

2023 Transboundary Waters Newsletter

Protecting the environment near the British Columbian and Alaskan border

Tulsequah Chief Mine Update

Tulsequah Chief Mine is a historic underground mine site located on the banks of the Tulsequah River, within the traditional territory of the Taku River Tlingit First Nation (TRT). The site sits about 10km south of Tulsequah Glacier and 14km upstream from the confluence with the Taku River. The word 'Tulsequah' is based on the Tlingit name for the area: Taas Teiyi Héeni, which means 'root garden river'. Historically, TRT would go to Tulsequah Valley to harvest bear root, cranberries, and other important plants. The surrounding area is mountainous and remote, located about 100km to the south of Atlin, B.C., and 65km northeast of Juneau, Alaska.

Between 1951 and 1957, underground mining activities were carried out at Tulsequah Chief Mine by the Consolidated Mining and Smelting Company of Canada Ltd. (now Teck Metals). Mining operations were suspended in 1957 due to declining metal prices, and the nearby mining camp of about 300 people was closed.

The ownership of this site has a complex history. Redfern acquired Teck's interest in the site in 1992 and subsequently became insolvent in 2009, after obtaining an Environmental Assessment Certificate and a Mines Act Permit from B.C. In 2010, Chieftain Metals (Chieftain) acquired the property, and all authorizations were transferred to Chieftain's name. In 2016, Chieftain's directors resigned, and new directors have not been appointed since then. Chieftain, a corporation registered in Ontario, has not yet been dissolved by the Ontario Registry. To date, the mine site has not been effectively reclaimed. It continues to generate ongoing acid rock drainage (ARD), which has discharged into the Tulsequah River since the original operations in the 1950's.

Preliminary Reclamation Work at the Tulsequah Mine Site

Since 2017, the Ministry of Energy, Mines and Low Carbon Innovation (through the BC Chief Inspector of Mines) and the Ministry of Environment and Climate Change Strategy have pursued escalating enforcement measures against Chieftain Metals due to its non-compliance with regulatory requirements associated with the Tulsequah Chief Mine. The failure to address these non-compliances led the Chief Inspector of Mines to use their authority under the Mines Act, initiating work to mitigate pollution affecting the land and watercourses impacted by the mine.

Between 2018 and 2020, British Columbia worked in partnership with Taku River Tlingit First Nation (TRT) to retain specialized expertise to develop a comprehensive conceptual plan for the reclamation and closure of the mine. Both the State of Alaska and Teck were involved in, and provided input to the plan's development. Following the receivership hearing in August 2020, the Province and TRT initiated preliminary reclamation activities at the Tulsequah Chief Mine and, using the confiscated Mines Act permit bond of \$1.57M as well as voluntary contributions of \$3.15 M from Teck, began to plan and prepare the site for long-term reclamation. The Atlin-Tlingit Economic Limited Partnership (ATELP), the TRT's economic entity, has been the primary contractor, working alongside engineering and technical experts to undertake critical preparatory studies and repairs, facilitating the process of long-term reclamation.

British Columbia has worked in close collaboration with TRT and ATELP to conduct three consecutive field seasons of preliminary reclamation activities at the Tulsequah Chief Mine over the summers of 2020, 2021, and 2022. These efforts have included road and bridge repairs to ensure the safe movement of personnel and machinery throughout the site, removal of hazardous debris, implementation of a multi-year water sampling program, and acquisition of site data and imagery using tools such as LiDAR ("Light Detection and Ranging"). Additionally, in 2022, bridge replacements and repairs were successfully completed over 9 stream crossings located between the mine and the barge landing.



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Transition to Long-Term

Planning at the Tulsequah Mine Site

2023 marked a period of transition for reclamation efforts for the Tulsequah Chief Mine, with the focus shifting from preliminary preparatory activities to the development and implementation of a sustainable long-term reclamation and closure plan. Unlike the conceptual closure plan, which did not definitely address all aspects of reclamation and closure at Tulsequah, the final plan will require thorough engineering and costs analysis.

During this time:

- Teck has initiated relationship-building and reclamation planning discussions directly with TRT to ensure TRT's fulsome input and involvement in the development of the long-term reclamation and closure plan.
- B.C. has worked closely with TRT to ensure all work conducted in their territory includes full consideration of their interests and occurs in alignment with B.C. and TRT laws.
- In August 2023, representatives from Teck and TRT conducted a joint site visit to Tulsequah Chief Mine. This visit played a crucial role in familiarizing Teck with current site conditions, logistics, potential health and safety hazards, and reviewing the site to understanding potential closure objectives.
- Teck is actively working on the development of a more detailed reclamation and closure plan, which includes gathering essential information about underground workings and other site conditions this summer. This information is needed to advance engineering design.
- B.C. and Teck maintain regular meetings to work through some of the critical elements essential for successful reclamation outcomes at the site, one of which is the legal complexity surrounding Chieftain's interest in the site.
- Most recently, B.C. and Teck provided an overview at the BC-Alaska Bilateral Working Group meeting in January 2024, offering an update on the progress to date and outlining Teck's objectives for the upcoming 2024 field season.

