2024/2025 Transboundary Waters Newsletter

Protecting the environment near the British Columbia and Alaskan border

Taku River

In this Issue:

Tulsequah Chief Mine Update

Background on the Tulsequah Chief Mine

The Tulsequah Chief Mine is a historic mine site located on the banks of the *Taaltsux̲éi Héen* (Tulsequah River), within the traditional territory of the Taku River Tlingit First Nation (TRTFN). The word 'Tulsequah' is based on the Tlingit name for the area: *Taaltsux̲éi Héen*, which means 'root garden river'. The site sits about 10km south of Tulsequah Glacier and 14km upstream from the confluence with the T'aakú Héeni (Taku River) and contains many culturally important places to the TRTFN, such as traditional camp sites and settlements. Historically, TRTFN would go to the *Taaltsux̲éi* Valley to harvest bear root, cranberries, and other important plants.

Between 1951 and 1956, underground mining activities were carried out at the site by the Consolidated Mining and Smelting Company of Canada Ltd. (now Teck Resources Ltd). Mining operations were suspended in 1957. In 2016, the site's most recent owners, Chieftain Metals, went into receivership. To date, the mine site has not been effectively reclaimed and continues to generate ongoing acid rock drainage, which has dis-charged into the *Taaltsux̲ éi Héen* (Tulsequah River) since the 1950s. Additional information on the history of ownership of the mine site, as well as steps the Province, TRTFN, and Teck

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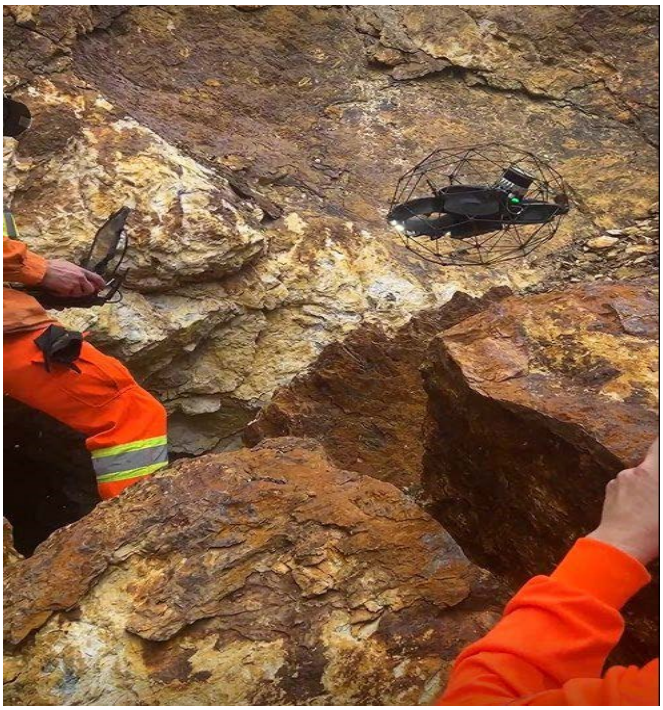

Drone entry into the 6500 portal.

Resources Ltd (Teck) have taken to support environmental management and reclamation can be found on the Tulsequah Chief Mine Clean Up webpage.

The 2023 Transboundary Waters Newsletter featured an overview of preliminary reclamation work at the Tulsequah Mine site carried out by the Province and TRTFN since 2017. The newsletter also discussed Teck's role in reclamation of the site, outlining their support through coopera-tion and funding in 2020 and 2021, followed in 2023 by initiating voluntary development and implementation of a reclamation plan. This edition of the Transboundary Waters Newsletter provides an update on reclamation and clean-up work completed in 2024.

2024 Field Season

The priority for the 2024 field season (May to October 2024) was to conduct detailed site work to re-establish safe and reliable access to the site, and to investigate underground mine workings, water quality and flow, and waste rock. Completing this preliminary work will enable Teck to plan-for significant on-site activities in 2025.

Work on site from May to October 2024 involved:

- Ensuring safe access to the site through the construction of helipads, the clearing of air-strips, and the building of a temporary camp.
- Assessing the condition of equipment on site including the inactive water treatment plant.
- Drone survey work to inspect portals, outside mine workings, the water treatment plant, ponds, key bridges and to enable estimates of waste rock volumes.
- The collection of data on water quality and flow, as well as aquatic monitoring.

Aquatic effects monitoring program (AEMP) kick-net sam-pling.

