

Tulsequah Chief Mine Update

BC-Alaska Transboundary Bilateral Working Group



Ministry of
Energy, Mines and
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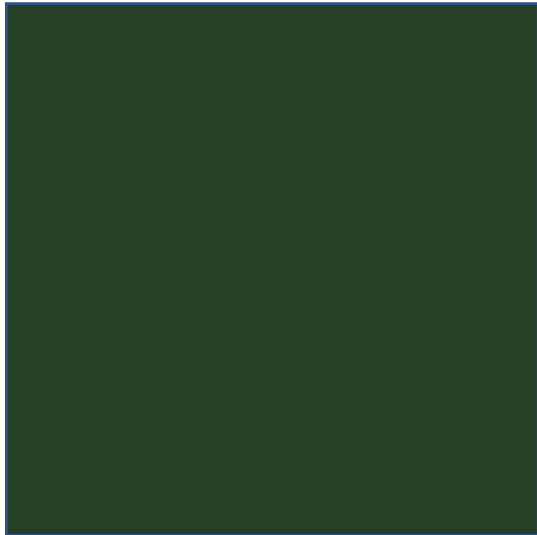


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May 19, 2021

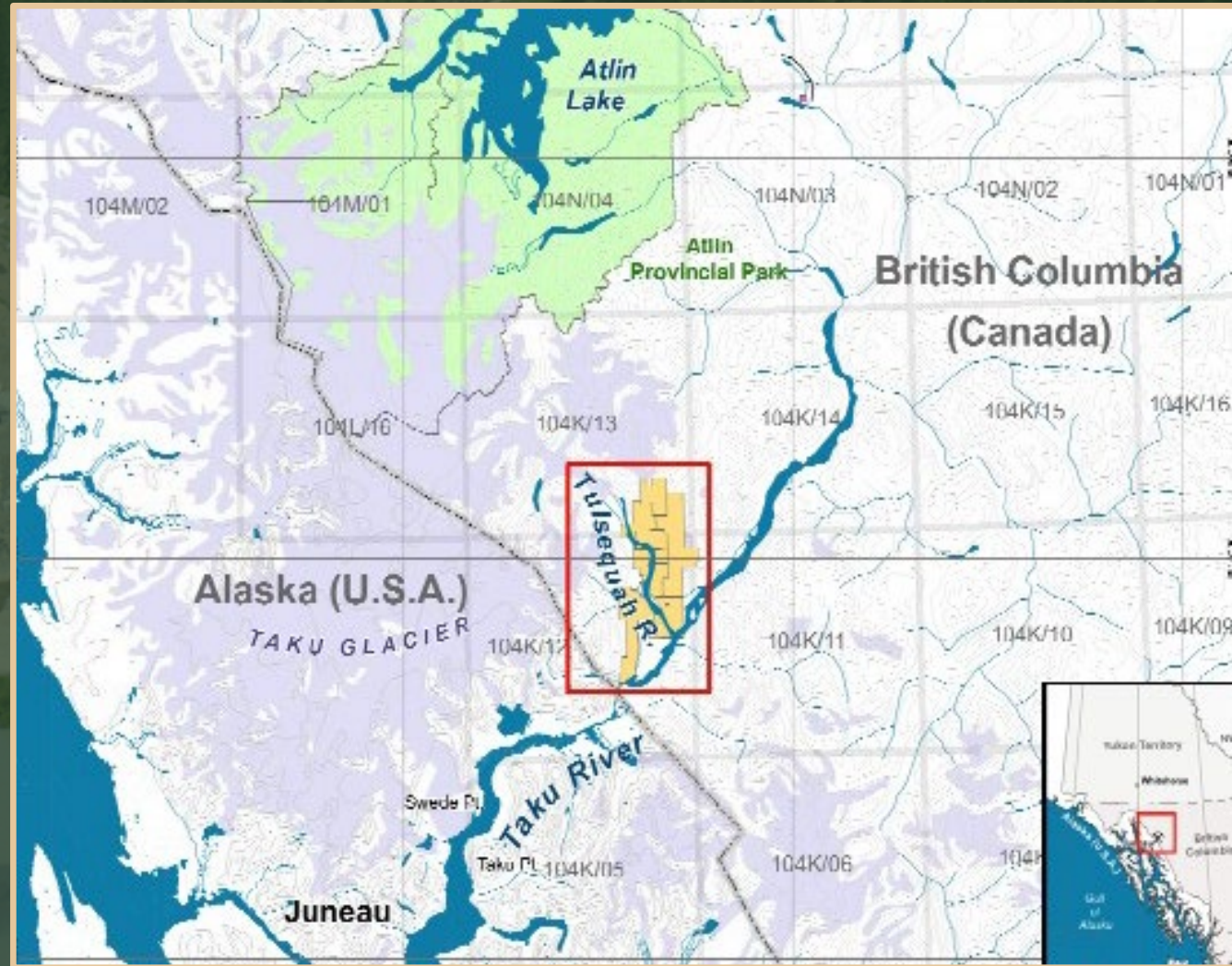


Tulsequah Chief Mine is located in the Tulsequah River Valley in the traditional territory of the Taku River Tlingit First Nation.



