection of the environment is essential to the integrity of ecosystems and human health and to the well-being of society, in contravention of s. 2(a) of the EPEA.

162. As established above, biodiversity decline, measurable using the ABMI factors,[243] leads to ecosystem function decline and instability. Ecosystem function under the ADMI factors account for economic and human health value.

163. NC has declined in the area with the project footprint, worse downstream of the project site, and is already under significant pressure. Aquatic and wetland NC ("AWNC") also maintains biodiversity and provides many ecosystem services, including flood prevention, water purification, and carbon storage. AWNC levels are high in the Project area, and should be treated with extra care.

164. IH in Project area is relatively high, worse downstream. The Project will increase the disturbance area and associated edge effects, thus lowering IH. The impacts of reducing IH in the Project area will disproportionally affect the especially sensitive species present in the Project area, including Grizzly Bear and Mountain Goats for example.

165. Habitat fragmentation lowers LC, and therefore lowers biodiversity. LC for the Muskeg River is already under significant pressure from habitat fragmentation. The Project footprint, including access roads and the mine portal would increase fragmentation, lower LC, and lower biodiversity.

166. SC is important for maintaining aquatic biodiversity, and culverts are the biggest threat to SC. SC is relatively high in the area around the Project, and would be reduced by the culverts in the Application.

167. All of the ABMI factors apply to the Project, and are relevant to the AER's review of the Application's impact on biodiversity and ecosystem values. However, because no EIA was conducted for the Application, the Application is unable to fully assess these factors in satisfaction of s. 2(a).

[243] Native cover (NC), Interior Habitat (IH), Landscape Connectivity (LC), and Stream Connectivity (SC).

168. Furthermore, the Application omits information important to determining impacts on ecosystem and human health. The Application's Regional Study Area is insufficient in size and scope. The Application therefore does not enable the AER to make a fulsome determination of the Project's risks, including the risk of spreading harmful contaminants such as selenium. The Application's AQA is similarly deficient for the AER's purposes, because it does not consider fugitive dust risks. The Application also includes no assessment for air quality risk pathways for human health. The Application's proposed SWP and MWP will affect both Grande Cache's drinking water, and not enough samples were done to get a full sense of the apparent exceedances.

169. Given these significant gaps, the Application is unable to adequately recognize that the protection of the environment is essential to the integrity of ecosystems and human health and to the well-being of society, and therefore cannot satisfy s. 2(a) of the EPEA.

iii. The Application does not satisfy s. 2(b) of the EPEA

170. As the evidence above establishes, the Application fails reflect the need for Alberta's economic growth and prosperity in an environmentally responsible manner and the need to integrate environmental protection and economic decisions in the earliest stages of planning, in contravention of s. 2(b) of the EPEA.

171. As discussed, no EIA was conducted for the Application. The Application therefore does not enable the AER to take the changing environmental context, socio-political context, and global conditions into account.

172. The environmental context of the Project is undergoing worsening conditions, including a 148% increase in number of species at risk in Alberta, increasing contaminant presence in the Smoky River, and increasing anthropogenic disturbance. The socio-political context is also changing, including the introduction of Alberta's new land use framework, the ALSA, and the Water for Life Action Plan, all since the Project was first proposed. The Global context has changed as well, with the release of 4th, 5th, and 6th IPCC reports confirming anthropogenically-caused climate change, and the increasing urgency of the need to reduce emissions and landscape degradation.

173. The Application's failure to integrate any of these changes in the Project's context through an EIA or other assessment, and the deficiencies in the Application's Regional Study Area, zone of

influence, and AQA as discussed above, does not reflect s. 2(b)'s required recognition of an integrated, environmentally responsible approach to economic development.

iv. The Application does not satisfy s. 2(c) of the EPEA

174. As the evidence above establishes, the Application fails to recognize the principle of sustainable development, which ensures that the use of resources and the environment today does not impair prospects for their use by future generations, in contravention of s. 2(c) of the EPEA.

175. As discussed, no EIA was conducted for the Application. The Application thus cannot benefit from the baseline and predictive modelling an EIA would provide in aid of assessing the long-term impacts of the Project.

