

# Undermining environmental assessment laws?

The potential impact of mining project amendments on water resources in British Columbia, Canada



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Sockeye salmon spawning run (Campbell, 2018): <https://wcel.org/blog/salmon-are-our-buffalo-environmental-risks-fish-farms-in-broughton-archipelago>

A large, open-pit coal mine is shown in the foreground, with deep, layered excavation sites. In the background, a range of mountains with green and brown slopes is visible under a clear blue sky.

**“Achieving enhanced protection of the environment, human health and public safety through an integrated risk-based approach to mining oversight”**

**– Province of British Columbia, 2017  
(MEM, MoE, EAO)**

**Mining Compliance & Enforcement Strategic Plan**

# Environmental Assessment Process (2018)

## SUMMARY OF THE PROCESS FROM EARLY ENGAGEMENT TO POST-CERTIFICATE

### Timelines

- Legislated Time
- EAO Time
- Proponent Time
- Public Engagement & Comment Period

Seek consensus with participating Indigenous nations throughout the process



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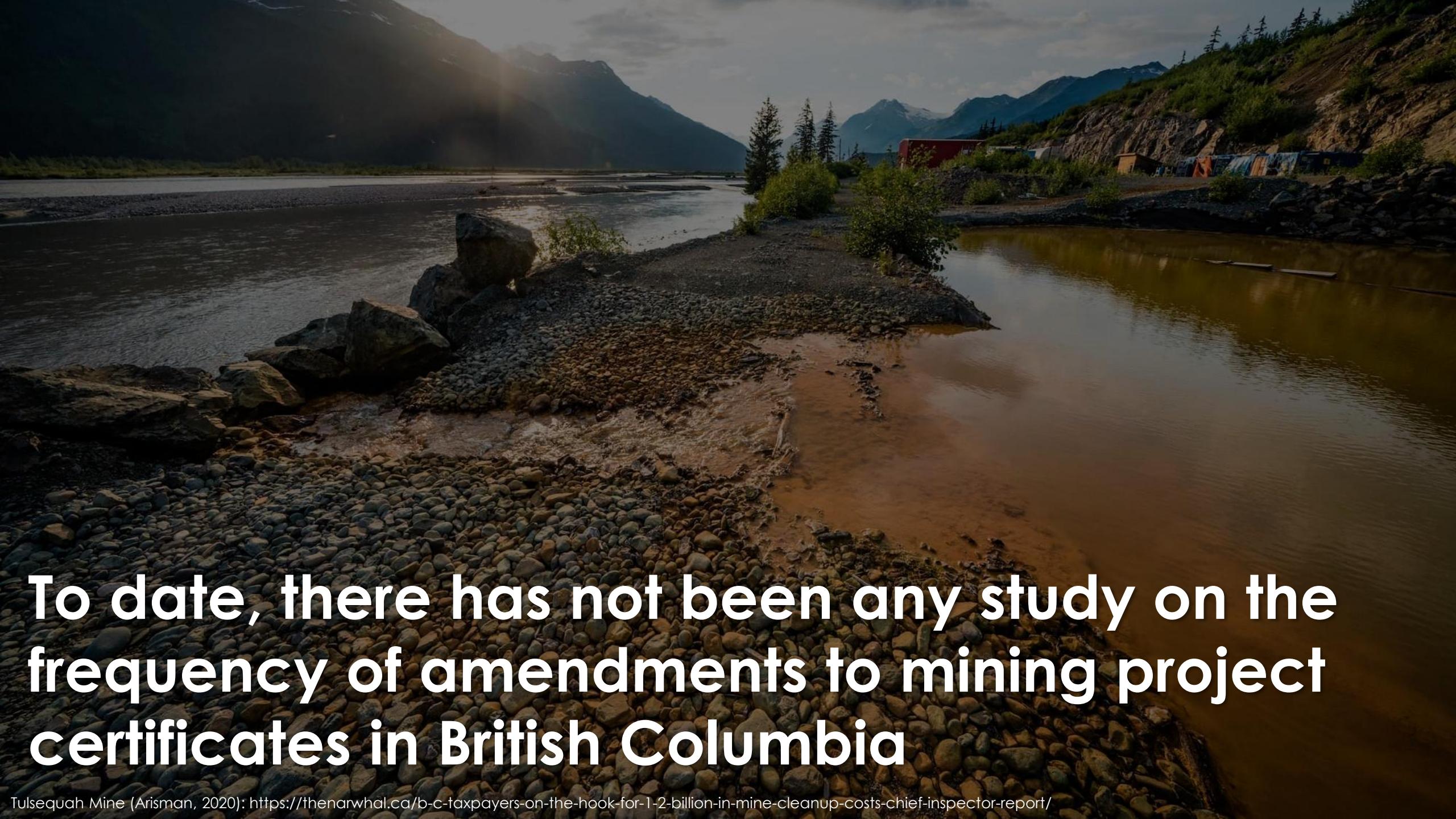
# What is an ‘amendment’?