Presentation Overview

- Tulsequah Chief Mine
- Conceptual Closure and Reclamation Plan
- 2020/2021 Work Programs



Background

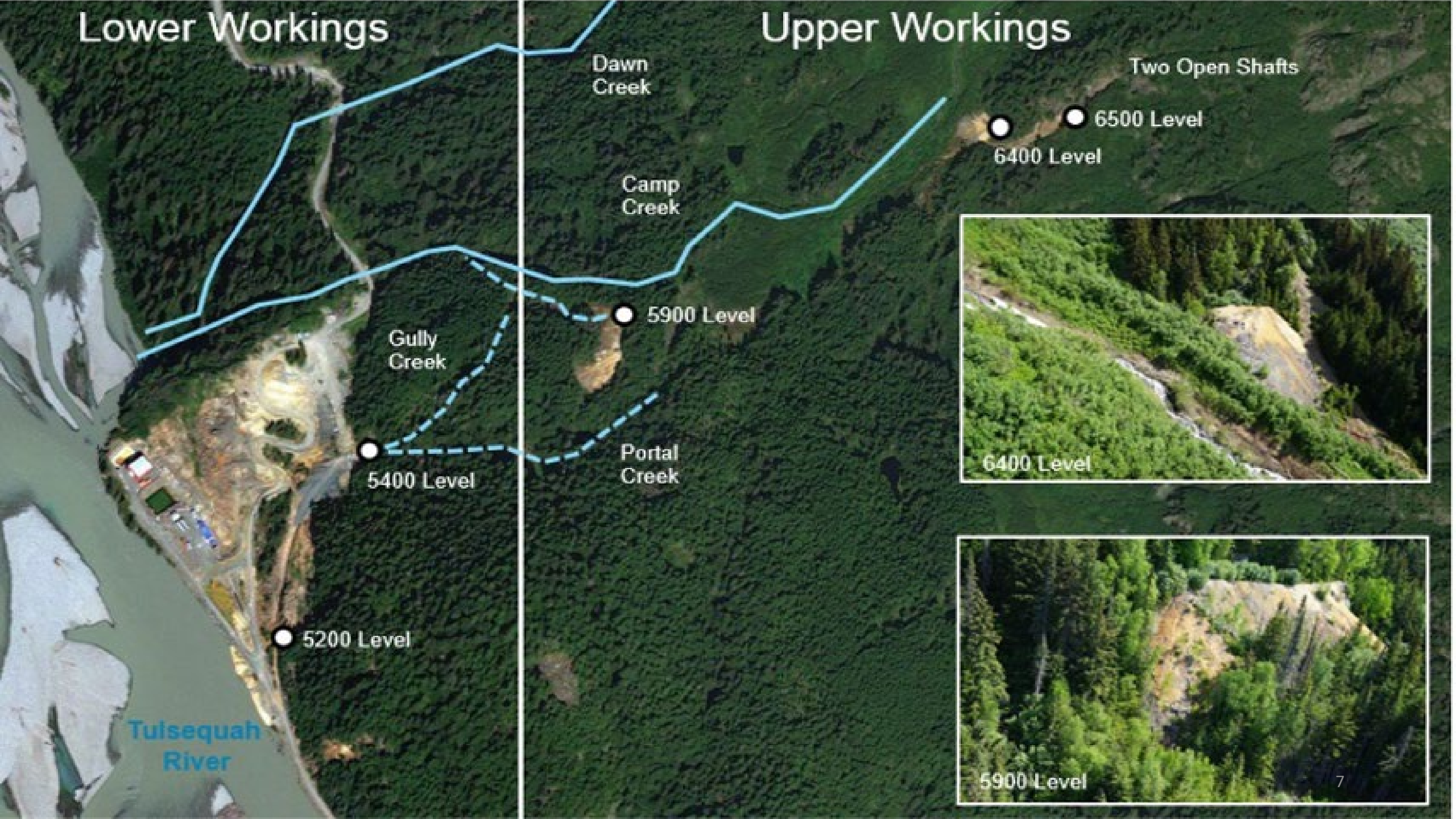
- **Tulsequah Chief Mine** is a relatively small underground mine that hosts a massive polymetallic sulphide deposit.
- Historically, between 1951-1957, the mine produced **~625K tons** of high grade ore. (0.11 oz/t Au, 3.69oz/t Ag, 1.59% Cu, 1.54% Pb and 7% Zn).





