Addressing Mine Water Discharges at the Endako Mine
A Collaboration with Community, ENV, and Centerra

Nadleh Whut'en and
Stellat'en First Nations

December 3, 2020

Our Partners

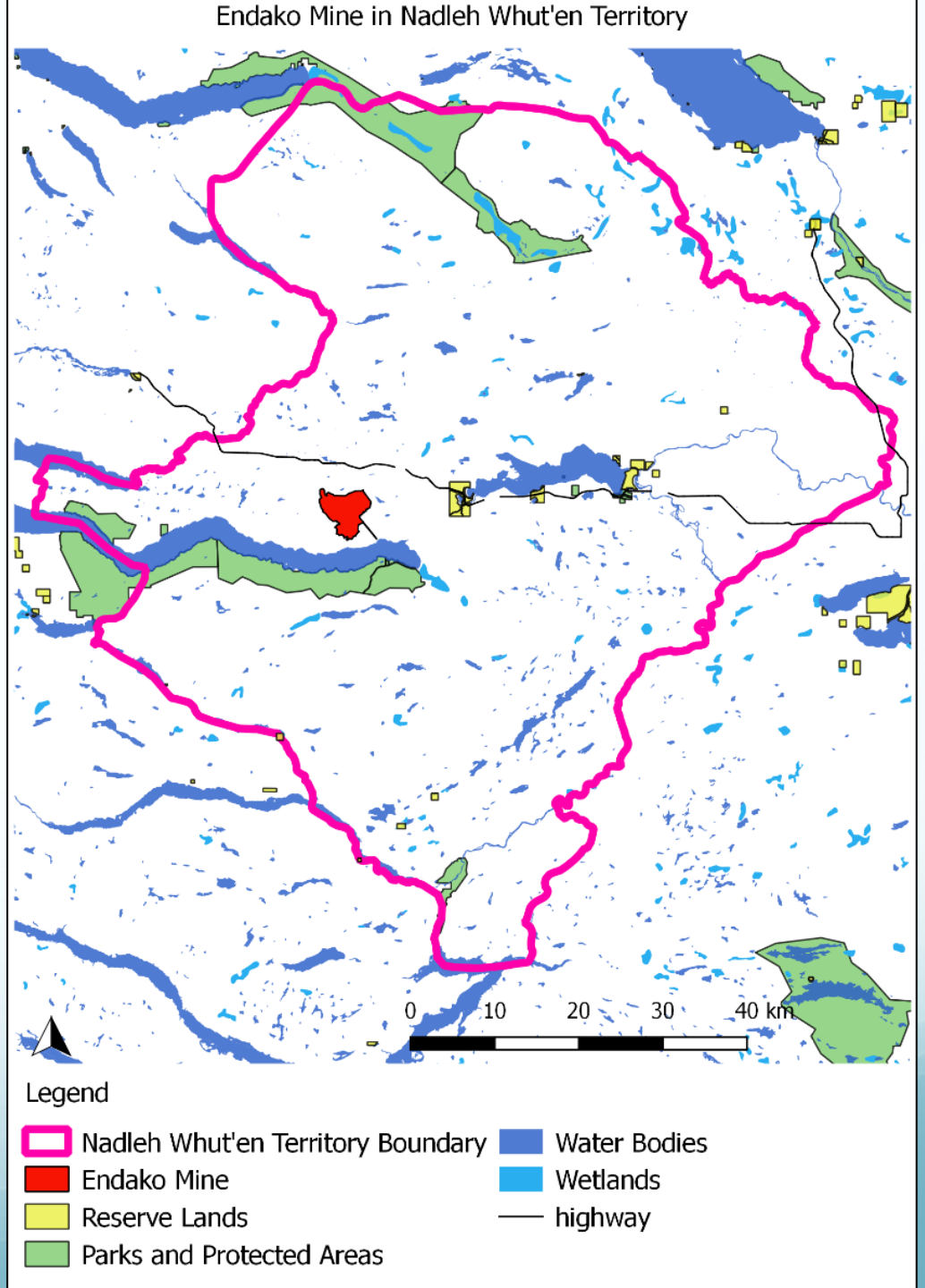
Speakers

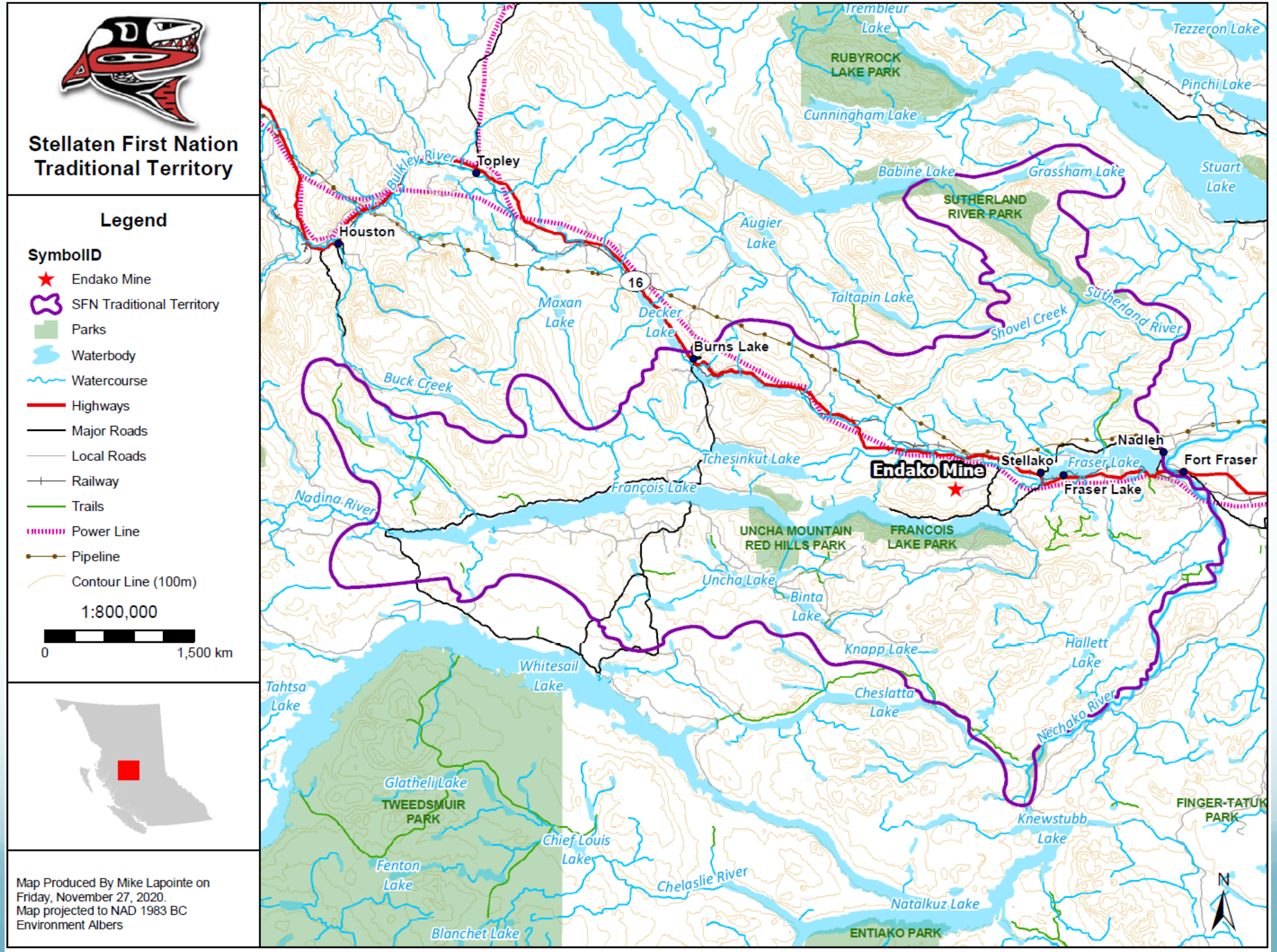
- Cheryl Bear, Nadleh Whut'en First Nation
- Mike Lapointe, Stellat'en First Nation
- Georgina Farah & Rina Freed, SEA
- Allison Schein, LGL Limited

Partners

- Gabi Matscha, Mark Love, BC ENV
- Randy MacGillivray, Centerra Gold
- Martin Davies, Hatfield

Nadleh Whut’en Traditional Territory




Stellaten First Nation
Traditional Territory
Legend
SymbolID
Endako Mine
SFN Traditional Territory
Parks
Waterbody
Watercourse
Highways
Major Roads
Local Roads
Railway
Trails
Power Line
Pipeline
Contour Line (100m)
1:800,000
0
1,500 km
Map Produced By Mike Lapointe on
Friday, November 27, 2020.
Map projected to NAD 1983 BC
Environment Albers
Trembleur Lake
Tezzeron Lake
RUBYROCK LAKE PARK
Pinchi Lake
Cunningham Lake
Topley
Bulkley River
Babine Lake
Grassham Lake
Stuart Lake
SUTHERLAND RIVER PARK
Houston
Augier Lake
16
Maxan Lake
Decker Lake
Taltapin Lake
Shovel Creek
Sutherland River
Burns Lake
Buck Creek
Nadleh
Tchesinkut Lake
Stellako
Fraser Lake
Fort Fraser
Endako Mine
François Lake
Nadina River
UNCHA MOUNTAIN RED HILLS PARK
FRANCOIS LAKE PARK
Uncha Lake
Binta Lake
Knapp Lake
Hallett Lake
Whitesail Lake
Tahtsa Lake
Cheslatta Lake
Nechako River
Glatheli Lake
TWEEDSMUIR PARK
FINGER-TATUK PARK
Knewstubb Lake
Chief Louis Lake
Fenton Lake
Chelaslie River
Natalkuz Lake
Blanchet Lake
ENTIAKO PARK
N

