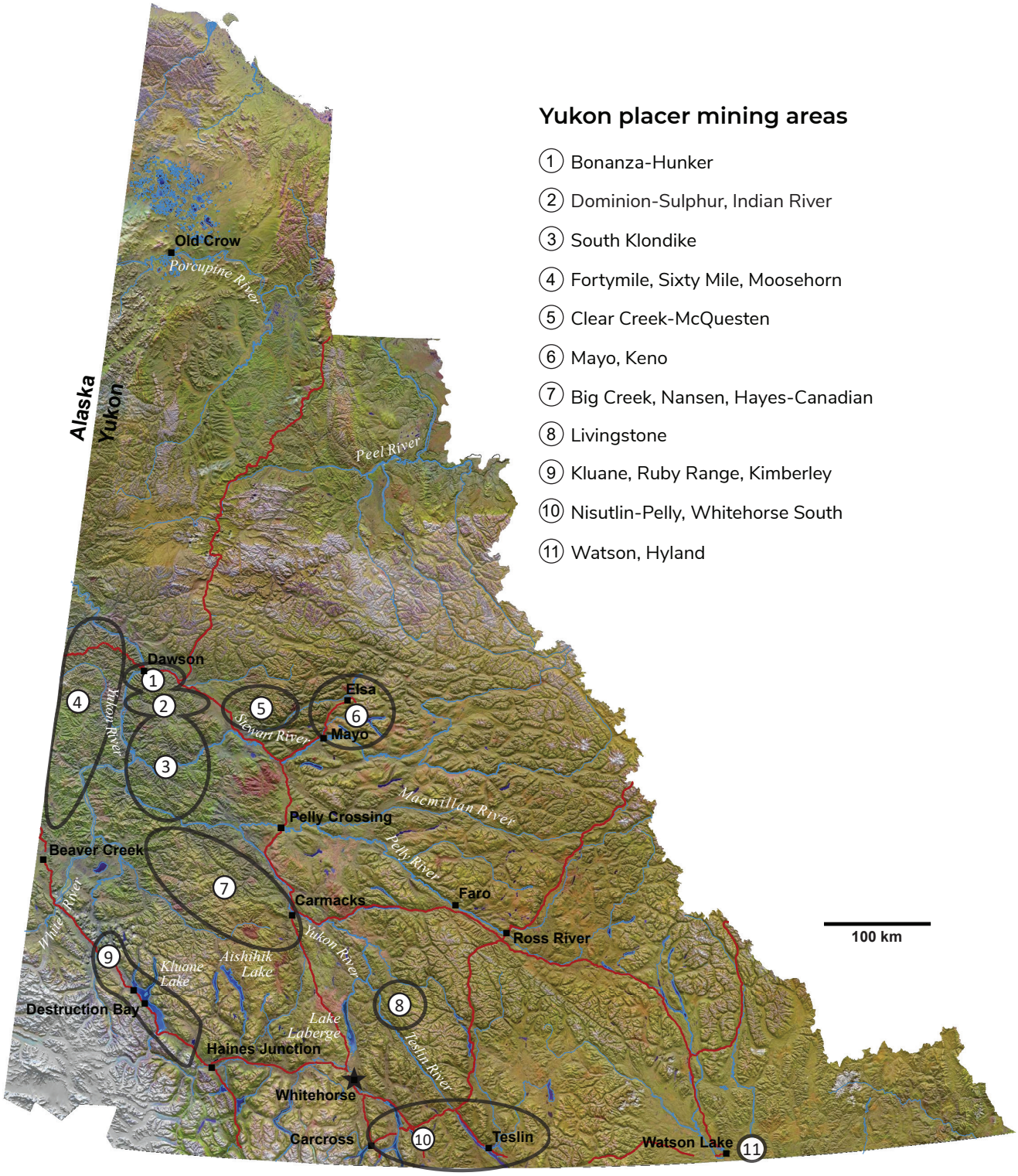


Yukon Placer Mining Industry

2021 to 2023

Yukon



Yukon placer mining areas

1. Bonanza-Hunker
2. Dominion-Sulphur, Indian River
3. South Klondike
4. Fortymile, Sixty Mile, Moosehorn
5. Clear Creek-McQuesten
6. Mayo, Keno
7. Big Creek, Nansen, Hayes-Canadian
8. Livingstone
9. Kluane, Ruby Range, Kimberley
10. Nisutlin-Pelly, Whitehorse South
11. Watson, Hyland

Yukon Placer Mining Industry

2021 to 2023

S. van Loon

Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon

Published under the authority of the Department of Energy, Mines and Resources, Government of Yukon

Printed in Whitehorse, Yukon, 2025

Publié avec l'autorisation du Ministères de l'Énergie, des Mines et des Ressources du gouvernement du Yukon,

Imprimé à Whitehorse (Yukon) en 2025.

© Department of Energy, Mines and Resources, Government of Yukon

ISSN 1925-285X (Print)
ISSN 2561-3081 (Online)

This, and other Yukon Geological Survey publications, may be obtained from:

Yukon Geological Survey
102-300 Main Street
Box 2703 (K-102)
Whitehorse, Yukon, Canada Y1A 2C6
email geology@gov.yk.ca

Visit the Yukon Geological Survey web site at https://yukon.ca/en/science-and-natural-resources/geology

In referring to this publication, please use the following citation:

van Loon, S., 2025. Yukon Placer Mining Industry 2021 to 2023. Yukon Geological Survey, Government of Yukon, 269 p.

Front cover: Drone image of Yukon Mining Ventures Ltd.'s operation on Ross Creek in 2023. Ross Creek is located in the Clear Creek-McQuesten placer mining area. The view is looking downstream or to the northwest.

Inside front cover: Map of placer mining areas of the Yukon.

Inside back cover: A map illustrating the maximum extent of glaciation in the Yukon.

Back cover: A. Hollis holding a test pan in 2023 from a high-level White Channel gravel deposit from his property on Bonanza Creek.

Introduction

The Yukon Geological Survey (YGS) is pleased to present the Yukon Placer Mining Industry 2021 to 2023 report. This report is a compilation of the collaborative efforts of the YGS and the Yukon placer mining community from 2021 to 2023. It stands as a testament to the strength of an industry that has been central to the Yukon's economy for over 125 years since the Klondike Goldrush. This is the 13th issue of the Yukon Placer Mining Industry report since its inception in 1978. This issue comes at a time of continual strong placer gold production driven by high gold prices and increasingly sophisticated large-scale operations—a key component of Yukon's economy amid global economic uncertainty. While gold production remained steady through the reporting period—reaching its highest production revenue of C$270M since 1886—the placer industry faces significant challenges, including a shifting political landscape, the ongoing development of new regional land use plans, and increasing regulatory challenges. The future of the placer mining industry will rely on maintaining collaborative relationships between industry, government, Yukon First Nations, researchers and the public. While the increasing pressure on the industry presents its challenges, the YGS believes that the industry's hard work, ingenuity and commitment to a better future will enable it to adapt to the evolving landscape and continue contributing to a diverse and thriving northern economy.

Between 2021 and 2023, YGS staff visited 130 placer operations. Where YGS staff were unable to visit a mine during this period, production data and operational details were compiled from multiple sources, including WATERLINE (Yukon Water Board, 2025) and the Yukon placer database (Yukon Geological Survey, 2010), as well as unpublished data from the Yukon Mining Recorder and inspection reports from natural resources officers. These sources incorporate information gathered through inspections as well as data reported by operators and owners; it is important to note they may not capture all site-specific variations in production and operations.

Yukon Geological Survey activities 2021 to 2023

During the reporting period, the YGS has continued to support the placer mining industry through ongoing research, data compilation, communication and exploration funding. A summary of these activities is provided below:

Placer geology research

From 2021 to 2022, Jeff Bond (formerly of YGS) completed a study examining the glacial history and geological setting of placer gold at Big Creek and Josephine Creek. The results of this study were presented at the 2021 Yukon Placer Forum.

Jessi Steinke (Saskatchewan Geological Survey) completed a MSc thesis of the Quaternary history and placer geology of Granite Creek supervised by Brent Ward (Simon Fraser University) and Jeff Bond. Results of her fieldwork were presented in Yukon Exploration and Geology 2021 (Steinke et al., 2022).