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- Sampling of waste rock and waste management.

A summary of the work completed on site in 2024 can be found on the Tulsequah Chief Mine Clean Up webpage.

Public and Community Engagement

TRTFN hosted a community meeting in Atlin on June 15, 2024 and invited BC and Teck to discuss the 2024 summer Tulsequah Mine field program. The purpose of this meeting was to provide information on the 2024 work plan and receive feedback from the community about priorities and concerns related to Tulsequah Chief Mine. A follow-up community meeting was held in Atlin on December 10, 2024 to report on the progress made during summer 2024.

In June of this year, representatives from both TRTFN and Teck attended the Bilateral Working Group meeting in Juneau to speak to the collaborative work that is underway at Tulsequah. At the meeting, Teck presented their plans for on-site work for 2024, provided a progress report on the 2024 field season, and discussed concerns from Alaskan officials regarding the Tulsequah Mine reclamation effort. Both parties were also present at the Transboundary Open House, hosted by the State of Alaska and B.C., to discuss plans for the 2024 field season with members of the public.

Discharge sampling being conducted at the 5400 portal

Tripartite Memorandum of Understanding

In recognition of the shared interests and the value of collaboration to the success of reclamation at Tulsequah, BC, TRTFN, and Teck have been working to negotiate a tripartite Memorandum of Understanding (MOU). In September 2024, the MOU was signed by all three parties. The MOU establishes and acknowledges:

- Guiding principles that are important to the collaborative conduct of the parties and successful reclamation at the Tulsequah Chief Mine;
- Roles and responsibilities related to reclamation work at the mine site, including Teck's role in relation to investigation work on site this summer and the development of the Tulsequah Chief Reclamation Plan;
- Collaboration as a foundational component of success for this work, particularly between Teck and TRTFN related to the development of the Reclamation Plan; and

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Overhead view of the temporary camp facilities used

- Communication protocols to ensure the principles outlined in the MOU are achieved.

The MOU is available on the Tulsequah Chief Mine Clean Up webpage.

Next Steps: Preparing for 2025

In preparation for the 2025 summer field season, Teck will be conducting integrated planning sessions with TRTFN to ensure alignment on the work plan, contracting requirements, employment opportunities, and training.

Data collected during the 2024 field season will be reviewed by Teck and TRTFN, and shared with the Province and the TRTFN community in May 2025. As laid out in the MOU, a quarterly meeting between B.C., TRTFN, and Teck will be established to align priorities for future site work and discuss progress.

To receive future updates on the work being done on the Tulsequah Chief Mine Clean Up, subscribe to the Tulsequah Chief Mine Clean Up webpage.

Temporary helicopter landing pad at the 5900 portal of the Tulsequah Chief Mine Site, 2024.

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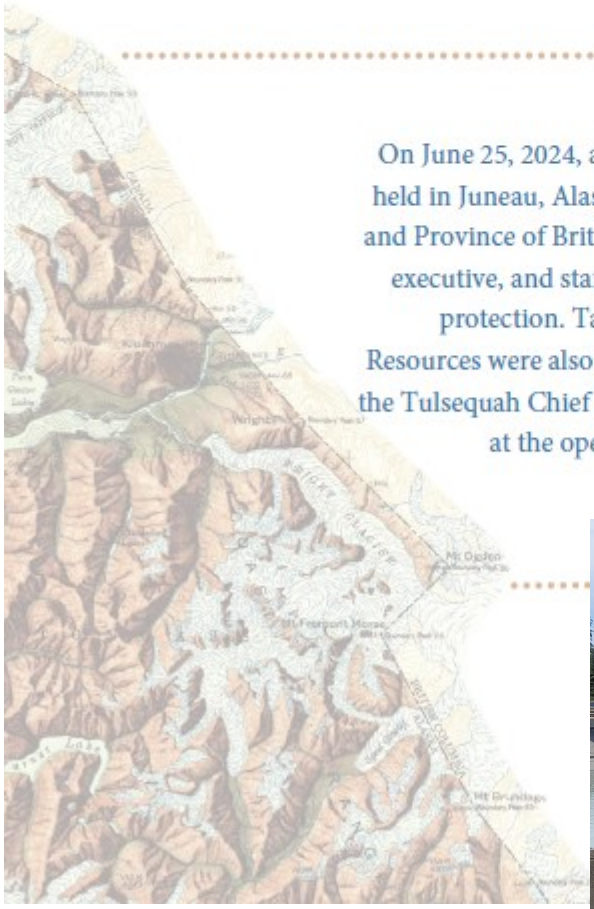
2024 TRANSBOUNDARY OPEN HOUSE RECAP