The development of a successful reclamation and closure plan requires the collection of quality data, careful planning and engineering, robust engagement with stakeholders, and consultation with rights holders. Following the completion of more detailed site investigation work this summer, broader engagement regarding long-term reclamation planning is anticipated to commence.



Upcoming Events – BC-Alaska

Transboundary Open House

June 25, 2024 in Juneau, Alaska, 3-6pm

This event is being hosted by the State of Alaska and Province of British Columbia. For more information, please visit:

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

The Pacific NorthWest Economic Region (PNWER) Annual Summit

July 21 – 25, 2024 in Whistler, British Columbia

The PNWER Annual Summit is the leading forum where policymakers and business leaders come together to devise solutions for regional challenges. The summit facilitates in-depth discussions on shared challenges in the region, exchange of best practices, strengthen regional relationships, and develop action plans for addressing these challenges in the future. PNWER stands out as a model for regional and bi-national cooperation, providing a platform for collaboration among public, private, academic, and nonprofit stakeholders. More information is available [here](#).



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Assessing Water Quality in Alaska

The Alaska Integrated Water Quality Monitoring and Assessment Report (Integrated Report) evaluates readily available water quality data every two years to determine if waterbodies are meeting Alaska’s Water Quality Standards (WQS). The Report classifies waterbodies into five categories depending on whether they meet WQS, as mandated by Clean Water Act sections 303(d) and 305(b). Categories 1 and 2 denote waters meeting WQS for all or some designated uses, while category 3 are waters for which there is not enough information to determine their status. Categories 4 and 5 are waters which are impaired and do not meet WQS. Impairment means that a waterbody persistently exceeds state water quality standards (18 AAC 70), usually determined after two or more years of water quality monitoring.

For the 2024 IR cycle, the Alaska Department of Environmental Conservation will assess data from eight USGS monitoring stations in Southeast Alaska on the Alek, Salmon, Stikine, Taku and Unuk transboundary rivers. A total of 21,251 data points were received for 83 parameters including metals, nutrients, in situ measurements, and more. These waterbodies have been evaluated in prior years, and each was previously placed in either Category 2 or 3. This data, along with data from other waterbodies in Alaska, has been analyzed in winter 2023 with waterbody classifications to be completed in spring 2024.



Monitoring Transboundary Rivers in Southeast Alaska

In 2018, the United States Congress directed the United States Geological Survey (USGS) to partner with local Tribes and other Federal U.S. agencies to develop water quality strategies for transboundary rivers. Shortly after, USGS initiated a comprehensive study to assess baseline water-quality conditions in transboundary rivers across the Pacific Northwest region of the United States, including studies being conducted by USGS Science Centers in Alaska, Washington, Idaho, and Montana.

In Southeast Alaska, USGS Alaska Science Center operates “super gages” on the Alek, Taku, Stikine, Unuk and Salmon Rivers. These monitoring stations conduct discrete water quality, sediment, and biological sampling, providing valuable data for analysis. Additional discrete water quality samples are collected annually at the Canada-Alaska border crossings of the Taku, Stikine, and Unuk Rivers.

Characterization of baseline conditions in transboundary rivers will be accomplished through (1) assessment of the geology and mineralization potential, (2) retrospective analysis and new data collection to characterize the water, sediment, and biological quality of the Salmon, Alek, Stikine, Taku, and Unuk Rivers, and (3) the establishment of partnerships with Tribes and government agencies to ensure that assessments meet the needs of Tribes and local stakeholders. In 2024, USGS is publishing a retrospective report of available data for all the Alaskan basins and plans a comprehensive report on the current sampling to be published in 2026. Data from USGS, Tribal partners, and other large publicly available datasets will be analyzed as part of the comprehensive report. For more information on this work, please visit: <https://www.usgs.gov/centers/alaska-science-center/science/usgs-transboundary-river-monitoring-southeast-alaska>.



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Sample type, frequency, and parameters collected by USGS at Southeast Alaska rivers:

Super gage- real time data	Discharge
	Water temperature
	Conductivity
	Dissolved oxygen
	pH
	Dissolved organic matter
	Turbidity
Discrete samples – monthly during open water periods and annually at border	Metals-Calcium, Magnesium, Sodium, Barium, Cadmium, Cobalt, Iron, Lead, Thallium, Molybdenum, Nickel, Zine, Aluminum, Lithium, Uranium
	Heavy metals-Chromium, Manganese, Iron, Cobalt, Copper, Zinc, Arsenic, Selenium, Lead, Mercury
	Nonmetals-Carbon, Fluoride, Nitrogen, Phosphorus, Sulfur, Chloride
	Metalloids-Boron, Silicon, Antimony
	Sediment size
	Fish and algae (annually)

Date current sampling efforts in Southeast Alaska transboundary rivers started:

	USGS	Central Council of the Tlingit and Haida Indian Tribes of Alaska	Yakutat Tlingit Tribe	Taku River Tlingit First Nation
Alsek	May-2020	Jun-2018	Sep-2018	
Salmon	Mar-2020			
Stikine	May-2019	Nov-2015		
Taku	May-2019	Nov-2015		Oct-2019
Unuk	Jan-2018			
Ongoing sampling on SEAK Transboundary Rivers (date started to current)				