Sydney van Loon initiated a new study in 2021 focused on lower Dominion Creek. The idea of remining dredge tailings is gaining momentum in the Klondike, and the local discovery by some miners of 'pockets' of in-situ gravel deposits in valley bottoms adds to the appeal. The intent of van Loon's study is to identify sites where historic dredge operations have left behind in-situ gravel deposits; the challenge is that valley bottoms are covered with dredge tailings. This pilot study was chosen for lower Dominion Creek due to the availability of a robust dataset of historic placer mining activities (Historic placer data - https://yukon.maps.arcgis.com/apps/webappviewer/index.html?id=33eb829c5f9d495894732443e2fbc319), enabling her to leverage drill records, dredge specifications and ground condition information. This data will be integrated with field observations on the characteristics of material in the dredge piles (e.g., the presence or absence of a matrix), and lidar imagery to see whether technogenic deposits can be mapped. Preliminary results of the study were presented at the 2022 Yukon Placer Forum.

Yukon Placer Forum

The annual Yukon Placer Forum is hosted each year in Whitehorse with a one-year hiatus during the COVID-19 pandemic. The Yukon Placer Forum continues to be a well-attended event where a wide variety of invited speakers present to approximately 100 members of the placer mining community. Speakers in past years included placer miners, geologists, regulators and the Klondike Placer Miners Association. Feedback on presentation topics is always appreciated, and we encourage anyone interested in sharing their knowledge to consider speaking at upcoming events.

Yukon Mineral Exploration Program

From 2021 to 2023, the Yukon Mineral Exploration Program (YMEP) distributed C$4.2M in grants to exploration projects. These grants included 54 placer projects over that period. We encourage the placer industry to leverage this support for their upcoming exploration projects.

Acknowledgments

The Yukon Placer Industry report would not be possible without the support of the entire Yukon placer mining industry. We would like to thank all our industry clients that have shared their experiences and details of their mining operations with us. It is this sharing of knowledge that continues to improve the practices of industry.

The Yukon Placer Mining Industry 2021 to 2023 report was written by Sydney van Loon. This report is a testament to the countless hours Syd has spent visiting placer mines, answering phone calls, scouring databases and compiling field notes. Syd has become a key figure in the placer community and her strong relationships with miners across the territory are invaluable to the YGS and the placer mining community as a whole.

We would like to thank Leyla Weston, Amy Stuart and Purple Rock Inc. for their efforts with the review, edit and layout of this publication. Their hard work and dedication to quality are reflected in this report.

Finally, we would like to thank Jeff Bond for his final contributions to this volume and for his many years of dedicated service to the industry; we congratulate him on his retirement from the Yukon Geological Survey. Jeff's work over the years has had a lasting impact on so many in the industry. Jeff has been a strong advocate for using science to improve both placer gold production and reclamation practices, which enhances the economics of placer mining while reducing its environmental impact. Jeff has shared his knowledge and passion for placer geology with so many over the years that his impact will continue to resonate for generations to come. We are all richer for his decades of service.



Derek Cronmiller

Head, Surficial Geology
Yukon Geological Survey
Energy Mines and Resources
Government of Yukon

In memoriam

We recognize and honour the contributions of those who have played a significant role in shaping the Yukon's placer mining industry. Their invaluable contributions, kindness and dedication made a lasting impact, and we are grateful for the time we shared with them. The people we work with bring meaning to our days, making our lives richer in countless ways. Though they may be gone, their influence continues to inspire us, and their memory remains a cherished part of our community. While not exhaustive, the following list serves as a tribute to their lasting legacy, and we apologize for any omissions.

Angus Woodsend, Fortymile, spring 2022

Benjamin Bermiller, Klondike, September 2021

Ben Warnsby, Klondike, July 2023

Boyd Gillis, Klondike, November 2023

Bruce Wheeler, Nansen area, March 2022

Cam Arkinstall, Bonanza Creek, May 2022

Camelia Ann (Cam) Sigurdson, Bonanza Creek, September 2021

David Gould, Hunker, November 2023

David Johnson, Eldorado & Bonanza, February 2023

Dave Laurenson, Klondike, November 2021

Eric Gardener, Adams Creek, April 2022

Erich Rauguth, Klondike, winter 2022

Eugene Curley, Nansen, May 2022

Gerald William Klein, Klondike, February 2023

Jim Davies, Granite Creek, August 2023

John Gow, Freegold area, 2022

Josh Mellor, service provider, September 2021

Larry "Cowboy" Smith, Mayo and Klondike area, April 2021

Nelson Mervyn Harper, Clear Creek, July 2022

Norm Ross, Dominion Creek, summer 2022

Peter Jenkins, service provider, October 2021

Ray Lizotte, service provider, spring 2022

Rodney Hunt, Clear Creek, 2023

Ron Holway, Haggart Creek, June 2023

Ted Tullis, Nansen/Freegold area, March 2023

Tex Fosbery, Sixty Mile River, January 2023

Contents

Yukon placer mining industry **1**

Summary of mining operations, 2021 to 2023 ..... **11**

Bonanza-Hunker 13
Dominion-Sulphur 75
Indian River 101
South Klondike 121
Fortymile 147
Sixty Mile 157
Moosehorn 173
Clear Creek-McQuesten 177
Mayo 193
Keno 203
Big Creek 215
Nansen 221
Hayes-Canadian 229
Livingstone 233
Kluane 237
Ruby Range 243
Kimberley 249
Nisutlin-Pelly 253
Whitehorse South 257

References **261**

Fineness of Yukon placer gold **263**

Conversions and equivalents **266**

Index **267**

Yukon placer mining industry, 2021 to 2023

An overview of activity and production

Introduction

From 2021 to 2023, the Yukon's placer mining industry displayed resilience and strength. Despite pandemic-related challenges in 2021, production remained high with new outputs from previously inactive creeks. In 2022, the industry maintained robust performance with over 70 000 crude ounces produced for the sixth consecutive year. Most operations were concentrated in the Dawson area, with significant contributions from central and southern Yukon. By 2023, favourable conditions, rising gold prices and extended sluicing seasons led to strong production. The Dawson Mining District accounted for 89% of the total production, followed by Mayo (7%) and Whitehorse (4%) mining districts. Rising gold prices provided a financial buffer against fluctuating diesel costs, helping to sustain economic viability. The number of active operations, defined as those who are consistently sluicing, remained stable at 155 in 2021, 147 in 2022 and 146 in 2023.

Lease and claim activity

Varying trends emerged in placer claim and prospecting lease activity across the four Yukon mining districts from 2021 to 2023 (Figs. 1 and 2). Figure 1 displays a general increase in the number of placer claims staked in the Yukon from 2004 to 2023, with notable peaks in 2016, 2017 and 2018, followed by fluctuating, but relatively high activity in subsequent years. A similar trend is noted in Figure 2, which illustrates a relatively stable number of placer prospecting leases staked in the Yukon from 2004 to 2023, with a significant spike in 2016, followed by a gradual return to consistent levels in subsequent years. The Dawson Mining District, despite being the region with the highest activity, experienced a 4% decline in placer claims staked from 2021 to 2022 (from 1083 to 1039 claims). However, this was followed by an 8% increase in 2023 of 1123 claims staked. Claims in good standing steadily rose by 4.5% to 19 921 placer claims in good standing in 2023. Leases staked in the Dawson Mining District increased by 23%, from 64 placer leases staked in 2021 to 79 in 2023, with leases in good standing remaining stable at 125. The Mayo Mining District experienced a 34% decrease in placer claims staked from 445 in 2021 to 327 in 2022, followed by a 25% rebound to 409 in 2023. Placer claims in good standing grew by 11% to 4517, whereas placer leases staked fluctuated, ending with a 24% drop from 34 to 26. Placer leases in good standing also decreased by 33%, from 49 to 33. In the Whitehorse Mining District, placer claims staked surged 134%, from 204 placer claims staked in 2021 to 478 in 2023, and placer leases staked rose by 78%, from 32 to 57. Placer claims in good standing fluctuated slightly, ending with a modest 0.5% increase at 5652 placer claims in good standing; leases in good standing rose by 17% to 48. The Watson Lake Mining District showed a decline in placer claims staked, decreasing from 35 placer claims staked in 2021 to just 1 in 2023, which was a 97% drop. However, placer claims in good standing increased to 30 by 2023. The Watson Lake Mining District had no placer leases staked, nor did the district have any placer leases in good standing during this period.