- not defined in the *BC Environmental Assessment Act (EAA)*.
- post-EA processes that **permit a proponent to request for the removal or addition of conditions to their project certificate**.

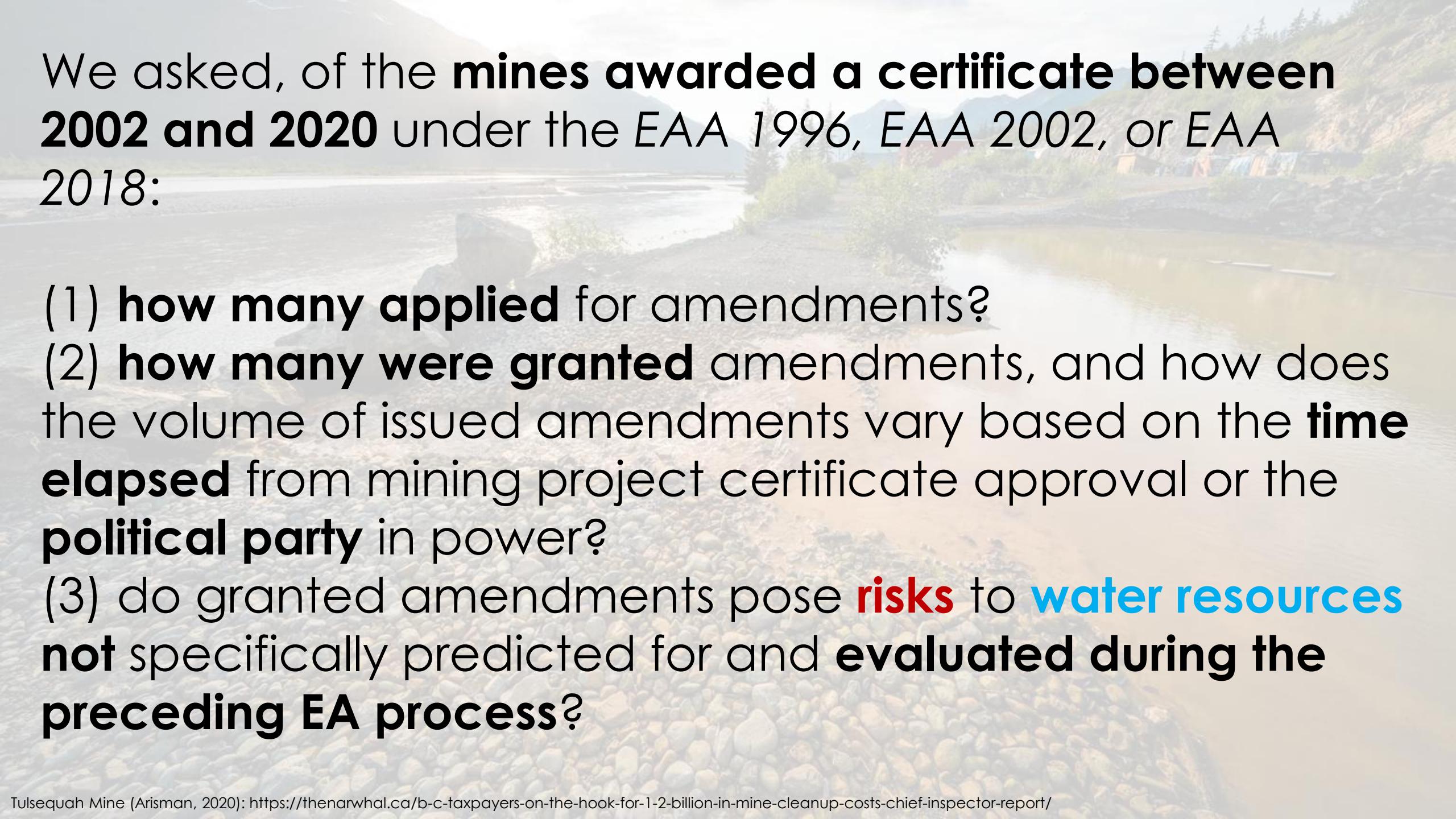
# What is an ‘**amendment**’?

3 categories:

- 1) **Simple** (\$5,000): administrative changes or certificate transfers – consultation is not required.
- 2) **Typical** (\$25,000): a “**material but limited** change to the project” – consultation **may** be required.
- 3) **Complex** (\$100,000): a “material change to the processes and outputs of a facility with **potential for significant adverse effects**” – consultation is usually required.