Historical Context

- Significant Impacts. Lack of Engagement and Benefits for Nadleh and Stellat'en.
- 2012 Expansion Approval was Unfortunate
  - Unfinished Permit Amendment Process
  - Acid Rock Drainage (predicted mine pollution) at the site is unaddressed
- Endako Mine enters Care and Maintenance in 2015
- Ministry of Environment findings confirm our concerns with impacts, potentially from molybdenum and sulphate in 5 discharges from the mine site

Context:

Endako Mine is one of the oldest mines in BC – operating since 1965 in Nadleh/Stella Territories

Vancouver Sun, Feb.16, 2014

Endako mine effluent affecting aquatic environment in north-central B.C.

GORDON HOEKSTRA, VANCOUVER SUN 02.16.2014 |

CONTAMINATING OUR WATERS

Water quality problems at the Endako mine

The Mount Polley Mine tailings breach was a preventable disaster that will have far reaching impacts on the environment.

Endako Mine regularly discharges chronically toxic effluent with no consequences.

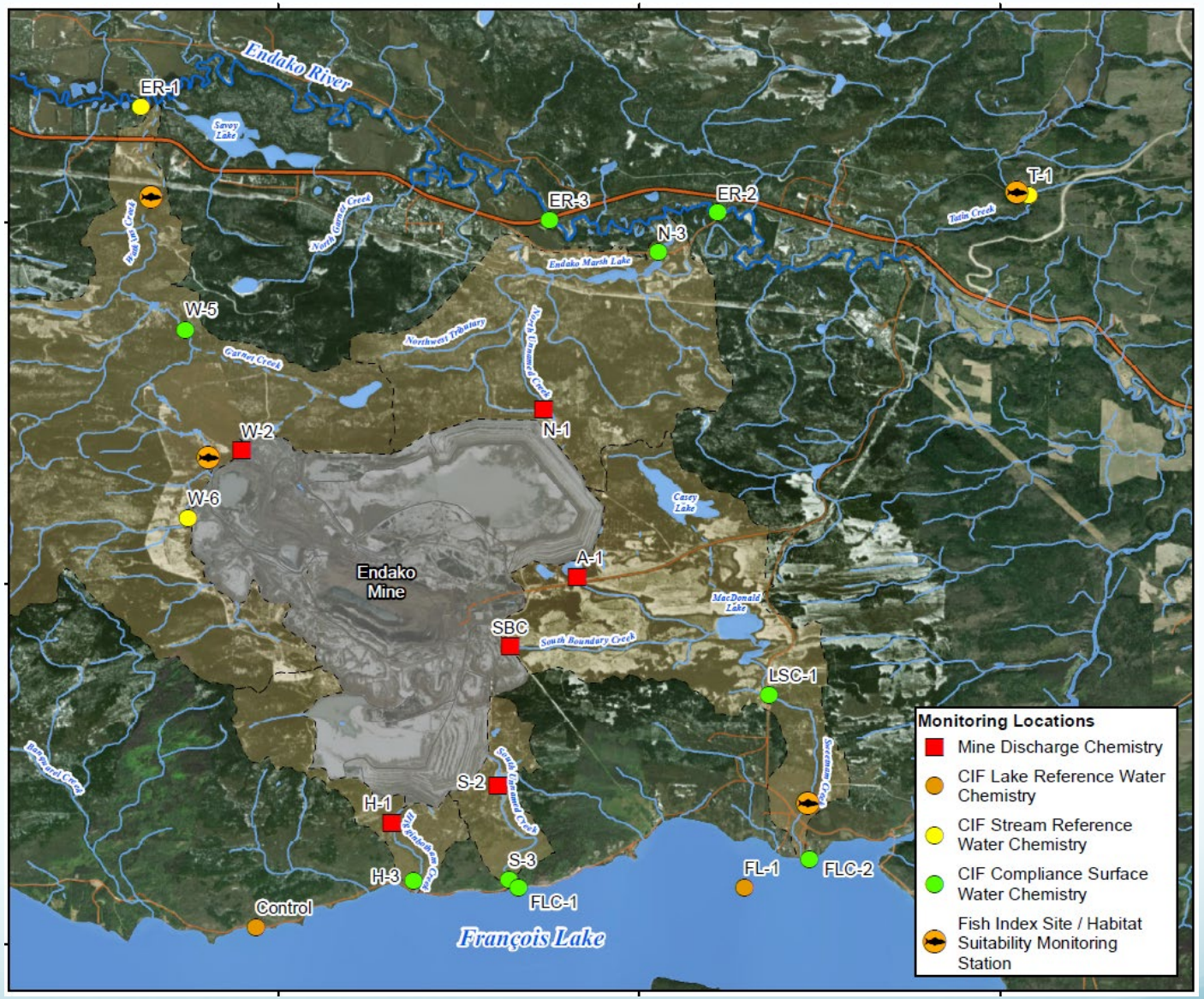
Who is protecting our water?