176. The Application's air and groundwater assessments are also inadequate for predicting long term risks. Despite predicting air quality exceedances, the AQA uses a flawed methodology which does not account for coal dust, current deterioration and future air quality changes. The air monitoring station used in the AQA is over 100km away from the Project site, when the Application could have used the much-closer monitoring station at the Milner Power site. The Application's groundwater assessment is incomplete, because it does not provide any site-specific data for a usable baseline and does not provide any modelling to predict groundwater changes caused by the Project. The Application therefore does not enable a fulsome determination of risks to future ability to use ecosystem resources.

177. As discussed further below with regards to the Project's implications under the *Water Act,* the Application's proposed SWP and MWP will affect both Grande Cache's drinking water and the Smoky River, and the Application's assessment did not include enough sampling to get a full sense of the baseline exceedances. Watershed impacts are also not fully captured in the Application, as discussed further below.

178. Given that baseline concentrations for the watershed in the Project area are already in exceedance, the precautionary principle would require no further development in the Project area. The Application also does not reflect the polluter pays principle because it takes no responsibility

for climate emissions. Both the precautionary principle and the polluter pays principle are key pillars of sustainable development, and yet the Application does not reflect either principle.

179. The Application also fails to account for cumulative effects, instead opting for a flawed conclusion that effects will be controlled at the local level. Based on this overly narrow approach, the Application purposely ignores present and near future climate impacts, as well as the urgent need to reduce emissions, given that Canada is already outpacing the climate-sustainable rate of coal extraction. Based on this failure to account for climate change, the Application underestimates future precipitation events and their impact on the Project.

180. Given these flaws and gaps, The Application cannot reflect the principles of sustainable development, and is therefore deficient for determining long-term impacts on future generations' ability to access ecosystem resources. The Application thus contravenes s. 2(c) of the EPEA.

v. The Application does not satisfy s. 2(d) of the EPEA

181. As the evidence above establishes, the Application fails to recognize the importance of preventing and mitigating the environmental impact of development, in contravention of s. 2(d) of the EPEA.

182. As discussed, the Application lacks an EIA, and therefore lacks the benefit of an EIA for determining environmental baselines for monitoring and mitigation.

183. The Application's groundwater assessment is incomplete because it lacks site-specific data and predictive modelling.

184. The Application's AQA uses a flawed methodology as discussed above which leaves the Application without a usable baseline, for modelling and mitigation.

185. Overall, the Application's flaws and gaps do not provide a sufficient basis for modelling and mitigation, contrary to the requirements under s. 2(d) of the EPEA.

vi. The Application does not satisfy s. 3 of the ARPR

186. The Application does not satisfy the requirements of ss. 3(h), 3(k), and 3(m) of the ARPR because the Application fails to address the risk of selenium exposure which the Project poses.

187. Under s. 3(1) of the ARPR,

> An application must be made to the Director and must be accompanied by the following information relative to the activity, the change to the activity or the proposed amendment, addition or deletion of the term or condition:
>
> > (h) a list of substances, the sources of the substances and the amount of each substance that will be released into the environment as a result of the activity, the change to the activity or the amendment, addition or deletion, as the case may be, the method by which the substances will be released and the steps taken to reduce the amount of the substances released;
> >
> > ...
> >
> > (k) the justification for the release of substances into the environment as a result of the activity, the change to the activity or the amendment, addition or deletion, as the case may be;
> >
> > ...
> >
> > (m) any impact, including surface disturbance, that may or will result from the activity, the change to the activity or the amendment, addition or deletion, as the case may be;[244]

188. The Application simply ignores the potential selenium contamination which could be released into the environment, despite confirming that monitoring and mitigation did not reduce selenium in similar mining operation. As discussed above, the Regional Study Area is insufficient in size and scope for determining the risk of spreading harmful contaminants such as selenium. The Application's AQA is similarly deficient because it does not consider fugitive dust risks.

189. The Application also includes no assessment for air quality risk pathways for human health. The Application therefore fails to fully list the substances the Project will release and the impacts that will result from the Project in contravention of ss. 3(1)(h) and 3(1)(m) of the ARPR. These omissions also render the Application incapable of justifying the Project's potential selenium releases, in contravention of s. 3(1)(k) of the ARPR.