**To date, there has not been any study on the frequency of amendments to mining project certificates in British Columbia**



We asked, of the **mines awarded a certificate between 2002 and 2020** under the EAA 1996, EAA 2002, or EAA 2018:

- (1) **how many applied** for amendments?
- (2) **how many were granted** amendments, and how does the volume of issued amendments vary based on the **time elapsed** from mining project certificate approval or the **political party** in power?
- (3) do granted amendments pose **risks** to **water resources** **not** specifically predicted for and **evaluated during the preceding EA process**?

# Methods

<https://www.projects.eao.gov.bc.ca/>

Type keyword to search

 Search

 Search Help

 Close Advanced Filters 

## EA Decision

-  Certificate Issued (2002)
-  Certificate Issued (2018)

## Decision Start

2002-01-01

## Decision End

2020-12-31

## Project Type

-  Mines

## Public Comment Period

Type Public Comment Period

## Proponent

Type Proponent

## Region

Type Region

## IAAC Involvement

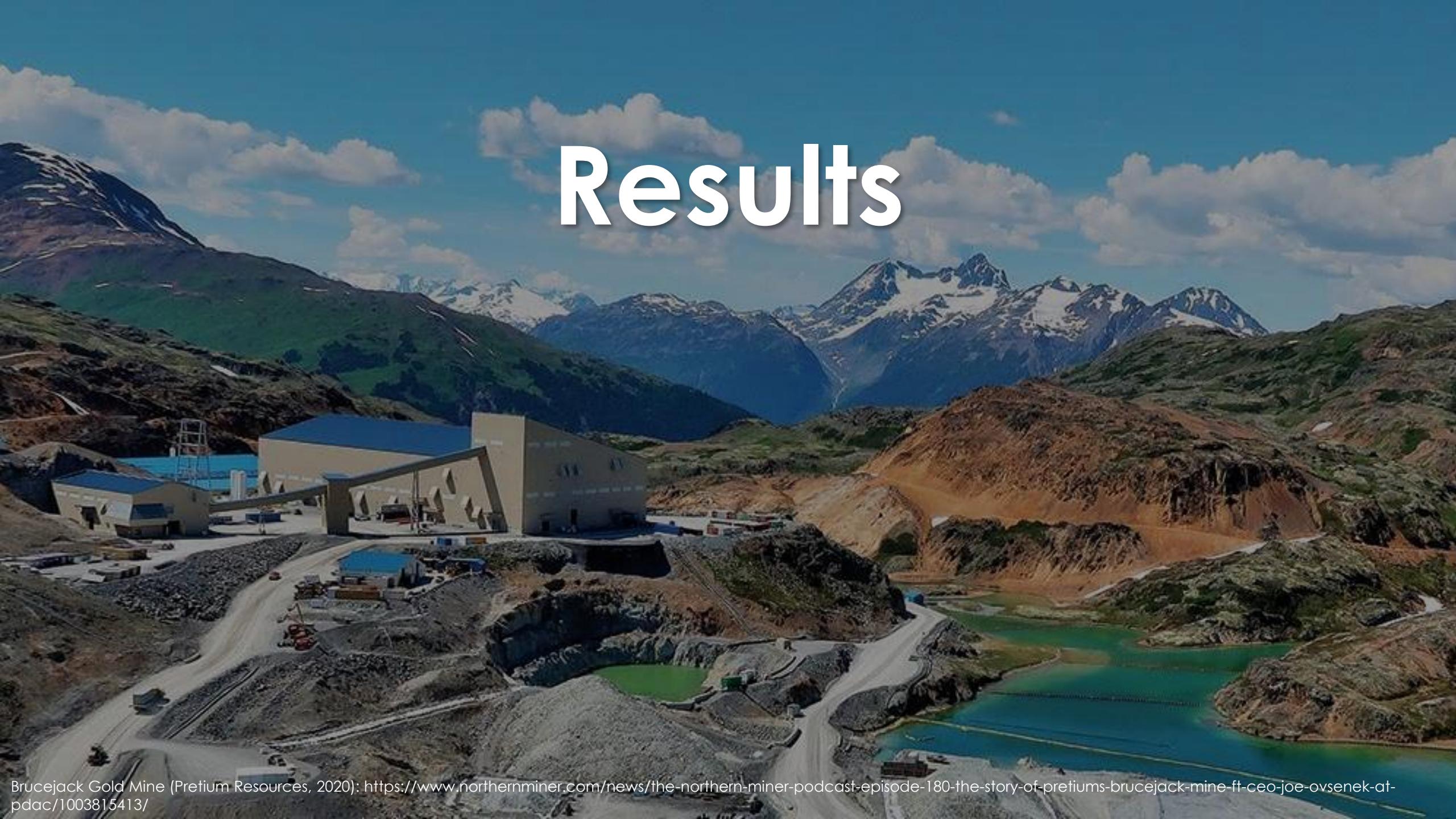
Type IAAC Involvement

## Project Phase

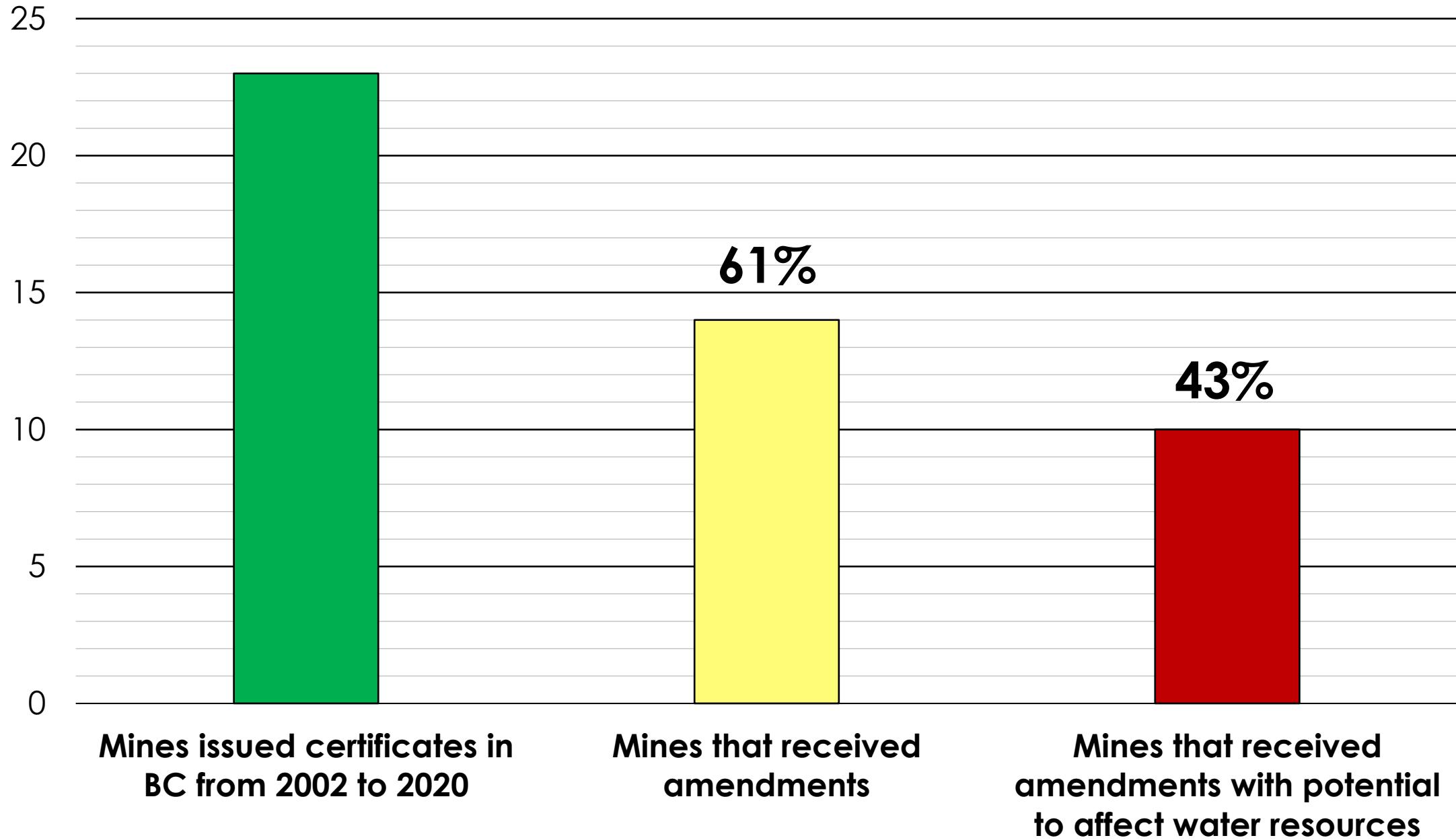
Type Project Phase

Variable	Description