Environmental Protection and Mining
Near the Alaska and British Columbia Border



On June 25, 2024, a transboundary public open house was held in Juneau, Alaska. Participation by the State of Alaska and Province of British Columbia included commissioners, executive, and staff to discuss mining and environmental protection. Taku River Tlingit First Nation and Teck Resources were also present to discuss remediation work at the Tulsequah Chief Mine. Some of the key topics discussed at the open house have been summarized below.

Bilateral Workgroup members and staff toured the Hecla Greens Creek mine in June 2024.

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STATE OF ALASKA

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Stikine Field Work Camp

Mining Transparency, Regulatory, and Compliance Improvements in B.C. over the Last Decade

B.C. has made significant regulatory improvements to the way mining is done in the province over the past decade. Mining projects must incorporate robust environmental protections, collaboration with First Nations, and transparent permitting and enforcement. Key regulatory changes include 1) improvements to the Health, Safety and Reclamation Code for mines in BC (HSRC); 2) improvements to government structure, programs, and roles; and 3) improvements to public transparency in reporting and compliance and enforcement.

1. Improvements to the HSRC:

In 2017, a revised HSRC was published. The revision addressed 43 recommendations made in reports from an Independent Expert Engineering Panel, a Code Review Committee, and the Auditor General related to Tailings Storage Facilities (TSF), including:

- Enhanced regulation of all phases of a TSF
- New requirement for all mines to have an Independent Tailings Review Board
- Improved dam safety guidelines

In 2019, a Standing Code Review Committee was appointed with equal representation from First Nations, Labour, and Industry to conduct ongoing reviews of the HSRC.

In 2021, Code requirements for TSFs and dams were once again assessed and a further revision to the HSRC was found to be necessary. Finally, the most recent version of the HSRC, published in 2024, included major updates on requirements for TSFs and dams at mine sites, ensuring:

- Requirements to engage with First Nations;
- Consideration of local Indigenous knowledge in the design, site characterization, and classification of TSFs and dams; and
- Clear and enforceable regulations that are consistent with industry best practice and standards.

2. Improvements to the structure, programs, and roles in B.C. ministries:

- 2017: The creation of the Mines Investigation Unit, responsible for carrying out investigations of fatalities, serious injury incidents, major environmental incidents, and major or chronic non-compliance with the Mines Act and the HSRC.
- 2017: The introduction of the Administrative Monetary Penalties (AMP) program which

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allows B.C. to impose a financial penalty on individuals or corporations. Past AMP decisions can be accessed through the B.C. Mine Information website and the Natural Resource Compliance and Enforcement Database.

- 2019: The separation of the offices that issue mine permits from the office that monitors compliance and enforces regulations.
- 2019: The creation of the Abandoned Mines Unit, responsible for the management of historical abandoned mines and tailings storage facilities.
- 2020: The creation of the Mines Audit Unit, which publishes audit plans and reports progress updates each year. These are available online on the Mines Audit Unit web page.
- 2020: The creation of the role of the Chief Auditor, responsible for evaluating the effectiveness of provincial mining regulations in protecting the public, workers, and the environ-ment.

3. Improvements to public transparency in reporting and compliance and enforcement:

B.C. Mine Information and responsible mining websites were created to improve public access and transparency to mining information.

Information on the comprehensive environmental assessment (EA) process for major industrial projects and project status updates are publicly available.

Inspection reports and compliance and enforcement information can be found on the B.C. Mine Information website and in the Natural Resources Compliance and Enforcement Database.

Water quality monitoring data from joint B.C.-Alaska and Canada-B.C. programs can be found in the publicly accessible Environmental Monitoring System. Information from a major mine's aquatic effects monitoring program or water qual-ity monitoring can be found on the B.C. Mine Information website.

Water quality monitoring in B.C.

Reclamation Securities for Mines in B.C.

To safeguard the environment, public safety, public interest, and cultural heritage resources, mines in B.C. are required to post reclamation security with the province. Reclamation security covers the cost of reclaiming a site if a mining company defaults on their obligation. Under the Mines Act, the Chief Permitting Officer is responsible for setting the amount and form of reclamation security that must be provided. The securities are held by the Chief Inspector until all reclamation requirements have been fulfilled.