Overall, the Yukon underwent a 13% increase in placer claims staked across all four mining districts for the three year reporting period. There were 1767 new placer claims staked in 2021. There was a slight decrease in new placer claims staked in 2022 with 1607 claims staked, followed by a 25% annual increase in 2023 to a total of 2011 claims staked. Placer claims in good standing increased by 5% over the three years, reaching 30 120 in 2023 (Fig. 3). The number of placer leases staked varied, resulting in an 11% decrease in 2022 but a 40% increase in 2023, with leases in good standing increasing slightly by 1.5% to 206 (Fig. 4).

Gold price and local diesel prices

Over the past five years, the price of gold in Canadian dollars has shown notable fluctuations. In 2019, the average price of gold per ounce was $1930.95, increasing significantly to $2506.24 per ounce in

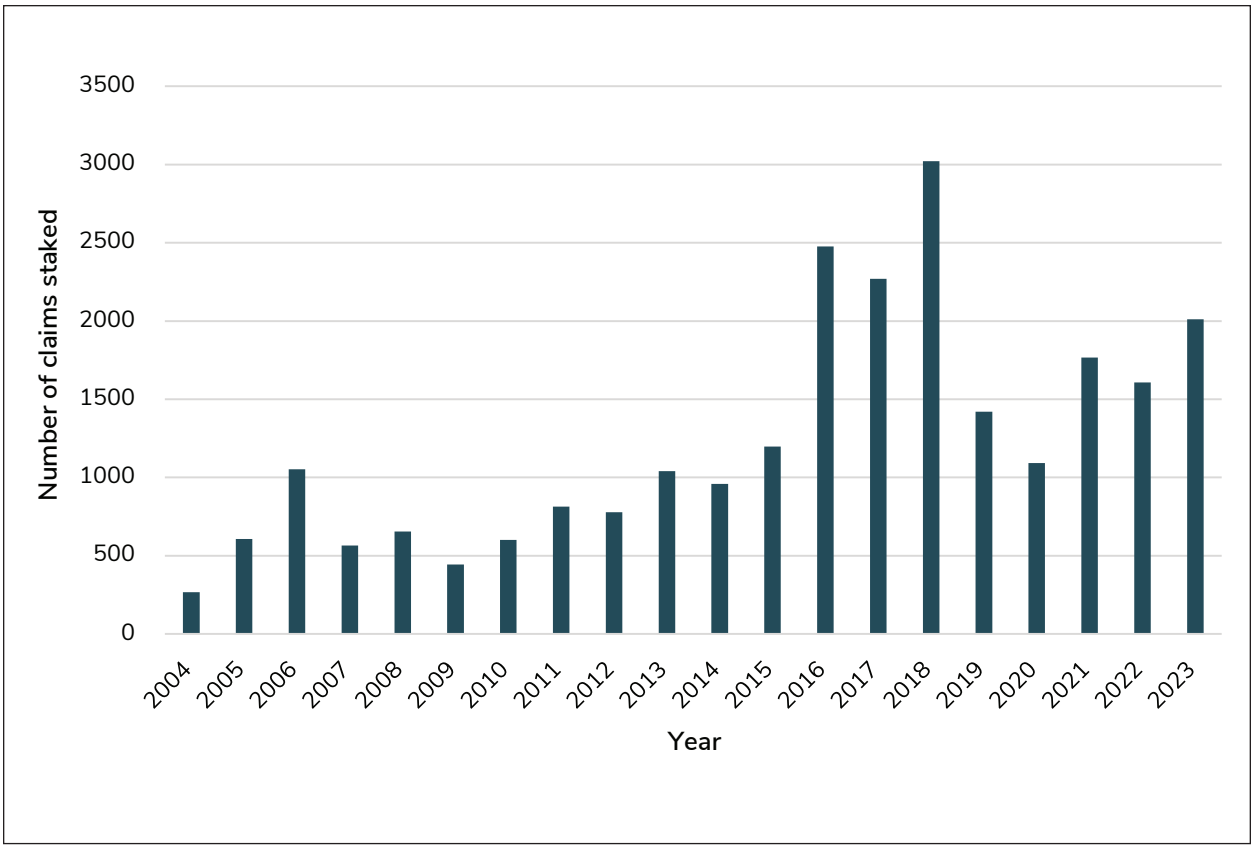


Figure 1. *Yukon placer claims staked from 2004 to 2023.*

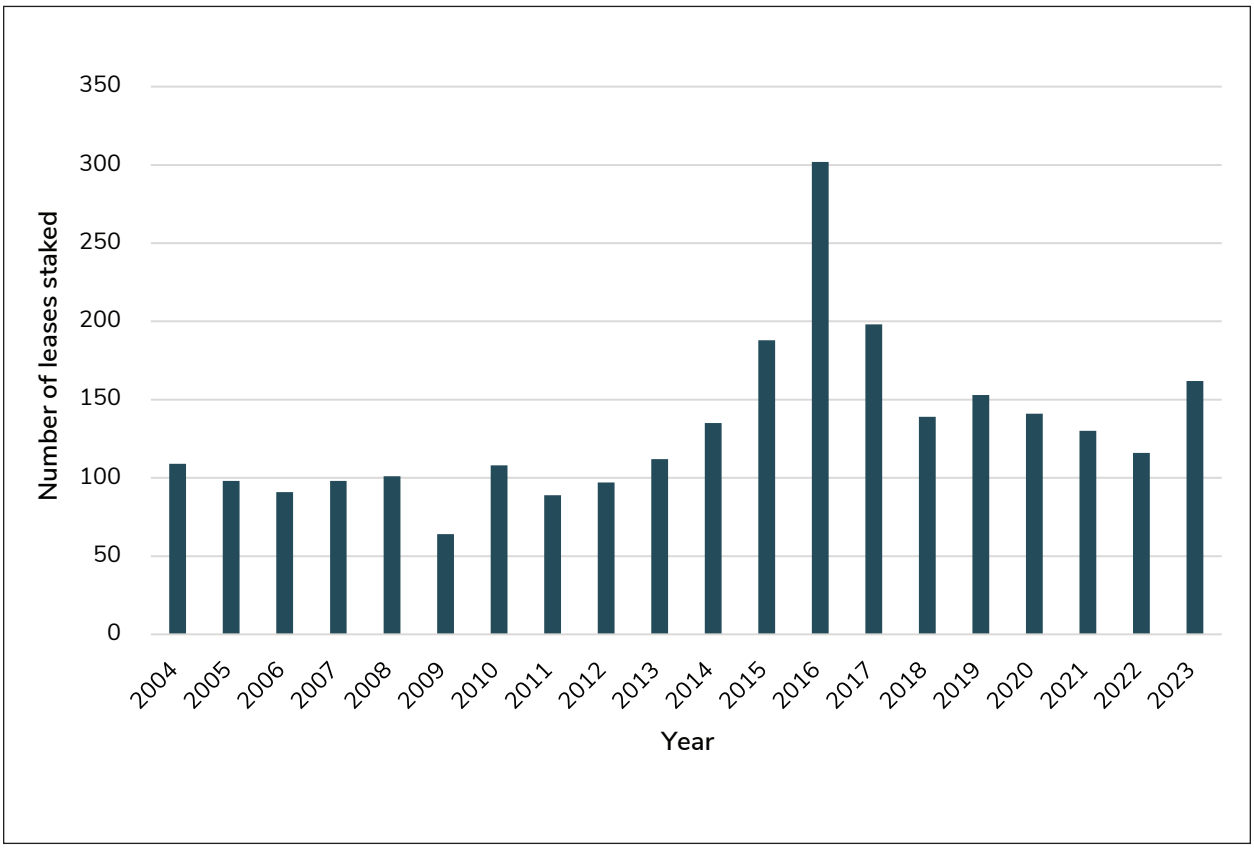


Figure 2. *Yukon placer leases staked from 2004 to 2023.*

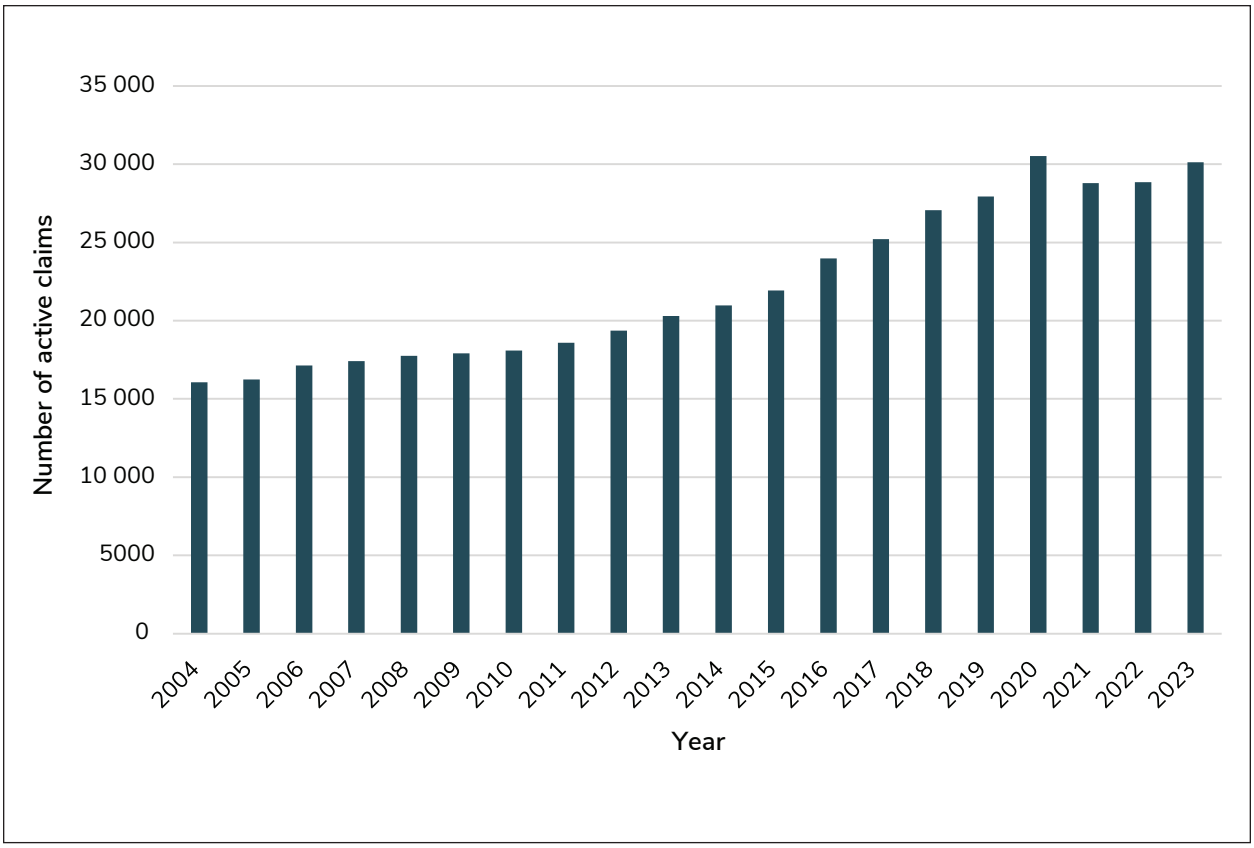


Figure 3. *Yukon placer claims active from 2004 to 2023.*

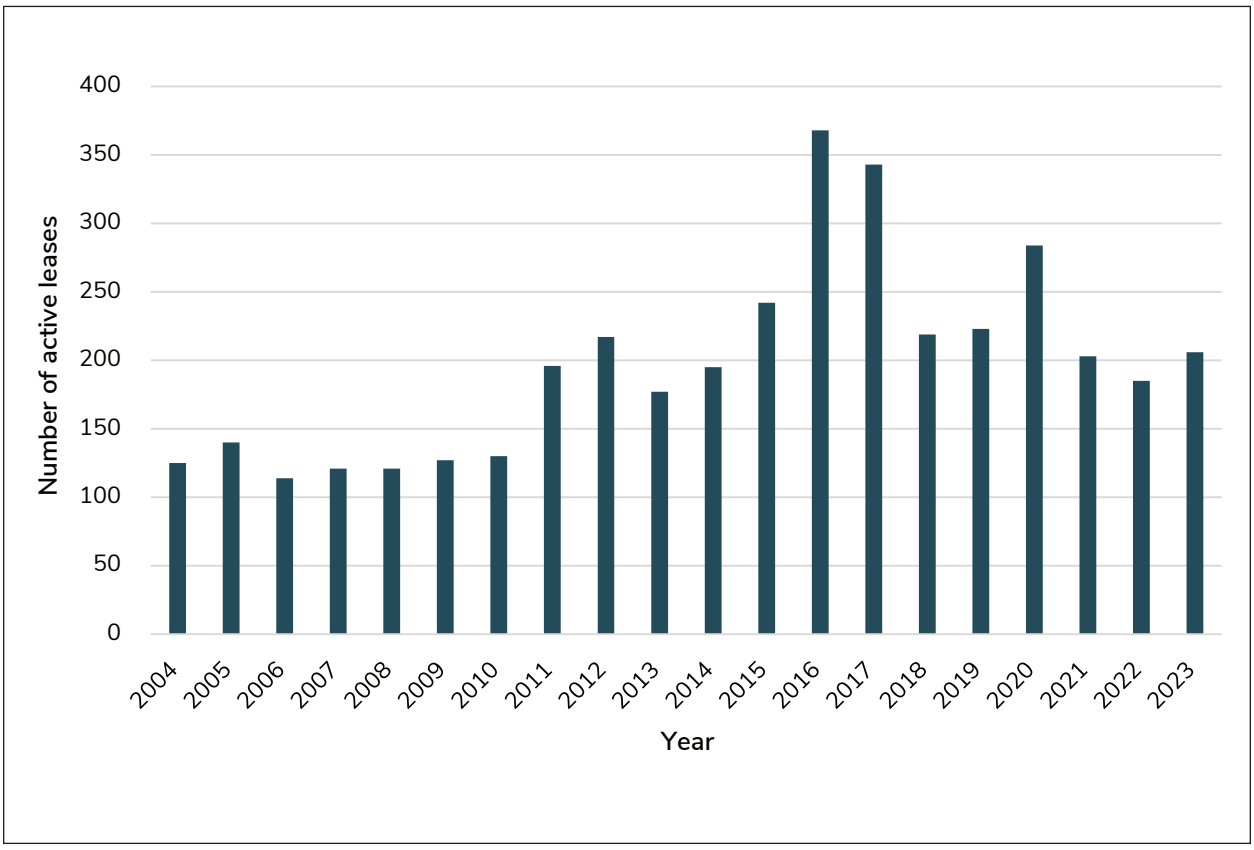


Figure 4. *Yukon placer leases active from 2004 to 2023.*

2020. The price of gold slightly decreased to $2243.76 per ounce in 2021 but rose again to $2335.67 per ounce in 2022. By 2023, gold prices reached a new peak at $2620.27 per ounce. Overall, despite year-to-year variability, the trend in gold prices has been upward (Fig. 5). Specifically, over the past three years, the average price of gold increased from $2243.76 per ounce in 2021 by approximately 4.1% to $2335.67 per ounce in 2022, and then by about 12.2% to $2620.27 per ounce in 2023.

The average price of diesel in Whitehorse has also demonstrated a long-term upward trend, with notable fluctuations. After steady growth from 2009 to 2014, the price of diesel declined through to 2016 before gradually rising again, culminating in a sharp spike between 2021 and 2022, and followed by a slight decrease in 2023 (Fig. 6). In 2021, diesel prices rose 24.2%, from 124.2 cents per litre in January to 154.3 cents per litre in November, showing a relatively stable but gradual increase throughout the year. In 2022, prices rose by 25.1% to 191.9 cents per litre in March, and peaked at 233.1 cents per litre in June (a 51% increase), before falling to 206.3 cents per litre in December. This resulted in a high average diesel price for 2022 due to significant mid-year spikes. In 2023, prices started at 211 cents per litre, dropped by 14.9% to 179.6 cents per litre by July, and ended at 192.4 cents per litre in December, reflecting an 8.8% decrease for the year.

The placer mining industry was significantly impacted by the fluctuating diesel price. The price of diesel increased steadily in 2021, spiked in 2022, and began to stabilize in 2023, raising operational costs, affecting profit margins and impacting strategic decisions within the mining sector. Conversely, high gold prices helped sustain the economic viability of placer mining operations, offsetting some of the increased expenses due to higher fuel costs.