[244] ARPR, s. 3.

C. The Application does not meet the *Water Act* requirements

i. The Application contravenes s. 2 of the *Water Act*

190. The Application fails to recognize the factors under s. 2 of the *Water Act*, and thus contravenes the *Water Act*'s purpose of supporting and promoting the conservation and management of water, including the wise allocation and use of water. The Application therefore does not satisfy the requirements of the *Water Act*, and must be denied.

191. S. 2 of the *Water Act* sets out the relevant purposes to which project approvals must adhere:

> **Purpose of Act**
>
> **2** The purpose of this Act is to support and promote the conservation and management of water, including the wise allocation and use of water, while recognizing
>
> (a) the need to manage and conserve water resources to sustain our environment and to ensure a healthy environment and high quality of life in the present and the future;
>
> (b) the need for Alberta's economic growth and prosperity;
>
> (c) the need for an integrated approach and comprehensive, flexible administration and management systems based on sound planning, regulatory actions and market forces;[245]

192. When applying s. 2 of the *Water Act* to the Application, the AER must also have regard to the factors listed in ss. 38 and 51.[246]

ii. The Application does not satisfy s. 2(a) of the *Water Act*

193. As the evidence above establishes, the Application does not adequately recognize the need to manage and conserve water resources to sustain our environment and to ensure a healthy environment and high quality of life in the present and the future, in contravention of s. 2(a) of the *Water Act*.

194. As discussed above, there are several biodiversity baselines relevant to water resource management, healthy environments, and a high quality of life relevant to the Project. For example, ABMI biodiversity factors are relevant. AWNC levels are high in project area, as are SC levels. SC in particular will be reduced by culverts proposed in the Application. Also, the Longerm River Monitoring Network shows an increasing level of sedimentation in the Smoky River, which is a

[245] *Water Act*, s. 2.
[246] *Water Act*, ss. 38, 51.

relevant baseline consideration for the Project. As discussed, no EIA was conducted for the Application to assess these key baselines.

195. Also as discussed, the Application's groundwater assessment contains no baseline site-specific data, and no modelling for impacts.

196. Several studies discussed above show underground mining like that proposed in the Application significantly impacts surrounding watershed, and degrades downstream aquatic ecosystems. The Project's SWP and MWP will discharge to Carconte Creek, impacting Grande Cache's drinking water and the Smoky River. The Application does not account for the outstanding DFO guidance requested in 2024. Research also indicates subsidence disturbances from underground coal mining, and that underground coal mines will dry out wetlands downstream.

197. The Application confirms similar mining operations could not reduce selenium impacts to watersheds by monitoring and mitigation. The available baseline concentration data already indicates exceedances, and the precautionary principle would require no further development in the Project area. The monthly water sampling regime in the Application is inadequate because such regimes are prone to many errors. The Application's proposed truck traffic will cross tributaries, thereby possibly contravening the Municipality of Grande Cache's SWPP. The Application insufficiently accounts for heavy rainfall, runoffs, and floods. As discussed, the Application also uses a flawed local level control framing for cumulative effects, and subsequently underestimates future precipitation events. Other potential impacts not considered in the Application include effects from tree removal, compounding effects from previous logging in the area, compaction from use of machinery, erosion, and the resulting disruption of Bull Trout habitat in the Project area.

198. These numerous flaws and gaps in the Application contradict the need to manage and conserve water resources to sustain our environment and to ensure a healthy environment and high quality of life in the present and the future. The Application thus does not satisfy s. 2(a) of the *Water Act*.

iii. The Application does not satisfy s. 2(b) of the *Water Act*

199. As the evidence above establishes, the Application fails to recognize the need for Alberta's economic growth and prosperity, in contravention of s. 2(b) of the *Water Act*.

200. As discussed there are several biodiversity baselines relevant to both the *Water Act* and Alberta's economic growth and prosperity. In particular, the ABMI biodiversity factors, which account for both socioeconomic values associated with ecosystems, are relevant. AWNC levels are high in project area, as are SC levels. SC in particular will be reduced by culverts proposed in the Application. And yet, no EIA was conducted for the Application to assess these factors. Without the benefit of an EIA, the Application fails to provide a fulsome analysis of the socioeconomic context of the Project, in contravention of s. 2(b) of the *Water Act*.

iv. The Application does not satisfy s. 2(c) of the *Water Act*

201. As the evidence above establishes, the Application fails to recognize the need for an integrated approach and comprehensive, flexible administration and management systems based on sound planning, regulatory actions and market forces, in contravention of s. 2(c) of the *Water Act*.