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Transportation into Hecla Greens Creek Mine, Bilateral Workgroup Group June 2024.

The Major Mines Reclamation Security Policy, released in 2022, sets out requirements for major mines to provide clear accounting of estimated reclamation costs and establishes a framework for determining the amount and form of reclamation security. In 2024, updated guidance was published to support this policy. The liability of a mine must be updated a minimum of every five years or whenever a proponent applies to make substantial changes to the mine plan that was approved by their permit.

Closing the gap: As of April 2024, the province has secured $4.97 billion, or 91% of the total liabilities. In 2016, the gap between total liabilities and the amount held by the government was 40%, today it is less than 10%.

Environmental Assessment Process and Environmental Assessments in B.C.

The B.C. government provides regulatory oversight for major projects in B.C., such as mines, oil and gas pipelines and facilities, large infrastructure projects, and resorts. The B.C. Environmental Assessment Office is a neutral regulatory agency that manages environmental assessments in B.C. In 2018, the B.C. government passed the updated *Environmental Assessment Act* to provide a clear and timely path for responsible resource projects, advance reconciliation with B.C. First Nations, increase public engagement and transparency, and deliver stronger environmental protections. On average an Environmental Assessment takes three to five years in British Columbia.

Each environmental assessment includes seven distinct phases, with each phase designed to address a certain aspect of the assessment, from understanding the broad issues related to each project in Early Engagement, to setting out the required information to understand the potential effects from the project in Process Planning, to concluding on the potential effects of each project in Effects Assessment. Public feedback is formally sought during four public comment periods, and First Nations are engaged and consulted throughout the process. For more information about environmental assessment projects in the transboundary region, please consult the Environmental Assessment Office's Open House Poster.

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Coordinated Compliance and Enforcement Process

The B.C. Environmental Assessment Office, the Ministry of Mining and Critical Minerals, and the Ministry of Environment and Parks each have authority under their respective legislation for compliance and enforcement of major projects in B.C. which have undergone environmental assessment and permitting processes. Each organization's compliance and enforcement teams coordinate their activities to ensure compliance within their respective jurisdictions, collectively cover all aspects of the major mine life cycle in B.C. Compliance reports and information can be found at the B.C. Mine Information website or on the Natural Resources Compliance and Enforcement Database.

Hecla Greens Creek Mine in Alaska

Compliance and Enforcement in Alaska

Mining in Alaska is regulated by numerous state and federal agencies. Each agency has a different or overlapping authority with compliance, inspection and enforcement authority. The State of Alaska Departments of Environmental Conservation and Natural Resources each have authority for compliance, inspection and enforcement of wastewater discharges and mineral extraction in Alaska. Additionally, the United States Environmental Protection Agency acts a co-regulator with DEC.

Regulatory Framework for Mining in B.C.

Mining projects in B.C. require approvals from several provincial agencies through the mine life cycle from exploration through environmental assessment, permitting, construction and operation, and closure. Agencies involved in authorizing mining activities work together in coordinated regulatory continuum. Robust environmental protection and partnerships with First Nations are key principles guiding this process.

1. **Exploration:** Exploration may require permits from multiple B.C. agencies and involves baseline data collection, engagement and consultation with First Nations, and design and feasibility evaluations.
2. **Environmental Assessment (EA):** B.C.'s Environmental Assessment Office is a neutral regulatory agency responsible for conducting a thorough and transparent 7-step process of major mine projects in B.C. See page 8 above for more detail about B.C.'s environmental assessment process.

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Unuk River

3. **Permit Applications, Reviews, and Decisions:** If issued an Environmental Assessment Certificate, the project moves into the permitting phase. This phase involves the formation of a multi-party Mine Review Committee (MRC). The MRC is an advisory committee comprised of reviewers from multiple ministries, First Nations, federal and local governments. MRC's review the applications to ensure the project mitigates impacts to human and environmental health and complies with respective laws.

4. **Construction and Operations:** This stage must be aligned with EA and permit conditions. Any substantial changes during construction and operation may require amendments to the Mines Act Permit. Compliance and enforcement throughout this stage is coordinated across B.C. agencies.

5. **Closure and Post Closure:** Upon mine closure, land, watercourses, and cultural heritage resources must be returned to a safe and environmentally sound state. Each Mines Act Permit includes an approved reclamation plan, and mining companies are required to submit annual reclamation reports. Financial securities are only returned to mining companies once the site has been reclaimed and there is no ongoing monitoring or maintenance.