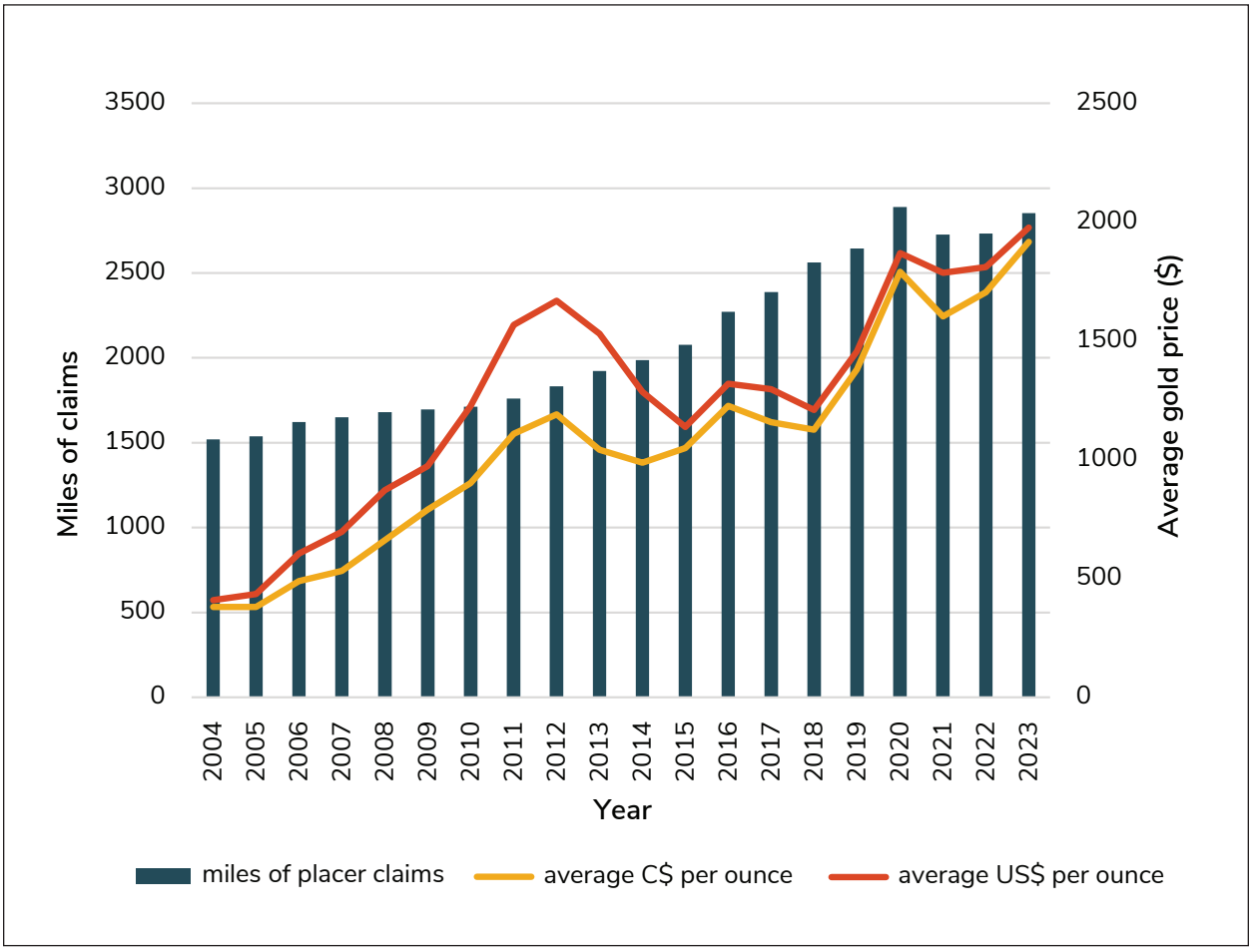


Figure 5. *Miles of active placer claims held versus average gold price in Canadian and US dollars from 2004 to 2023.*

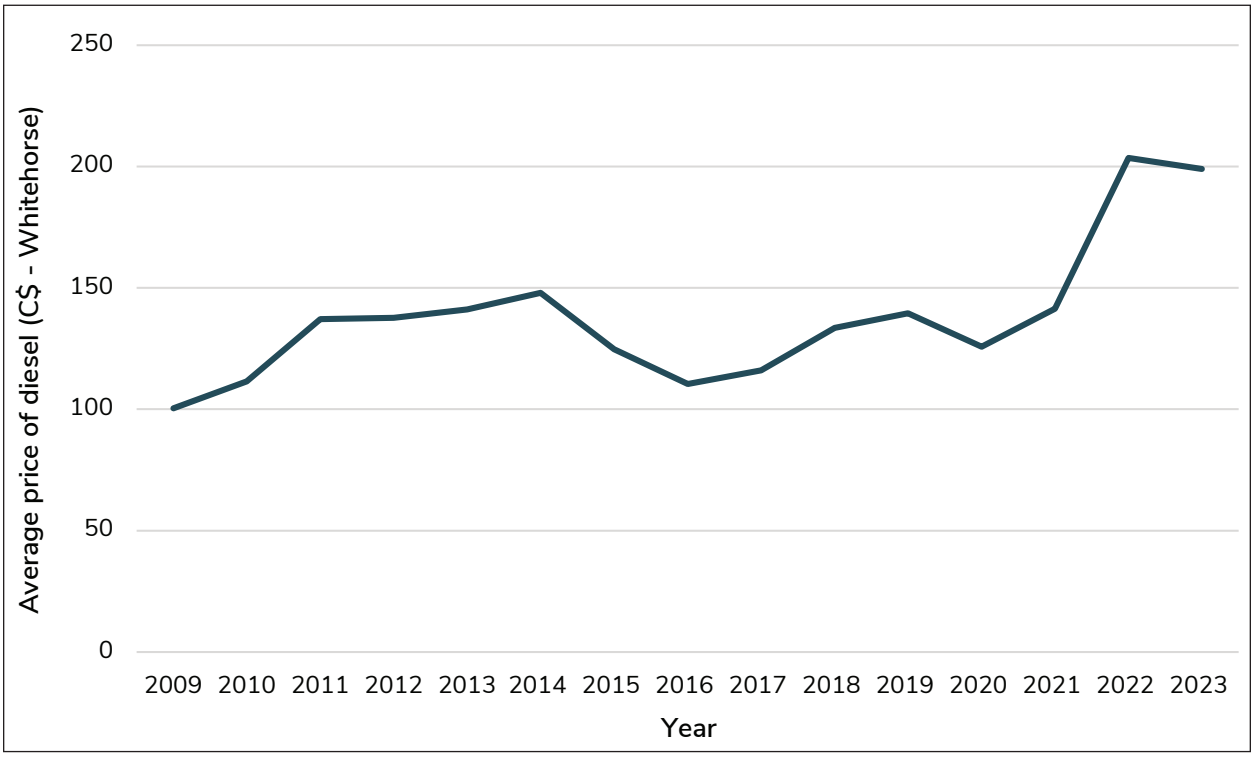


Figure 6. *Average price of diesel in Whitehorse in Canadian dollars from 2009 to 2023.*

Yukon placer gold production

The estimated total Yukon placer gold production from 1886 to 2023 is 17.7 million crude ounces. The three highest reported placer gold production years are 1900 with 1 346 938 crude ounces reported, 1901 with 1 088 438 crude ounces reported, and 1899 with 967 500 crude ounces reported. In the last twenty-eight years (1995 to 2023), the three highest reported production years are 2020 (86 508 crude ounces), 2021 (80 484 crude ounces) and 2019 (77 851 crude ounces). As indicated in Figure 7, placer gold production in the Yukon has fluctuated over time, while production value has trended upward. Crude gold ounces declined from 2004 to 2011 before gradually recovering, whereas production value increased steadily, with a sharp rise after 2019, reflecting changes in gold prices and economic conditions.

Placer gold production in the Yukon has remained resilient despite fluctuations in output, with gold prices playing a key role in sustaining industry revenue (Table 1). Figure 8 illustrates the relationship between crude ounce gold production and average gold prices from 2014 to 2023, showing stable production levels alongside a significant rise in gold prices, particularly after 2019. From 2021 to 2023, Yukon placer gold production remained robust although varying in annual outputs. In 2021, the reported placer production was 80 510 crude ounces, generating C$144.5M in revenue with an average gold price of C$1787 per ounce. This marked the fifth consecutive year of exceeding 70 000 crude ounces, highlighting the industry's stability even amidst rising costs. Growth was evident with new production from Twelve Mile Creek and the resumption of activity in several dormant creeks. In 2022, production increased to 82 655 crude ounces, with revenues climbing to C$157.8M at an average gold price of C$1810 per ounce. Most of the production came from west-central Yukon, particularly the Indian River placer mining area. However, in 2023, production dipped to 73 823 crude ounces, translating to C$158.4M in revenue with gold prices averaging C$1978 per ounce. Although production decreased by 11% in 2023, the strong gold price resulted in a slight increase in revenue. Less gold is required to match the value as the gold price increases, providing a favourable mining landscape for the industry. The majority of the production continued to come from the Dawson Mining District, specifically the Indian River placer mining area. Overall, strong gold prices and ongoing exploration efforts have supported consistent production levels and sustained the industry's economic contributions throughout the 2021 to 2023 reporting period.