Lower Workings

Upper Workings



Dawn Creek

Two Open Shafts

6500 Level

6400 Level

Camp Creek

5900 Level

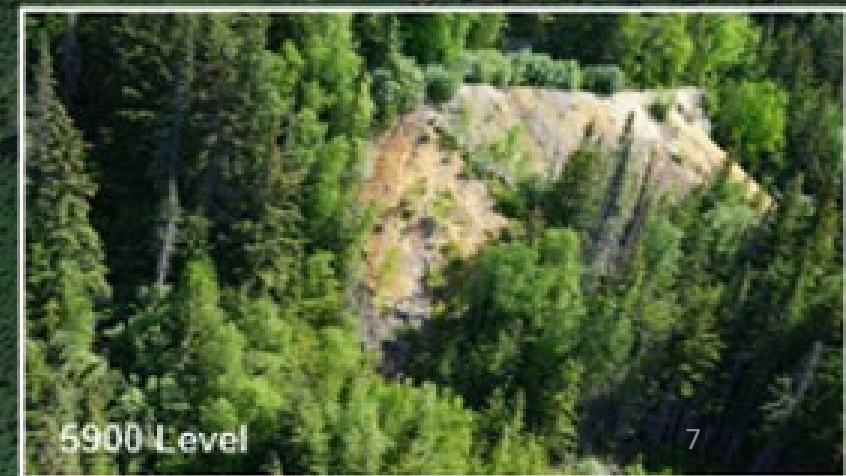
Gully Creek

Portal Creek

5400 Level

5200 Level

Tulsequah River





Site History

Original claims were staked, limited development by Alaska Juneau Gold Mine and then United Eastern Mining Company on two uppermost audits.

Cominco produced from both the Tulsequah Chief and Big Bull Mines (**1.0 M tons** combined).

Redfern commences pre-construction activities under a major mines permit which included remediation of historic waste rock (did not involve the underground).

Chieftain went into care and maintenance and in September **2016** a Receiver was appointed under the *Canadian Bankruptcy and Insolvency Act*.

1923

1946

1951-57

1985

2008

2009-
2010

2015-
2016

The Consolidated Mining and Smelting Company of Canada acquired the property (Cominco, Teck).

Redfern Resources Ltd. optioned the property from Cominco and later acquired full interest.

Redfern went into bankruptcy and in **2010** Chieftain Metals Inc. acquired the mine.