Transition to New Paradigm

- Development and Implementation of the Yinka Dene Surface Water Law
  - Problems with unaddressed pollution at Endako Mine motivated us to formalize and publicize our Water Law (2016)
  - Following our laws is how proponents and provincial ministries show respect for our Nations

Endako Mine Discharge

- **There are 6 discharges** that flow into Endako River and Francois Lake
- Key habitat for critical species such as **chinook and sockeye salmon**
- **Nadleh found:** Mine was not following best practices and was polluting over BC Water Quality Guidelines
- **In this context, the need to codify Yinka Dene laws on water management was identified**



Locations of current mine water releases downstream of the Endako Mine (Hatfield 2019)

Yinka Dene ‘uza’hné

The Yinka Dene ‘uza’hné from Nadleh Whut’en and Stellat’en enacted a water law and a water management policy for the regulation of the surface waters throughout the whole of our territories.

Press Release March 30, 2016

“Nadleh and Stella Hereditary Leaders Proclaim First Aboriginal Water Management Regime. Opportunities for Collaborative Water Management for all levels of Government”

WATER DECLARATION OF THE YINKA DENE ‘UZA’HNÉ

We the first people of this land therefore declare that:

Our Rights, including our Title and our legal responsibilities, were given to us by our ancestors and cannot be altered or taken away by any other Nation or State.

We will forever maintain our freedom of self-determination, our language, our spiritual beliefs and our culture.

We will forever fulfill and maintain our rights and obligations to protect our water, and everything that water touches and gives life to, including the land, animals, air, plants and humankind.

We forbid any future development in our Territories without our consent.

Whoever wishes to work with our water must abide by our traditional governance system called Bahlats.

We will require outside users to respect our laws and rights in the use of our water.

We are not, in principle, opposed to economic development in our Territories, but all such development must be done in a way that protects the rights and obligations of Nadleh and Stella to protect our sacred *Too*.

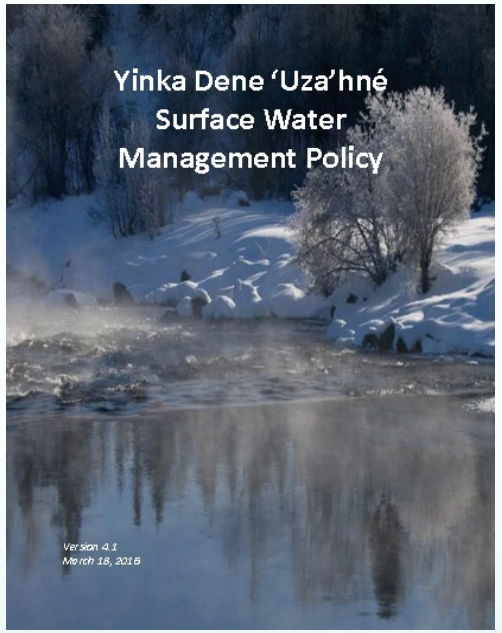
Nadleh and Stella must also fully benefit from all economic development of our Territories.

We will strive to develop the best ways to fulfill the management and protection obligations of Nadleh and Stella, and we will require outside users of water in our Territories to respect our laws in this regard.

It is in this spirit that we have enacted the **Yinka Dene ‘Uza’hné Surface Water Management Policy** and the **Yinka Dene Uza’hné Guide to Surface Water Quality Standards**.

Components of the Water Law

"The Policy itself is an **expression of our living governance and laws.** The health of surface waters throughout our Territories, and the life they sustain, are of fundamental importance to our continued enjoyment of our Aboriginal title and rights. The Policy was developed to fulfill our legal obligations as stewards and to respond to the ongoing impacts to surface waters in our Territories."



A New Collaborative Approach

– *CIF preamble from Nadleh, Stellat'en, and Nee Tahi Buhn*

"Through the application of our Yinka Dene Water Law...,we have collaborated with the Province of B.C. and the owner of the Endako mine, to craft a unique system that preserves, enhances and protects water impacted by the mine for future generations.

This new process, which we have named the Continuous Improvement Framework (CIF), replaces the antiquated workings of our past relationship with a collaborative and cyclical approach of stewardship."