<b>Surface Water Quality</b>	
<b>Effluent discharge</b>	The release of a substance into water that injures or is capable of injuring any life form, and/or damages or is capable of damaging the environment ( <i>Environmental Management Act</i> SBC 2003 c. 53, ss. 1(1)).
<b>Sedimentation</b>	The release of total suspended solids into receiving waters at a higher-than-natural erosion rate (Clark et al. 2012).
<b>Surface Water Quantity</b>	
<b>Diversion</b>	To cause water to leave a stream channel, including, without limitation, a lake, pond, river, creek, spring, ravine, gulch, wetland or glacier, whether or not usually containing water, including ice, but does not include an aquifer, to flow into another stream channel, natural or human-made ( <i>Water Sustainability Act</i> SBC 2014 c. 15, ss. 1(1)).
<b>Extraction</b>	To remove water from a stream, including, without limitation, a lake, pond, river, creek, spring, ravine, gulch, wetland or glacier, whether or not usually containing water, including ice, but does not include an aquifer ( <i>Water Sustainability Act</i> SBC 2014 c. 15, ss. 1(1)).
<b>Retainment</b>	To impound or store water from a stream, including, without limitation, a lake, pond, river, creek, spring, ravine, gulch, wetland or glacier, whether or not usually containing water, including ice, but does not include an aquifer ( <i>Water Sustainability Act</i> SBC 2014 c. 15, ss. 1(1)).
<b>Valued Components</b>	
<b>Groundwater extraction</b>	To remove water from an aquifer or any other water source that naturally occurs below the surface of the ground ( <i>Water Sustainability Act</i> SBC 2014 c. 15, ss. 1(1)).
<b>Acid rock precipitation</b>	The leaching of metals and generation of acid from mined rock materials that are exposed to the weathering effects of oxygen and water (Egiebor & Oni 2007).
<b>Fish and fish habitat</b>	Fish includes any part of fish, shellfish, crustaceans, marine mammals, and; the eggs, sperm, spawn, larvae, spat and juvenile stages of fish shellfish, crustaceans and marine animals. Fish habitat refers to any body of water frequented by fish and any area on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas ( <i>Fisheries Act</i> RSC 1985 c. 14, ss. 2(1)).

# Results



## Number of Mining Projects





15 mining projects (2002 – 2020)

49 amendment applications

48 (98%) approvals

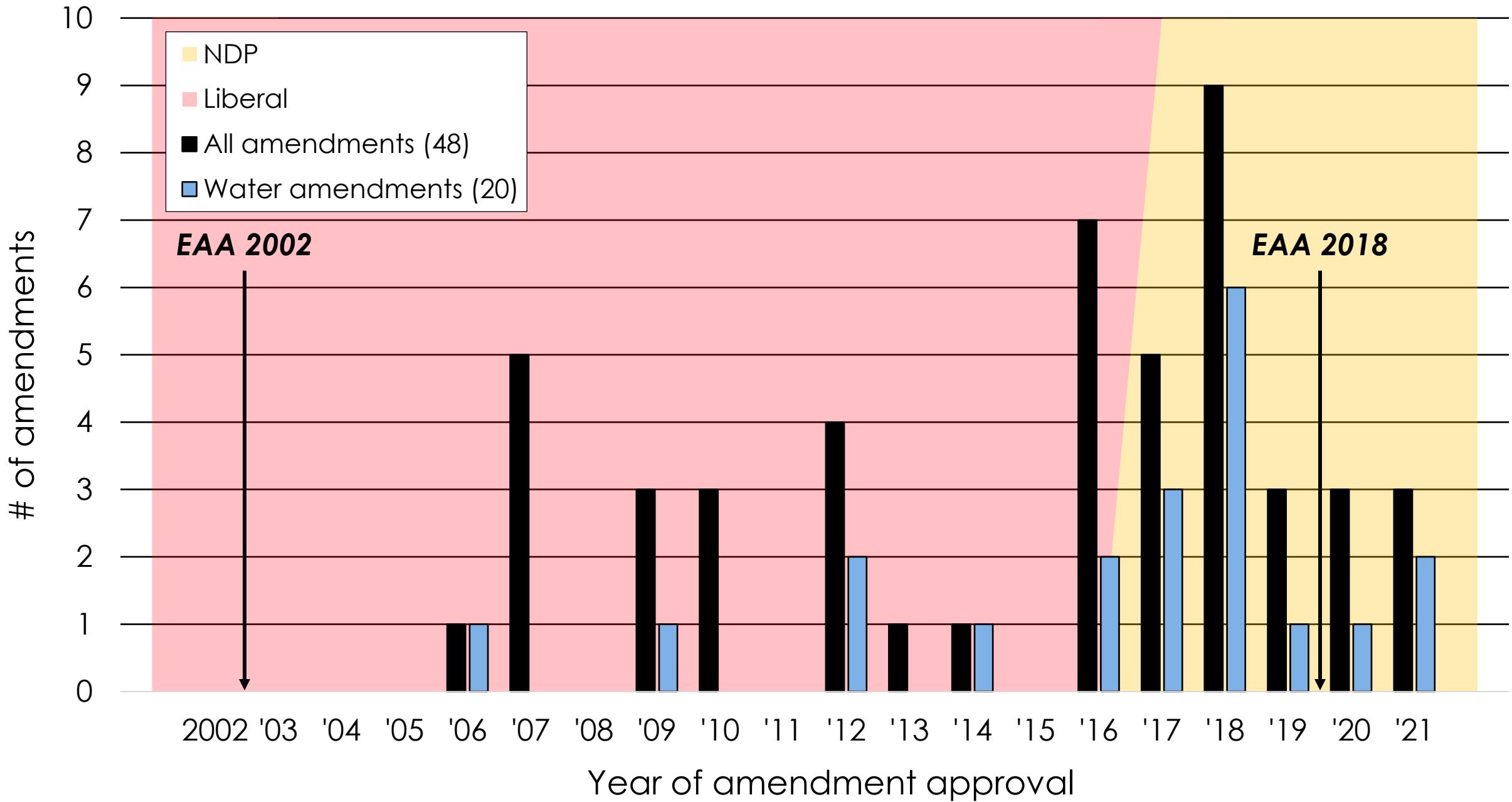
20 (42%) resulted in project changes deemed likely to impact water resources