Recent Key Studies

- Alaska Dept. Fish and Game studies on metal concentrations in Dolly Varden (2012 & 2016)
- Aquatic Ecological Risk Assessments for the Tulsequah Chief Mine (2013 & 2017)
- BC-Alaska Joint Water Quality Data Report (2021)
- “Monitoring mining impacts and ecosystem change in the Tulsequah River: Interim summary of October 2019 field sampling results. (Preliminary results summary)” (*U of Montana and TRT, 2020*)





Conceptual Closure & Reclamation Plan¹

- With a receivership ongoing, BC used reclamation security funds to initiate reclamation planning.
- In February 2019 the Province retained SNC Lavalin and SRK consulting to develop a conceptual closure and reclamation plan for the mine. The report was completed in 2020.
- The plan was formulated based on historical review, field work and planning workshops with the Taku River Tlingit First Nation, Teck, Alaska Dept of Natural Resources, and technical consultants.

The Conceptual Plan:

- ✓ Uses a risk-based assessment lens for the whole mine site area
- ✓ Recognizes that long-term active water treatment is not likely a viable solution for the site given logistical challenges, and
- ✓ Outlines additional studies and work needed to further develop the plan

¹The plan was released in August 2020 and is available online.

Conceptual Closure & Reclamation Plan

The first phase of the plan focuses on implementing the achievable core risk reduction measures based on current knowledge. This includes:



Excavation of leachable waste rock from the river.



Consolidating waste rock, reducing exposure to contaminated soil.