Continuous Improvement in the Collaborative Process

- Landscape of collaboration is evolving both provincially and federally
- Endako has used two frameworks: a bi-party and a tri-party approach, with different success
  - Pros and cons to each
  - May be applicable in other working group formats

Key Legal Rulings - Context for Collaboration

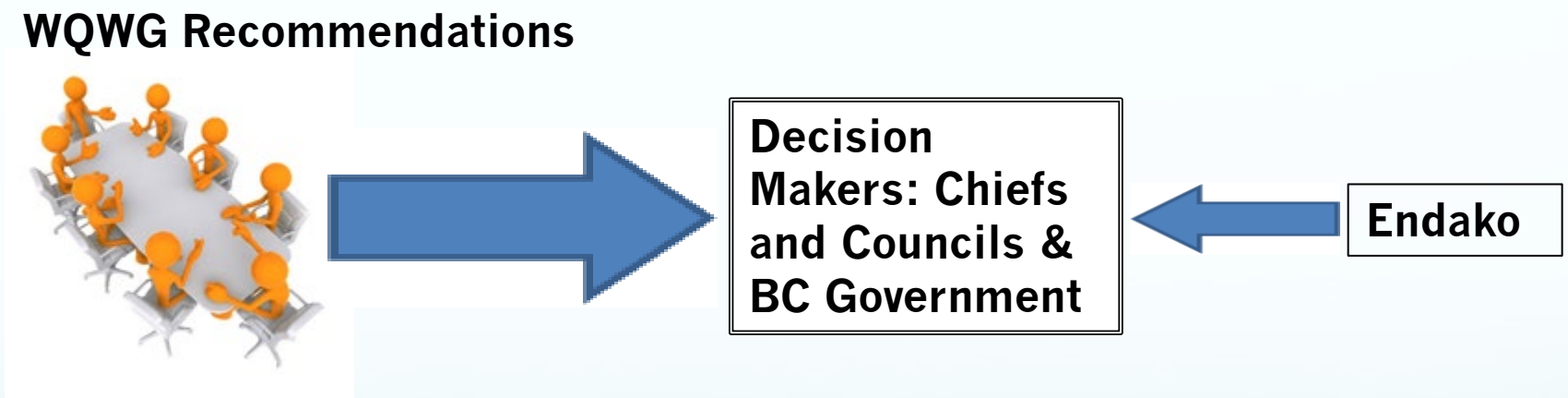
- In 2016 Canada adopted United Nations Declaration on the Rights of Indigenous Peoples, followed by BC in 2019
  - Focus on shared decision making and shared stewardship of resources
- 2014 Tsilhqot'in Nation v. British Columbia
- 1997 Delgamuukw v. British Columbia
- 1990 R. v. Sparrow

Shared Decision Making at the Endako WQWG

- 2015 Collaboration Agreement between CSTC, CSFN and British Columbia
- Reduce conflict between all parties
- Reduce turnover and have appointed government staff
- Improve the working relationship with the government and the mine
- Seek agreement and consistency in the process
- More durable and long-lasting outcomes

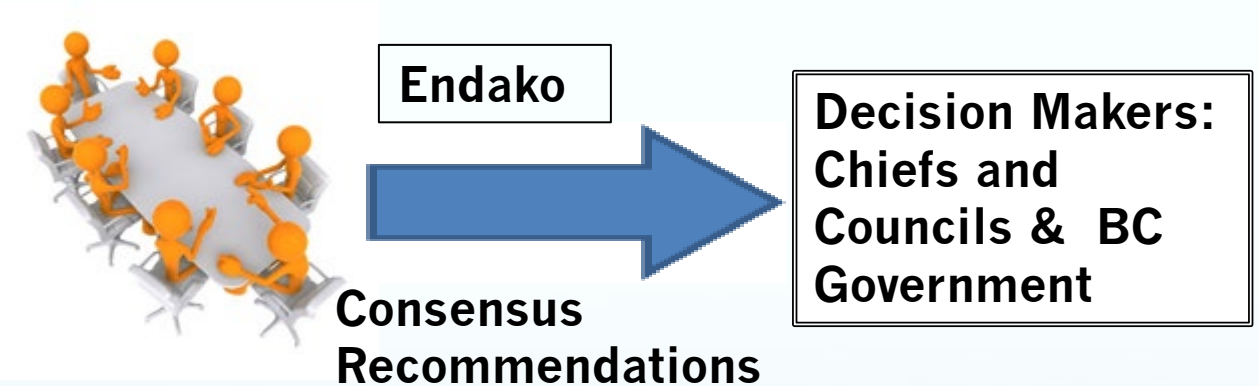
Bi-Party Approach

- Water Quality Working Group = Ministry of Environment, Nadleh, and Stellat'en (and other First Nations invited)



Tri-Party Approach

- WQWG invited Endako meetings (tri-party discussions)
- WQWG + Endako



- Improved G2G and Proponent relations
- Consensus on expectations

CIF Goals – From *Yinka Dene 'Uza'hné Surface Water Management Policy* (2016)

- Class I: Waters of High Cultural or Ecological Significance, where "water quality conditions should not be degraded, substantially altered, or impaired by human activities"
- Class II: Sensitive Waters, for which "the primary water management goal is to provide an enhanced level of protection for all life stages of sensitive species or taxa of concern..."
- Class III: Typical Waters, for which "the primary water management goal is to protect the designated uses of surface water resources..."