Mining Project Name	Surface Water Quality		Surface Water Quantity			Valued Components		
	Effluent Discharge	Sedimentation	Diversion	Extraction	Retention	Groundwater Extraction	Acid Rock Precipitation	Fish and Fish Habitat
Brucejack Gold Mine	●	○	●	●		●	●	●
Brule Mine		○	○					○
Fording River Operations Swift		●					●	○
Kootenay West Mine		○	○			●		○
Line Creek Operations Phase II							●	○
Mt. Milligan Copper-Gold			●	●	●	●		○
Murray River Coal Mine		○	○					○
Red Chris Porphyry Copper-Gold Mine	○	●	●	●		○		○
Tulsequah Chief Mine		●	○					●
Wolverine Coal Mine	●	○	●	●		●	●	○

● = Direct impact

○ = Indirect impact

●○ = Both direct and indirect impact



Mining Project Name	Amendment Category (BCEAO, 2016)				
	Non-material	Simple	Typical	Complex	Un-specified
Brucejack Gold Mine	💧💧💧✓✓✓	▪	💧		
Brule Mine		✓✓✓	💧		
Fording River Operations Swift		▪	💧💧✓		
Kootenay West Mine		✓	💧💧💧		
Line Creek Operations Phase II		▪	💧		
Mt. Milligan Copper-Gold		✓✓	💧💧💧✓		
Murray River Coal Mine	💧	▪			
Red Chris Porphyry Copper-Gold Mine		✓✓	💧💧		
Tulsequah Chief Mine		✓✓	✓		💧
Wolverine Coal Mine		✓✓✓✓	✓	💧	💧
Galore Creek Copper-Gold-Silver		✓✓	✓		
Kemess Underground		▪	✓		
Kitsault Mine	✓				
KSM Mine	✓				
<b>Total</b>	<b>7</b>	<b>18</b>	<b>20</b>	<b>1</b>	<b>2</b>



= amendments with potential to impact water resources



= non-water related amendments

# Brucejack Gold Mine – **Effluent Discharge**

2018

“Ministry of Environment (ENV) is of the opinion that the **proposed increases in concentrations of antimony, ammonia and arsenic** will not negatively affect the aquatic resources in Brucejack Creek and the environment downstream.”

# Mt. Milligan Copper-Gold Mine – Fish & Fish Habitat

2018

“The outcomes of the permitting process cannot be known at this time, and there is **residual uncertainty around the ability to protect Lake Whitefish eggs given information limitations...**”

# Fording River Operations Swift – Acid Rock Precipitation

2017

“Ministry of Environment (ENV) confirmed that **despite the information lacking in the amendment application pertaining to short term incremental changes in water quality** in the near field receiving environment and proportional waste rock increases ... ENV agrees that the proposed amendment is **unlikely to negatively affect the receiving environment beyond what has already been assessed...**

ENV noted that this comment is **contingent on**: ... the Fording River Operation South Active Water Treatment Facility **being operational on schedule**; and **water quality predictions not declining** as a result of the model update”