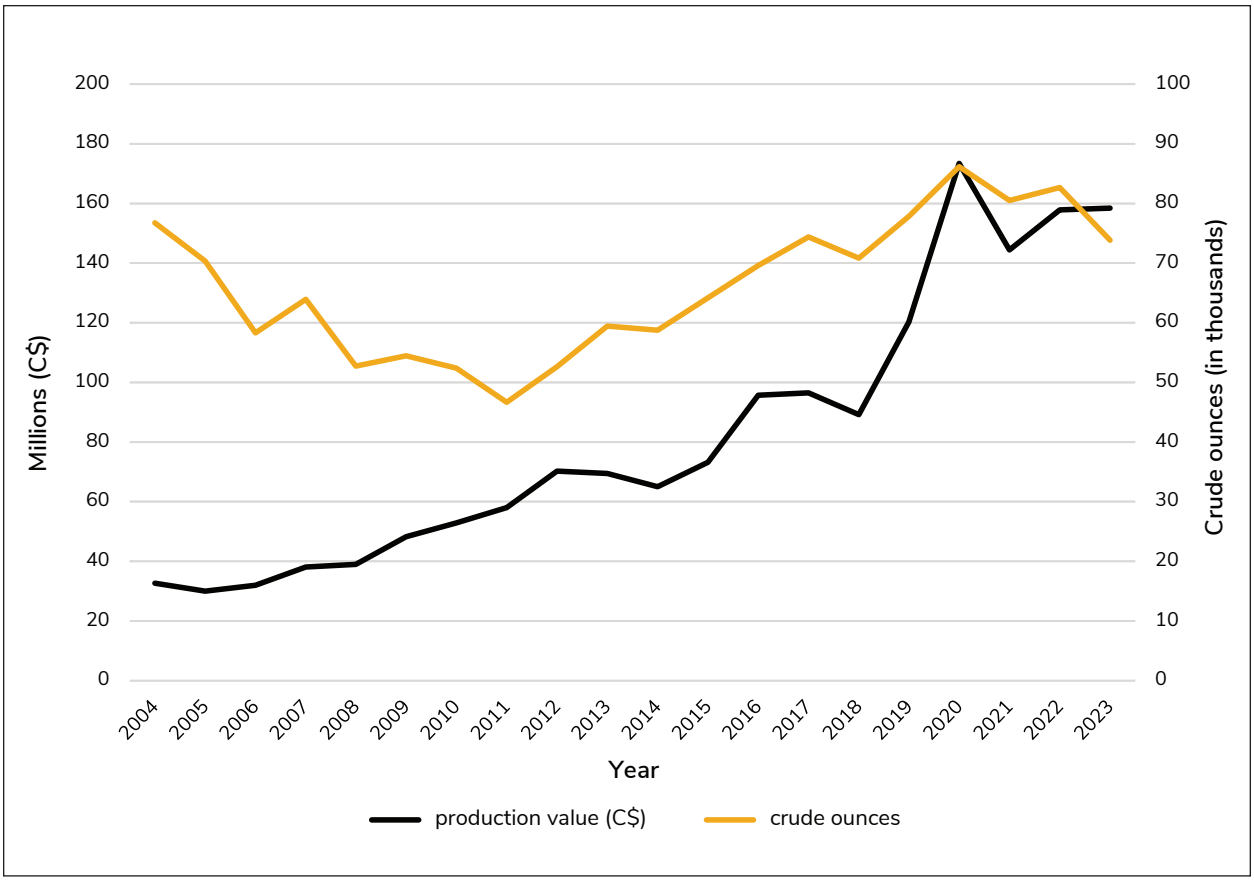


Figure 7. *Yukon placer gold production value versus average gold price in Canadian dollars from 2004 to 2023.*

Table 1. *Yukon placer gold production according to royalty reporting for the period 2020 to 2023.*

Year	Ounces (crude)	Ounces (fine @ 0.80)	Average gold price (C$)	Production value (C$)
2020	86 170	68 936	1869.80	172.8 million
2021	80 510	64 408	1786.69	144.5 million
2022	82 655	66 124	1810.31	157.8 million
2023	73 823	59 058	1977.72	158.4 million

Regional production

From 2019 to 2023, placer gold production in the Yukon varied across the eleven placer mining areas (Fig. 9). Indian River placer mining area remained the highest-producing region, peaking in 2022 before declining in 2023. Klondike River placer mining area experienced minor fluctuations but remained stable. The South Klondike placer mining area maintained steady production with a slight decrease in later years. The Fortymile/Sixty Mile/Moosehorn and Whitehorse South placer mining areas exhibited consistent output, while Clear Creek-McQuesten placer mining area peaked in 2020 before declining. The Mayo/Keno placer mining area remained stable at lower levels, and the Big Creek/Nansen/Hayes-Canadian placer mining areas increased in 2020 before leveling off. The Kluane/Ruby Range/Kimberley and Livingstone placer mining areas recorded the lowest production with minimal variation.

The Bonanza-Hunker placer mining area consistently ranked as the second highest placer gold-producing area in the Yukon. In 2021, it reported 15 773 crude ounces, accounting for 20% of the Yukon's total production, with major contributions from Paradise Hill (4156 crude ounces), Lovett Hill (2734 crude

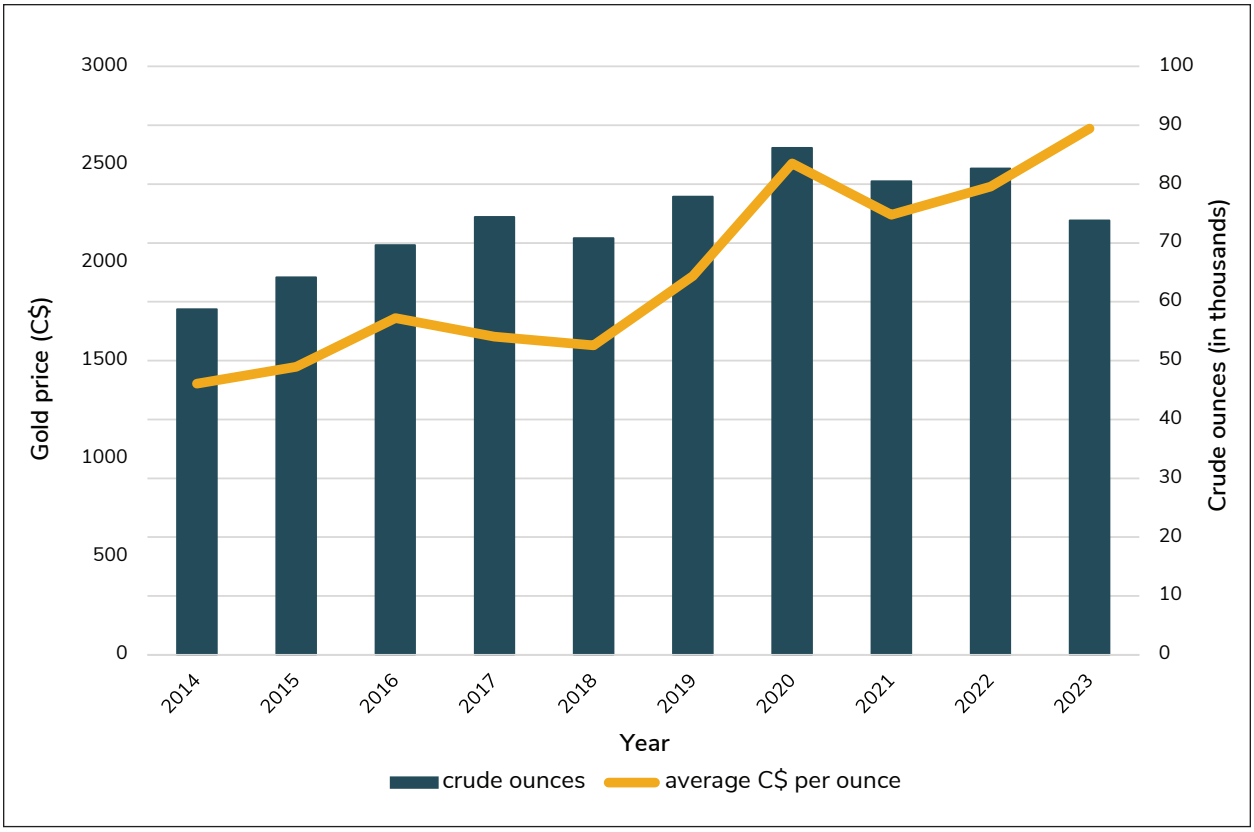


Figure 8. *Reported Yukon placer gold production versus average gold price in Canadian dollars from 2014 to 2023.*