Narrative Objectives – Continuous Improvement

Water Classification	Short-Term (2022 - 2026)	Medium-Term (2027 - 2031)	Long-Term (2032 - post-closure)
Class I (Francois Lake)	No measurable mine-related effect.	No measurable mine-related effect.	No measurable mine-related effect.
Class II (Endako River)	Meet WQGs for protection of aquatic life or no increase over background. Protect drinking water users in area.	Protect all water uses – meet WQGs for the protection of aquatic life, wildlife, livestock watering, irrigation, recreation and aesthetics, and drinking water or no increase over background.	Provide enhanced protection for all water uses – no exceedance beyond average of provincial WQGs and background levels.
Class III (Small streams draining mine)	Maintain ecological structure and function. Develop and apply protective numerical limits for relevant water quality COPCs.	Maintain ecological structure and function. Apply and refine protective numerical limits for relevant water quality COPCs.	Protect all existing or currently planned water uses.

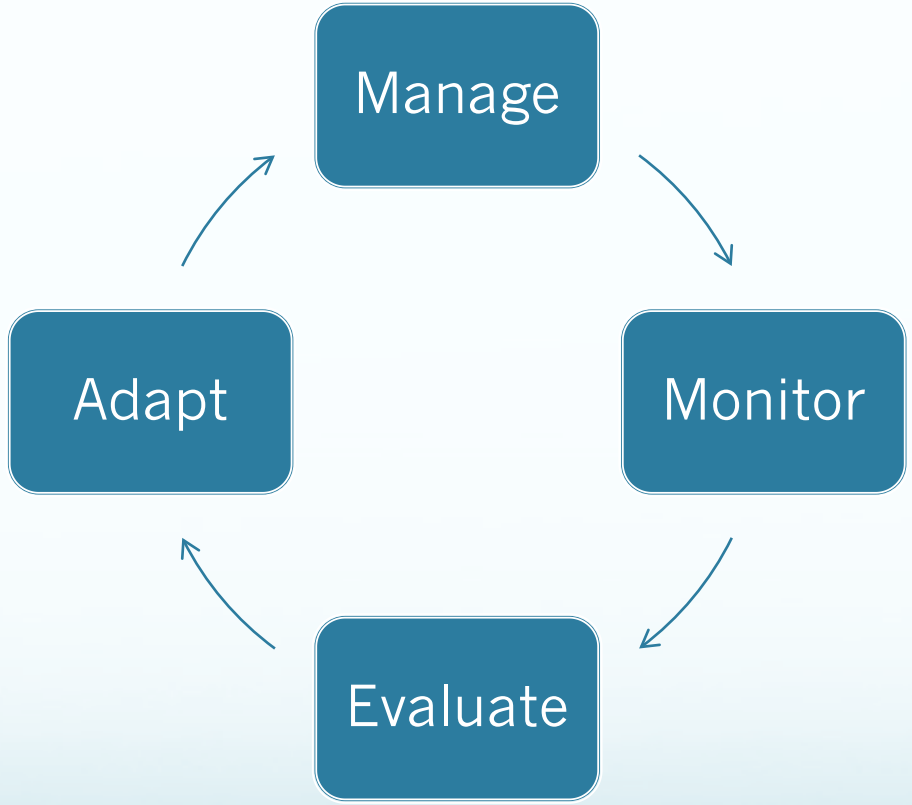
Target Development Process

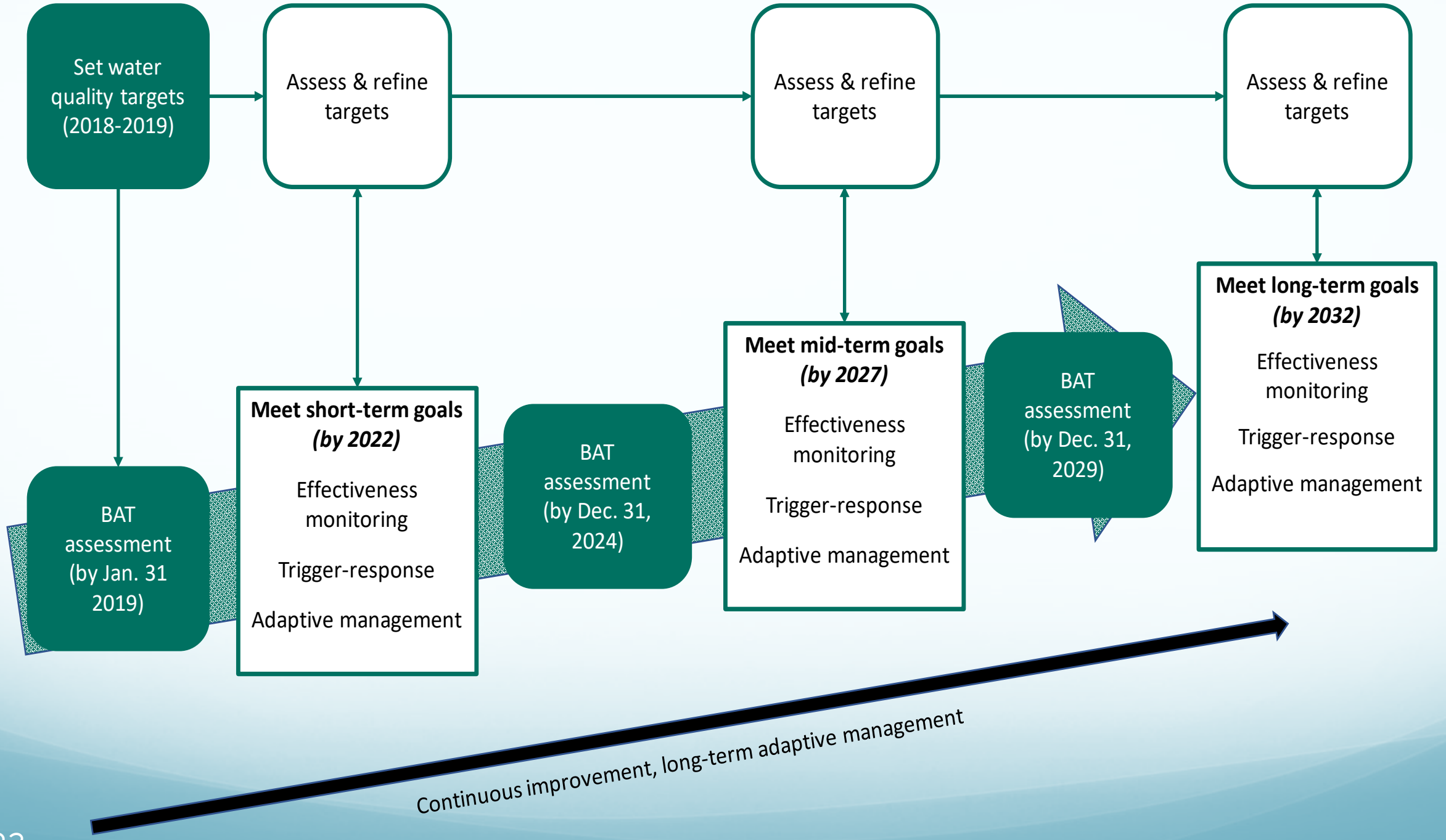
Numerical Targets – Sulphate (mg/L)

Water Classification	Short-Term (2022 - 2026)	Medium-Term (2027 - 2031)	Long-Term (2032 - post-closure)
Class I (Francois Lake)	6.7[a]	6.7[a]	6.7[a]
Class II (Endako River)	218[b]	218[c]	110 / 111[d]
Class III (Small streams)	1,123[e]	1,123[e]	500[f]

a – background concentration (95th percentile)
b – aquatic life WQG
c – lowest WQG (aquatic life)
d – average of lowest WQG and background (high-flow & low-flow periods, respectively)
e – developed through site-specific toxicity testing
f – drinking water guideline