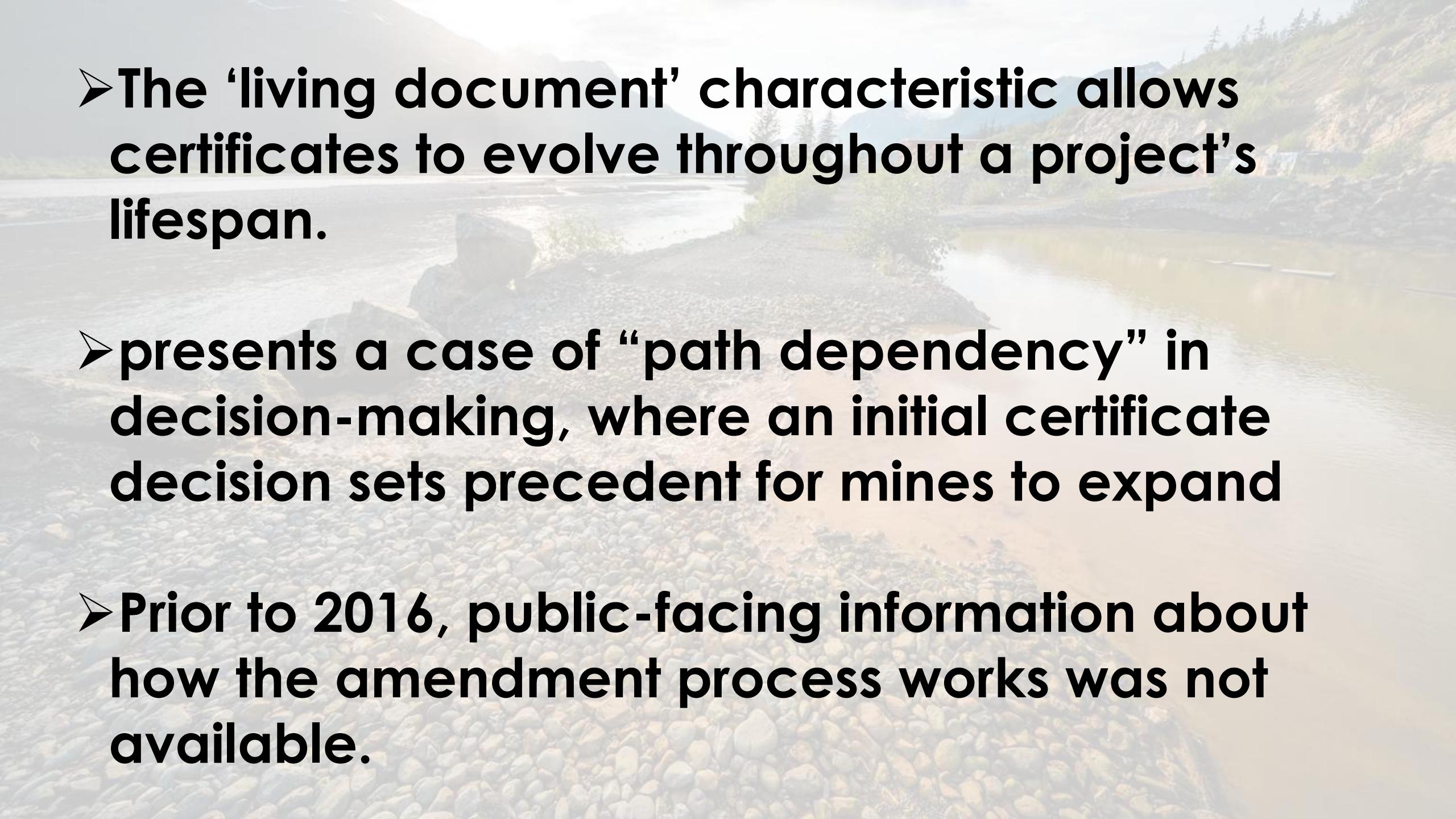
# Coal company Teck fined \$60M for contaminating rivers in southeastern B.C.



Fine for polluting Elk and Fording rivers in 2012 is largest ever under federal Fisheries Act:

[Bob Weber](#) · The Canadian Press · Posted: Mar 26, 2021 10:47 AM PT | Last Updated: March 26

"Teck did not exercise all due diligence to prevent the deposit of coal mine waste rock leachate into the Fording River from settling ponds," federal prosecutor Alexander Clarkson, reading from an agreed statement of facts, said in B.C. provincial court.

A large, rocky, overhanging rock formation with a waterfall cascading down its side, set against a backdrop of green trees and a bright sky.

- The ‘living document’ characteristic allows certificates to evolve throughout a project’s lifespan.
- presents a case of “path dependency” in decision-making, where an initial certificate decision sets precedent for mines to expand
- Prior to 2016, public-facing information about how the amendment process works was not available.

# Take home message...

As **98% of amendments were approved, we express concern** that the amendment process is being used by proponents (whether intentionally or unintentionally) as a '**loophole**' to **evade the rigour and scrutiny of the regular EA process.**

# Undermining environmental assessment laws: post-assessment amendments for mines in British Columbia, Canada, and potential impacts on water resources

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Northern  
Confluence

# Let's continue the conversation!

Post questions and comments via chat in the IAIA22 platform.