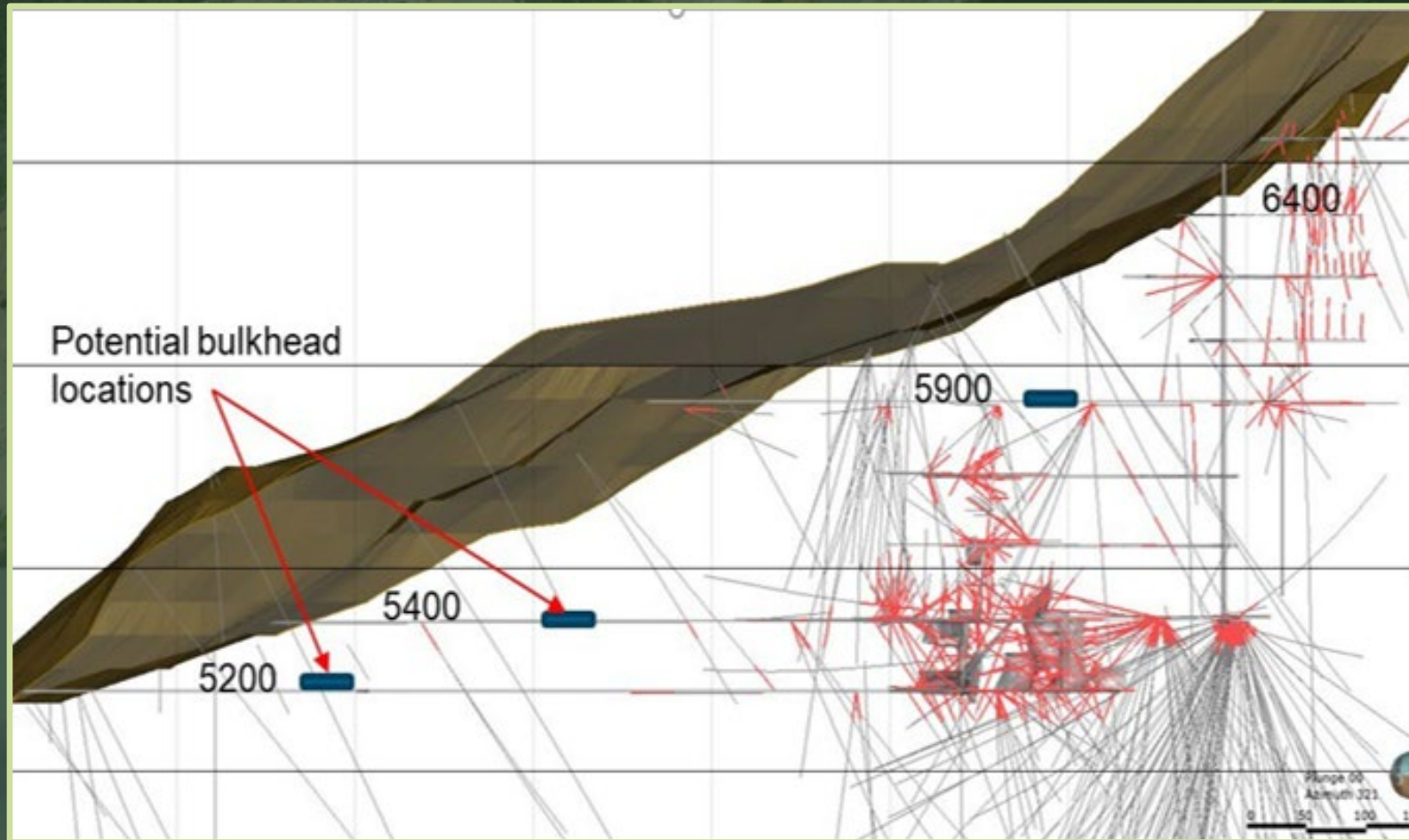


Reduce physical hazards by demolition and on-site landfilling of derelict buildings and equipment.



Sealing of openings (start flooding the underground).