202. As repeatedly discussed above, the Application does not integrate with the ABMI biodiversity indicators, the LTRMN's indication of chemical increases in Smoky River, the 2009 Water for Life Action Plan, the Grande Cache SWPP, IPCC reports, climate change considerations for watershed impacts, or the outstanding DFO guidance requested in 2024. Rather than an integrated approach, the Application has thus adopted a deeply disconnected approach with no regard for many of the integrated and comprehensive management systems relevant to the Project. The Application's approach is thus wholly incompatible with the requirements of s. 2(c) of the *Water Act*.

VI. CONCLUSIONS

203. Grande Mountain, on which the Project is situated, contains relatively intact, high quality sub-alpine and montane habitat that functions as a buffer between important protected areas and more intensive land-use. While the sub-basin and watersheds surrounding the Project currently support high levels of biodiversity, this can easily be lost if human footprint is allowed to increase in the area. As is clear from the biodiversity indicator values downstream from the Project, greater anthropogenic disturbance results in significant declines of native cover, interior habitat, landscape

connectivity, and stream connectivity. This will be replicated on Grande Mountain if the Project is approved, reducing the quality and quantity of habitat available and accessible to wildlife, including species at risk in the region, as well as the ecosystem services provided.

204. The type of land-use proposed also has serious and far-reaching implications outside of this local context; the Project will generate air and water pollution that can travel distances much farther than those considered in the Application, and that is known to accumulate in the environment. This pollution poses threats to the downstream watershed and Grande Cache's source water supplies, as well as the ecological health and integrity of places like AWA's Kakwa and Little Smoky Areas of Concern and conserved spaces like Kakwa Wildland Provincial Park and Willmore Wilderness Provincial Park. At a global scale, the Project locks the area into a land-use that disproportionally contributes to greenhouse gas emissions and climate change, further depleting Canada's scientifically determined and rapidly declining fossil fuel budget for the first half of the century. It is incompatible with guiding provincial policies like the LUF and W4L and hinders national biodiversity, conservation, and net-zero commitments.

205. The Application itself is deficient and fails to provide the AER with sufficient information to make an informed and responsible decision. It lacks appropriate environmental and toxicological baseline data, does not consider a large enough area of influence, and misses sources of pollution from the Project. It does not provide a cumulative effects assessment as required, nor evidence for why it should be exempt. The Project design does not plan for changing climate conditions as required, which increases undue environmental and health risk in the region. The Project should have necessitated an environmental impact assessment that could have better captured the full implications and consequences of this development.

206. All the concerns highlighted would have a negative impact on AWA's long-standing interest and work in the area, as we seek better protections for the environment and the good stewardship of Alberta's wildlife, waters, and wilderness.

207. When making its decision on whether to approve the Application, the AER must adhere to the requirements under s. 2 of the REDA, s. 3 of the REDAGR, s. 2 of the EPEA, s. 3 of the ARPR, and s. 2 of the *Water Act*. Given the evidence discussed above at length demonstrating the flaws and gaps in the Application, the Application cannot satisfy any of these legal requirements and must be denied.

208. As the province's energy regulator, AER's mandated to regulate for the safe, sustainable, and environmentally conscious development of Alberta's energy resources. This Application is inconsistent with government policy and legislation and will negatively impact Alberta's public lands, waters, air, and biodiversity. It is also incomplete, lacking required components and insufficiently addressing others. On this basis alone, the Application should be rejected.

209. AWA urges the AER to consider the scientific data, reports, and peer-reviewed literature presented here, and the environmental and regulatory context in which it is discussed to inform its decision.

> "The extent to which current and future generations will experience a hotter and different world depends on choices now and in the near term."[247]

210. AWA requests the AER reject the Application and remove the 'advanced project' status from Grande Mountain.

[247] IPCC Sixth Report, p. 7.