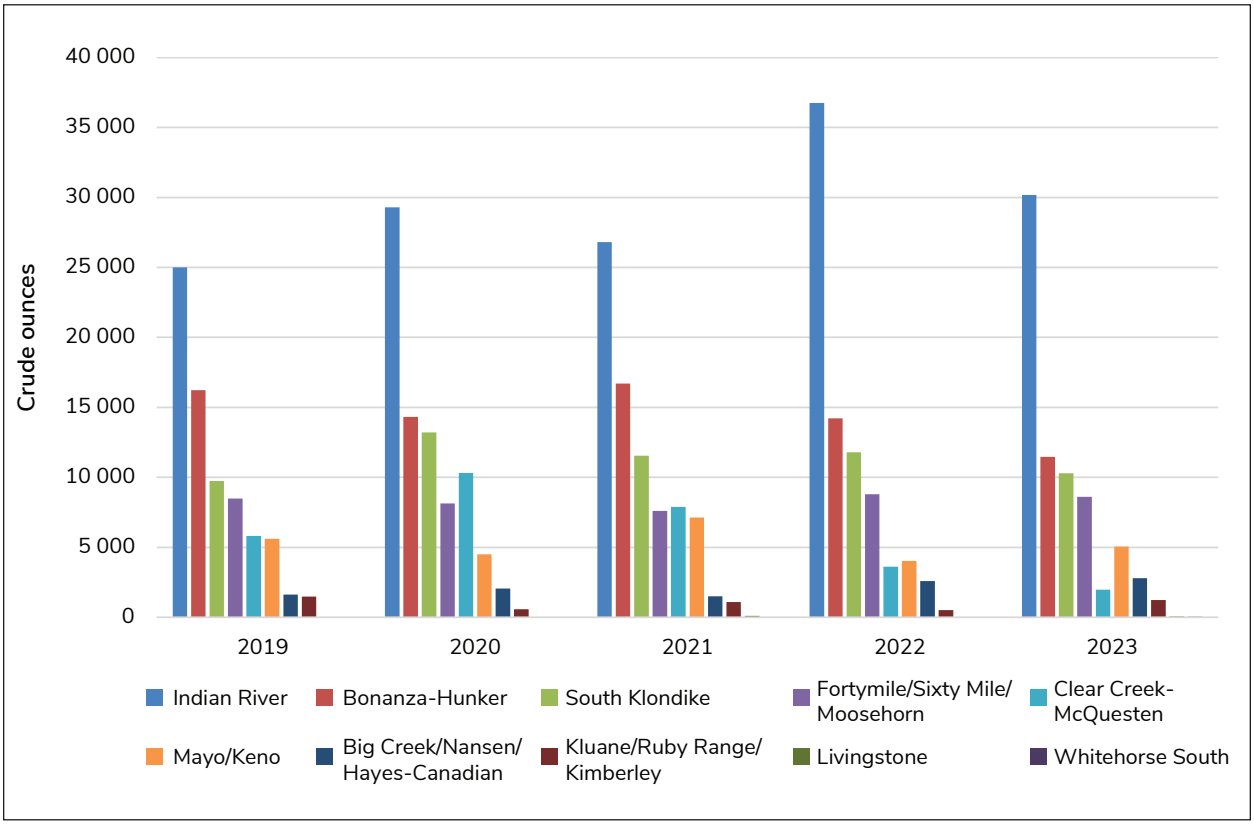


Figure 9. *Regional placer production by placer mining area from 2019 to 2023. Note: Data was reported for Livingstone and Whitehorse South placer mining areas, but the production value was too small to be included in this figure. No production was reported from the Watson/Hyland placer mining areas.*

ounces) and Hunker Creek (2705 crude ounces). In 2022, production dropped by 28% to 11 832 crude ounces (15% of the total), primarily due to reduced output from Paradise Hill, the Klondike River proper and Last Chance Creek, whereby Lovett Hill (2734 crude ounces), Paradise Hill (2303 crude ounces) and Hunker Creek (2118 crude ounces) remained the key source areas for gold. By 2023, production further declined to 10 055 crude ounces (15% of the total), and Lovett Hill (2579 crude ounces), Hunker Creek (2518 crude ounces) and Bonanza Creek (2163 crude ounces) were the primary contributors. This 30% reduction from 2022 was likely due to shifts in operations out of the Klondike River proper.

The Indian River placer mining area remained the main placer gold-producing area in the Yukon. In 2021, it yielded 26 698 crude ounces, accounting for 34% of the Yukon's total production. The primary contributors were the main stem of the Indian River (56%), Dominion Creek (19%), Sulphur Creek (8%) and Wounded Moose Creek (7%). In 2022, production increased significantly to 36 787 crude ounces, representing 47% of the total Yukon production, with Indian River proper, Eureka Creek, Dominion Creek and Quartz Creek being the top contributors. By 2023, the area produced 29 503 crude ounces, equating to 43% of the total Yukon production, despite a 20% decrease from the previous year due to the closure of a large-scale operation on Dominion Creek. The largest contributors in 2023 were Quartz Creek (7772 crude ounces), Eureka Creek (5898 crude ounces) and Dominion Creek (5783 crude ounces).

The Fortymile/Sixty Mile/Moosehorn placer mining areas experienced notable fluctuations in placer gold production. In 2021, the Sixty Mile River was the primary source, yielding 4831 crude ounces, with Bedrock Creek (559 crude ounces), Ten Mile Creek (522 crude ounces) and California Creek (353 crude ounces) as significant contributors. Noteworthy mentions were Boucher Creek, which resumed production, and Twelve Mile Creek, a new placer-producing drainage. In 2022, production increased by 15% to 8722 crude ounces, the highest since 2008, with the Sixty Mile River leading at 5710 crude ounces. Bruin Creek and Browns Creek reported significant increases, producing 399 crude ounces and 415 crude ounces respectively. By 2023, the Fortymile/Sixty Mile/Moosehorn placer mining areas produced 8415 crude ounces, 10% of the Yukon's total, with the Sixty Mile River contributing 5072 crude ounces, followed by Browns Creek (892 crude ounces), Bruin Creek (512 crude ounces) and Ten Mile Creek (487 crude ounces).

The South Klondike placer mining area consistently remained a significant gold-producing area in the Yukon. In 2021, production slightly decreased from the previous year, but still reported 11 602 crude ounces, making it the third highest gold-producing area. The major contributors were Henderson Creek (5332 crude ounces), Barker Creek (1643 crude ounces), Kirkman Creek (1003 crude ounces) and Scroggie Creek (947 crude ounces). By 2022, production remained consistent at 11 560 crude ounces, still ranking as the third largest gold producer in the Yukon. Henderson Creek continued to dominate with 6067 crude ounces, followed by Kirkman Creek (1037 crude ounces) and Scroggie Creek (921 crude ounces). In 2023, the area became the fourth largest gold-producing area, contributing 14% to the Yukon's total placer gold production. Despite an 11% decrease from 2022, the South Klondike placer mining area yielded 10 050 crude ounces. Henderson Creek accounted for 55% of the total with 5484 ounces, while Black Hills Creek (1038 crude ounces), Scroggie Creek (978 crude ounces) and Maisy May Creek (693 crude ounces) were also notable contributors.