Sealing of openings, flooding the underground

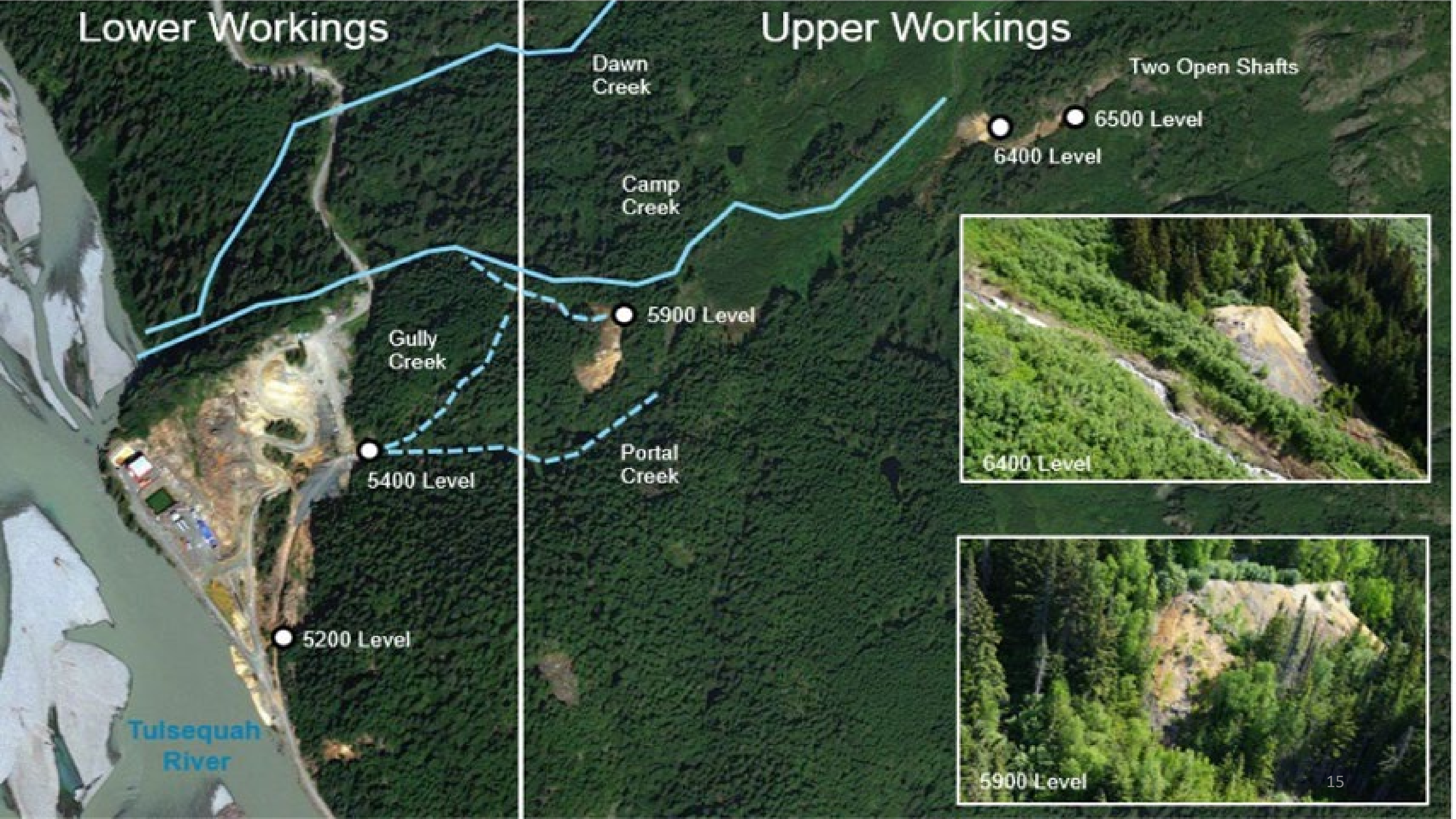


Raise/Shaft Caps



Lower Workings

Upper Workings



Dawn Creek

Two Open Shafts

6500 Level

6400 Level

Camp Creek

5900 Level

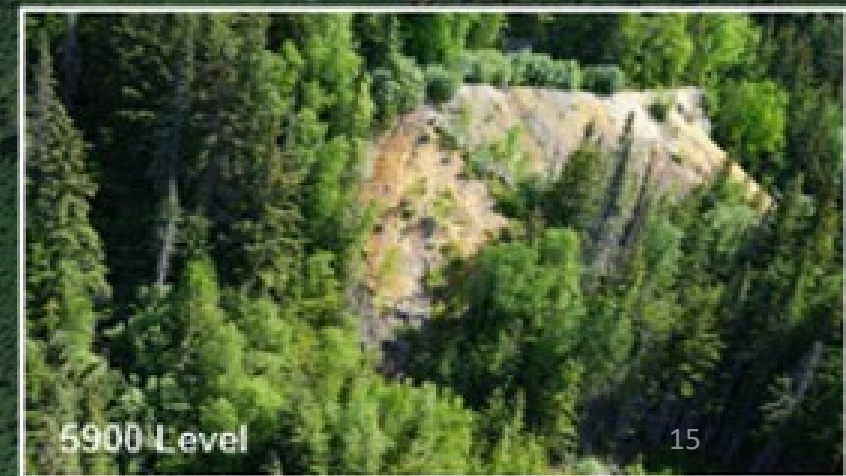
Gully Creek

Portal Creek

5400 Level

5200 Level

Tulsequah River



Work Program

(Summer 2020 & 2021)

BC is acting under section 17 of the *Mines Act* to initiate initial works identified in the conceptual reclamation plan. The work program includes:

- Road and bridge repairs (engineering surveys and designs).
- Erosion control for the airstrip.
- Conducted a readiness review of the existing active water treatment facility.
- LiDAR survey to support engineering designs with high quality elevation controls.





Water Quality & Aquatic Effects Monitoring Program

- In 2020, in collaboration with the Taku River Tlingit First Nation, BC also initiated a water quality and aquatic effects monitoring program.
- The objective of this five year program is to characterize water quality in the Tulsequah River downstream of the mine so that sufficient data is collected to:
 - assess temporal and seasonal trends in the Tulsequah River, and
 - Develop site specific objectives to support effectiveness monitoring of the remedial measures.

Summary



- B.C. is thankful for the collaboration with the Taku River Tlingit First Nation and engagement with Government of Alaska.
- Continuing initial works as set out in the conceptual reclamation plan this field season.
- Conceptual reclamation plan will be refined through acquisition and analysis of further information about site and water quality.
- Secured creditors have until August 2022 to apply for the re-appointment of a receiver in the receivership proceedings.
- Funds expended to undertake this work form a lien on the property.

Thank You



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