Continuous Improvement Framework - Adaptive Management



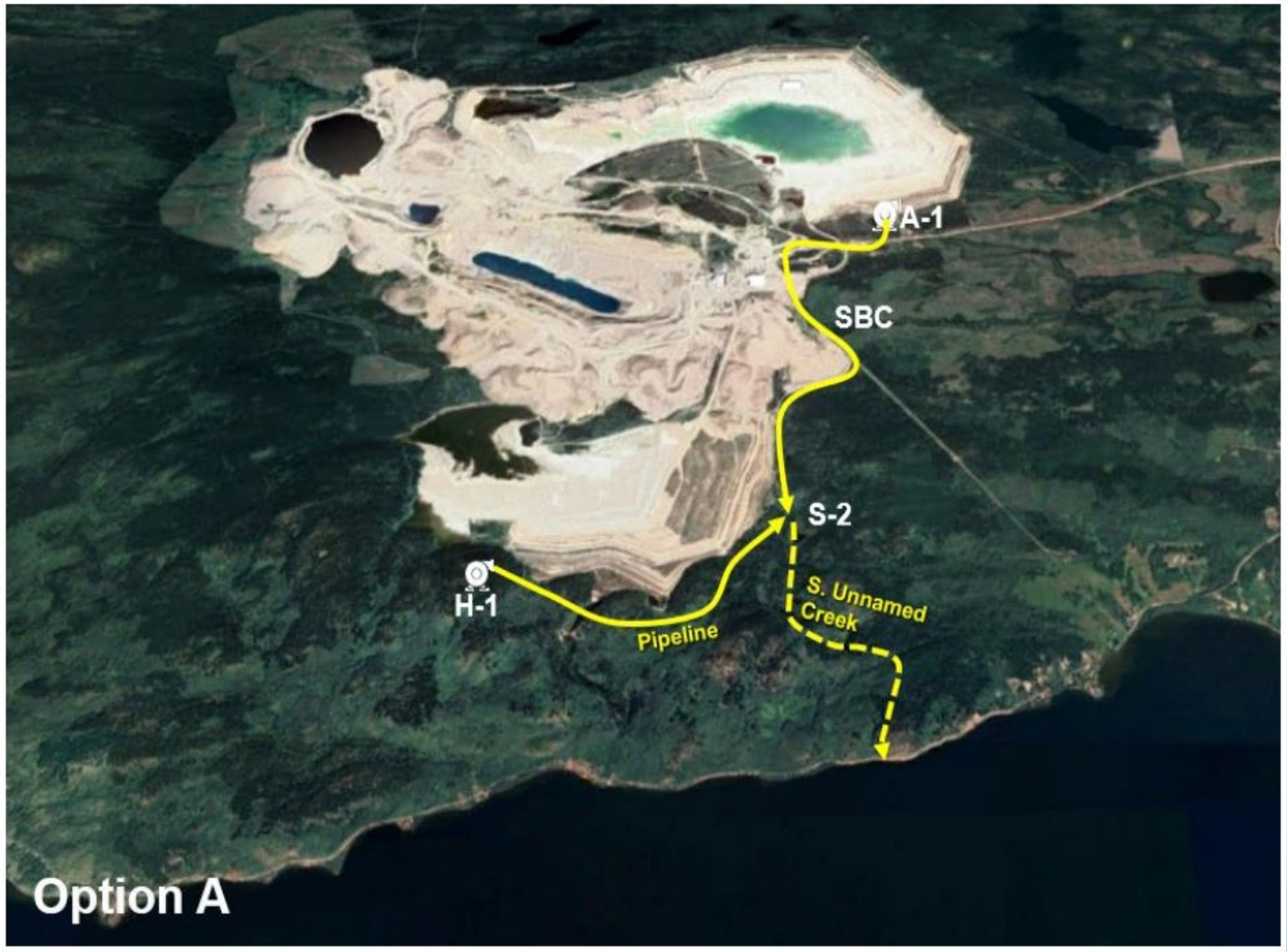


Hatfield. 2019. Endako Mine Continuous Improvement Framework. Prepared for Centerra Gold Inc. by Hatfield Consultants. Version 4, July 2019.

BAT Alternatives Study

- As part of the BAT study under the CIF, Nadleh and Stellat'en requested a review of options to meet the short-term targets
- The analysis considered the medium- and long-term goals and the closure plan (i.e., ARD treatment)
- The initial BAT assessment recommended sending discharges to the south, the "southern option"
- Based on the Yinka Dene WMP, an alternative strategy proposed directing discharge north to the Endako River, referred to as the "Alternative Northern Option"

Southern Option



The Southern Option does not reduce loadings from the mine to Class I waters, Francois Lake.

Reclassifying S-2 as a discharge channel instead of a Class III water does not reduce loadings from the mine to Francois Lake.

This is contrary to the CIF, which states for Class I waters that, "...water quality conditions should not be degraded, substantially altered or impaired by human activities."

CIF Goals in Relation to BAT Study

- Recall Class I water bodies (e.g. Francois Lake) have the highest level of protection
- Class I/II water bodies should have continuous improvement with time (e.g. reduced loadings)
- Reducing Class III loadings helps protect Class I/II waters.
- Efforts to protect tributaries should reflect the quality of the habitat
- Lower Sweetnam Creek has higher fisheries values than some of the other tributaries

Issues with Southern Option

- Discharges to lakes are difficult to monitor because the Initial Dilution Zone (IDZ) is hard to define and detect
- Setting a precedent for direct discharge of untreated contact water to Francois Lake is a concern
- Onset of acid mine drainage and increased loadings from the mine to Francois Lake are a concern
- Directing mine impacted waters to the south instead of to the north is contrary to site closure plans

Alternative Northern Option

Stellat'en and Nadleh requested the following option as an alternative:

- Redirect 4 southern discharges to either N-1 or the open pits
- Discharge to the Endako River year-round if objectives can be met
- Minimize loadings to the Class I water body
- Direct contact water to a central collection point to simplify future treatment

Conclusions

- The work of the WQWG has been very positive thanks to dedicated Ministry of Environment staff
  - The CIF represents successful application of the Water Law
  - The consensus approach works towards reconciliation through the collaboration plan
  - The site has short, medium and long-term water quality targets in place for 2022, 2027 and 2032
  - Development of the CIF narrative and numerical targets, implementation of the BAT Study for CIF targets
- The work represents the ongoing stewardship of the waters and land by Nadleh and Stellat'en First Nations

Nadleh and Stellat'en

Nadleh and Stellat’en