Bonding and Financial Assurance in Alaska

Mining is regulated in Alaska through a coordinated approach between several state agencies. Bonding and financial assurance requirements for mining operations ensure that costs associated with large mine closure, reclamation, and long-term management are not incurred by the state. While state agencies provide individual permits, the Alaska Department of Natural Resources (DNR) and Alaska Department of Environmental Conservation (DEC) coor-dinate calculation and management of financial assurance. Bonding and financial assurances are based on reasonable and probable mine closure scenarios, the highest point of liability, and long-term care and maintenance costs. Prior to the construction and operation of a mine, reclamation and closure plans must be reviewed and approved. Alaska statutes require:

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- A reclamation plan with activities such as: stabilizing high walls, rock dumps, and pits to allow for natural vegetations; and prevention of offsite discharge of acid rock drainage,
- A detailed, line-item cost estimate for the reclamation plan, and
- Financial assurance through a surety bond, letter of credit, certificate of deposit, corporate guarantee, trust fund payments and deposits, or other forms of payments set in regulation.

Placer mining and hardrock exploration is bonded through a shared risk bond pool created by the State of Alaska. This voluntary bond pool is available to operators who do not use chemicals for processing, nor do they have the potential to create acid rock drainage, disturb less than 5 acres, and is refundable after successful reclamation.

Unuk River biological sampling, 2019

Water Quality Monitoring in B.C.

Water quality monitoring programs have been established in B.C. to assess ecosystem and human health with a focus on water, sediment, and aquatic life, such as monitoring of insects and fish. Monitoring results, including trends, are publicly available and accessible on provincial and federal webpages and in databases including:

- Canada-B.C. Water Quality Monitoring Program
- Environment and Climate Change Canada Data Catalogue
- Environmental Monitoring System (EMS)

Also available on EMS are data from the joint B.C.-Alaska Transboundary Water Quality Program. The program was developed collaboratively with provincial, state, Indigenous and Tribal organizations. It gathered water quality data in the Alsek, Taku, Stikine, and Unuk watersheds and analyzed water and sediment samples for general chemistry and metals, and tissue samples in fish and small aquatic organisms for metals.

Major mines are required by their environmental permits to monitor and report the following:

- Effluent quality and flows,
- Water balance and flows,
- Surface and groundwater quality,
- Sediment and tissue quality,
- Ecosystem health indicators,
- Environmental toxicity, and
- Treatment efficiencies.

More information on water quality and aquatic effects programs from mines can be found on the

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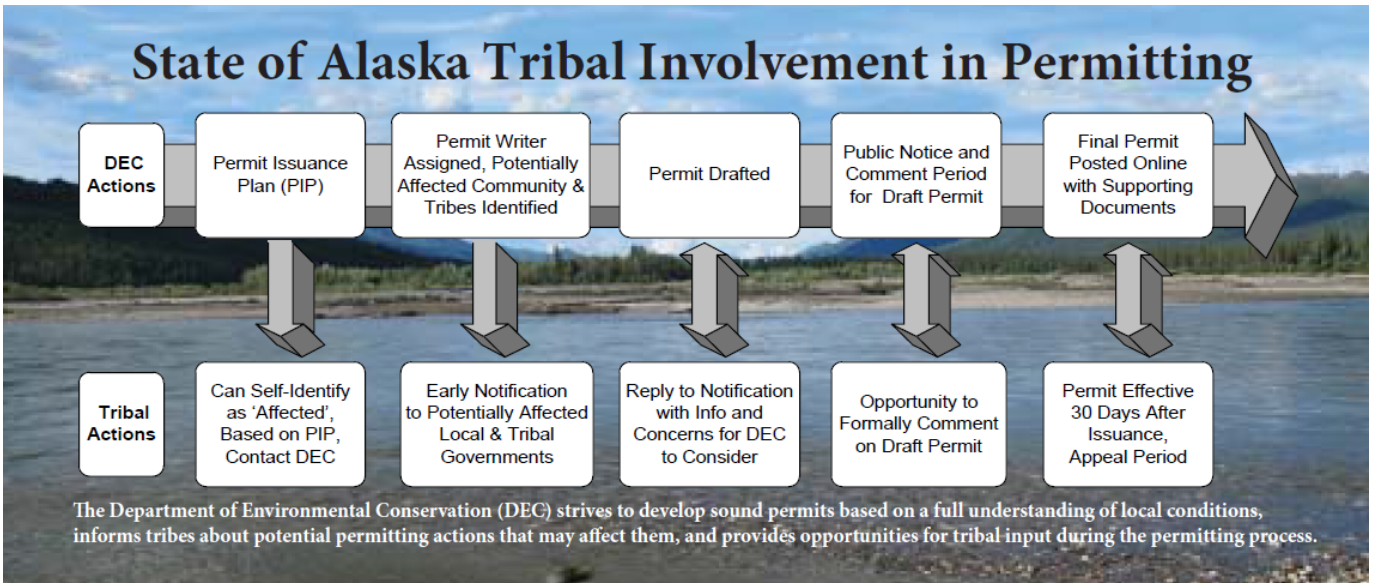
B.C. Mine Information website.