#iaia22

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Project Name	Amend -ment #	Application Date	Approval Date	Description
Brucejack Gold Mine	1	December 30, 2015	March 10, 2016	Requesting for longer surface storage of acid waste rock due to previous storage dump failure.
	4	April 5, 2016	March 31, 2017	Requesting to extend above ground storage of acid waste rock by 2 years.
	5	April 11, 2018	November 15, 2018	Requesting to increase allowable effluent discharge concentrations of antimony, ammonia, and arsenic into Brucejack Creek, as they were being exceeded. Also requesting to allow for melting of snow and withdrawing of water from Bruce Jack Lake to support ore processing.
	7	September 8, 2020	April 15, 2021	Requesting adjustments to the road alignment and for access to quarry materials along the Brucejack Access Rd. Predicted impacts on groundwater quantity and quality, surface water quality, fish and fish habitat.
Brule Mine	1	November 12, 2008	August 24, 2009	Requesting temporary hauling road for raw coal. Concerns raised by First Nations that it could affect sediment loading into the nearby watercourses.
Fording River Operations Swift	2	April 26, 2016	August 24, 2017	Requesting to allow acid waste rock spoils from Teck's Greenhills Operations to be deposited within the project boundary.
	3	June 6, 2018	August 1, 2018	Requesting to re-route a section of the 138 kV Britt Creek Spur transmission line along the Fording River and Fish Pond Creek; extend the certified project description boundary by seven hectares.
Kootenay West Mine	1	May 31, 2018	October 15, 2019	Requesting to divert a forest service road for transportation of gypsum, which could affect the water quality of the adjacent Kootenay River (risk of spilling of contaminants).
	2	April 3, 2020	April 9, 2020	Requesting the installation of three new culvert crossings along the Kootenay Forest Service Road.
Line Creek Operations Phase II	1	June 30, 2014	December 15, 2014	Requesting to expand mining production by adding a third open pit to the existing mining infrastructure.
Mt. Milligan Copper-Gold	3	December 5, 2017	January 22, 2018	Requesting emergency use of Esker and Phillips Lakes to meet water needs for project development.
	4	June 28, 2018	August 31, 2018	Requesting continued surface water extraction from sources with additional TFS groundwater extraction and well water use.
	5	October 18, 2018	January 23, 2019	Requesting in-water works for Meadows Creek road crossing to alter fish passage.
	6	January 24, 2019	February 26, 2019	Requesting further surface water extraction, water transportation infrastructure, and long-term groundwater withdrawals from nearby wells.
Murray River Coal	1	December 12, 2017	March 23, 2018	Requesting the relocation of M19A Creek Crossing, additional unsuitable material stockpiles, and realignment of water discharge pipeline.
Red Chris Porphyry Copper-Gold Mine	1	February 4, 2012	February 28, 2012	Requesting permission to build a power transmission line extension from Tatogga to Bob Quinn. Predicted impacts to aquatic life associated with water quantity, quality, and flow in Trail Creek.
	2	May 27, 2016	August 19, 2016	Requesting design changes in water management around the Tailings Impoundment Area and the South Dam.
Tulsequah Chief Mine	5	March 2, 2012	October 19, 2012	Requesting to alter the access road route. Predicted impacts to waterflow with the removal of water quality monitoring and removal of water sampling for sedimentation along river crossings.
Wolverine Coal Mine	1	June 3, 2005	April 7, 2006	Requesting to expand mining activities to increase overall production by 50%. Predicted changes to water quality and aquatic life due to an increased exposure rate of coal and overburden, and subsequent potential for increased metal leaching, particularly selenium, and acid rock drainage.
	7	January 7, 2020	February 12, 2021	Requesting to incorporate a third pit, ancillary infrastructure, coal hauling, and processing of Hermann coal at the Wolverine processing plant. Predicted changes in surface water quality due to release of parameters of potential concern (POPCs) from waste rock dumps, coal storage areas, and from the storage of tailings.

# Recommendations

- We encourage the BC government to ensure that **all documentation related to amendments is written in clear and enforceable language** and that proponents are required to give detailed **quantitative descriptions and predictions of proposed changes** or activities in amendment applications.
- Financial **penalties or stop-work orders** should be written in amendment approval documents associated with **failure to abide by the conditions**.
- We also recommend that the BCEAO **develop, publish, and enforce standardized definitions of amendment complexity**.
- We echo the recommendation of the Auditor General of BC (2016) that calls for **regulatory language that includes measurable criteria, such as thresholds and timing**, to be implemented in all future mining permits and amendments.
- These elements would allow the **public to more easily identify amendments with which they seek to intervene** or request additional information.

# Prosperity Gold-Copper Mine

- **Taseko Mines Ltd. issued a certificate** under provincial EA in 2010, applied for amendment in 2011 for 'New' Prosperity Mine.
- **Rejected twice by the federal IA** in 2011 and 2014.
- To continue to extend the certificate, the province had to **specifically add an regulation** to the EAA 2018 (Exemption Regulation No. 2), as the EAA 2002 (ss. 18(4a)) and 2018 (ss. 31(4a)) both state that certificates can only be extended once for a maximum of five years.
- Given that **the only unapproved mining project amendment (of 49) is due to federal legal blockades** (and that the **province specifically introduced legal tools to allow it to potentially approve this amendment in future**), this brings into question whether or not rejection of amendments is a real option that would be utilized by BCEAO.