Monitoring data is used to determine compliance with authorizations and to assess potential impact to ecosystems and human health. Compliance information is publicly available on the Natural Resources Compliance and Enforcement Database.

Environmental Monitoring in Alaska

DEC continues to evaluate water quality data within Alaska's borders to ensure transboundary waters are attaining Alaska's water quality standards. Recently, DEC reviewed water quality data collected by the United States Geological Survey. Over 21,000 data points were reviewed; water quality status of the transboundary rivers is consistent with the results from the Joint AK BC Monitoring Project. The Alsek, Salmon, Stikine, Taku, and Unuk Rivers are attaining Alaska's water quality standards for most metals and non-metals, pH, total dissolved gases, and dissolved solids. Minimal excursions were observed for turbidity, alkalinity, mercury, and chromium due to natural conditions. The United States Geological Survey continues to receive federal funding for monitoring and evaluation of the Southeast Alaska transboundary region. A retrospective report is in development and will be released soon. Over the next few months, USGS also plans to complete a report analyzing current conditions and a geologic assessment of mineralization potential. In the meantime, water quality and sediment sampling will continue.

All data used for this analysis is available through the Ambient Water Quality Monitoring System database at https://west.gselements.com/DataAnalysisIndex.aspx.



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Sampling on the Taku River by State of Alaska, 2019

Major mines in Alaska are required to sample for:

- Effluent quality and flows
- Water balance and flows
- Surface and groundwater quality
- Ecosystem health indicators
- Solid waste
- Sediment and tissue quality
- Structural integrity of tailings storage facilities
- Environmental toxicity
- Treatment efficiencies

More information on monitoring requirements and individual permits limitations can be found on the Environmental Data Management System at https://dec.alaska.gov/Applications/Water/EDMS/nsite/map/help.

Alaska Department of Fish and Game Commissioner Doug Vincent-Lang and Habitat Section staff from the Southeast Region displayed transboundary watershed maps depicting locations of current and historical mining projects at the Open House. They discussed the potential impacts to these rivers from past and present mining with the public and fielded questions. Commissioner Vincent-Lang assured the public that the government of British Columbia is working to clean up the Tulsequah Chief mine site; noting it would take time to devise the appropriate closure plan to effectively make use of the funding available. He remains encouraged with the ongoing and regular communications between officials in both British Columbia and Alaska.

In 2024, Habitat collected fish samples for element analyses in the Unuk, Stikine, Taku, Chilkat, and Klehini Rivers, in the U.S. portion of these BC/Alaska transboundary rivers, to document whole-body element concentrations. To further this investigation, in January 2025, Habitat applied for an U.S. EPA grant to continue fish sampling on four applicable transboundary rivers (the Unuk, Stikine, Taku, and Salmon Rivers as well as collect sediment, algae, and aquatic insect samples to expand the data sets for these rivers and produce a technical report documenting the findings and comparing the data among the glacial river data sets.

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More information is available at:

https://dec.alaska.gov/water/transboundary

https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/responsible-mining

https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/further-information/bc-alaska-transboundary-waters#watersheds

https://www2.gov.bc.ca/gov/content/environment/air-land-water/site-permitting-compliance/tulsequah-mine

The Bilateral Working Group is comprised of Departments and Ministries from:

State of Alaska

- Department of Environmental Conservation
- Department of Fish and Game
- Department of Natural Resources

British Columbia

- Ministry of Environment and Parks, including the Environmental Assessment Office
- Ministry of Mining and Critical Materials