The Clear Creek-McQuesten and Mayo/Keno placer mining areas also experienced fluctuations in placer gold production. In 2021, the Clear Creek-McQuesten placer mining area production decreased by 25% due to changes in mining locations and scales of operations, and Josephine Creek, Granite Creek and Clear Creek were the major contributors in the overall gold production for the placer mining area. In 2022, the Mayo/Keno placer mining areas demonstrated a significant drop of 49%, reporting 3578 crude ounces, primarily due to reduced operations in Granite Creek. Keystone Creek reported its first year of mechanized mining, and consistent production came from the Clear Creek-McQuesten placer mining area, accounting for 5% of the overall Yukon production with 3601 crude ounces, distributed among Clear Creek, Josephine Creek and Big Creek. In 2023, the Clear Creek-McQuesten placer mining area production further decreased by 48%, yielding 1863 crude ounces, mostly from Clear Creek proper. Conversely, the Mayo/Keno placer mining areas experienced a 15% increase, with notable production from Granite Creek (2437 crude ounces) and additional contributions from Highet Creek, Owl Creek and Duncan Creek.

The Whitehorse Mining District, which includes the Big Creek/Nansen/Hayes-Canadian, Kluane/Ruby Range/Kimberley, Livingstone and Whitehorse South placer mining areas, experienced varied placer gold production levels. In 2021, the Big Creek/Nansen/Hayes-Canadian placer mining areas experienced a 35% decrease in production, yielding 1487 crude ounces, primarily due to reduced activity in the Freegold and Nansen Creek areas, though Canadian Creek reported strong production. In 2022, the production in the area remained steady at 2142 crude ounces, making up 3% of the Yukon's total, with Canadian Creek and Nansen Creek being the main contributors. By 2023, the Whitehorse Mining District's cumulative production across all areas contributed 4% (2901 crude ounces) of the Yukon's total, with the Big Creek/Nansen/Hayes-Canadian placer mining areas accounting for 95%. The highest yields came from Canadian Creek (1306 crude ounces), Nansen Creek (575 crude ounces) and Discovery Creek (555 crude ounces).

Summary of mining operations, 2021 to 2023



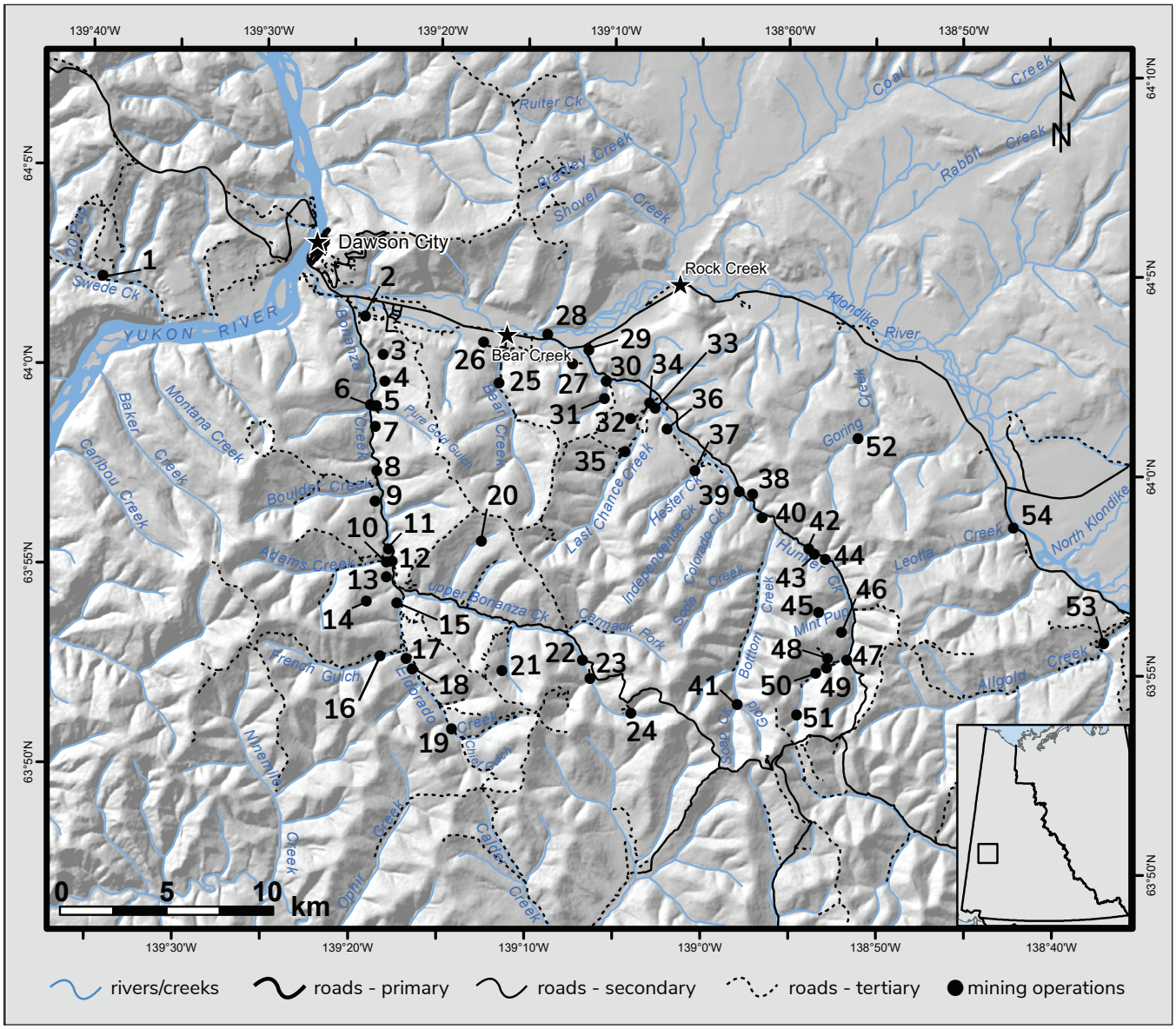
Stuart Placers Ltd.'s operation in 2023 on Black Hills Creek.

Legend

1. Fraughton, M.
2. Hawkes, L.
3. Lovett Hill Corp.
4. Algotsson, H.
5. Putnaerglis, D.
6. Nicolas, D.
7. Joe's Own Enterprise
8. Lewes River Mining
9. Hollis, A.
10. Berglund, R. and D. Trudeau
11. Fellhawk Enterprises Ltd.
12. C+C Placers
13. Beron Placers Co. Ltd.
14. Daunt, K.
15. Dulac, J.
16. Jackson, D.
17. Cissell, M.
18. Rodal Placers
19. Bear Creek Logging
20. Tatra Ventures Ltd.
21. McMahon, T.
22. Kohlman Explorations Ltd.
23. Anglerock LLC
24. McKort Mining Co.
25. 16406 Yukon Inc.
26. Yukon Strike Mining
27. Tatra Ventures Ltd.
28. Hawker, F.
29. Slonski, G. and K. Elgie
30. Henry Gulch Explorations Ltd.
31. Gillespie, R.
32. Favron Enterprises Ltd.
33. Ace Placer Mining Ltd.
34. Tatra Ventures Ltd.
35. Golden Wrench Mining Ltd.
36. 535901 Yukon Inc.
37. P.A.P. Enterprises Ltd.
38. Kreft, B.
39. Daval Mining
40. Fraser, I.
41. Tim Coles Enterprises Ltd.
42. Mogul Gold
43. KT Mining
44. Whiskey Hill Mining
45. 535584 Yukon Inc.
46. Roberts, W.
47. CG Mining and Equipment Services
48. Ahnert, G. and E.
49. Hunter, T. and B. Lammers
50. Palagian, L. and S.
51. Brong, R. and E. Dotzler
52. Big Valley Mining
53. Dulac Mining
54. Brown, D. and T.

Bonanza-Hunker
placer mining area

Sites 1–54



Swede Creek, a tributary of Yukon River

116B/04 2023: 64°02'21"N, 139°38'03"W

Fraughton, M., 2020–2023

Water license: PM18-053-1 (active 06/2029)

Active producer (2021–2023) **Operation no. 1**

Location

Swede Creek, 4.2 km upstream from its confluence with the Yukon River.

Work history and mining cuts

Swede Creek was originally staked by Spere Exploration Inc. in December 2014, and in May 2017, ownership transferred to M. Fraughton. Property development occurred between 2017 and 2019, and consistent sluicing began in 2020. From 2021 to 2023, the operation employed one to two people, processing an annual volume of 2300 to 3100 m³ (3000–4000 yd³). Mining activities have been concentrated on the left limit of the drainage, progressively advancing across the valley bottom in lateral strips. Reclamation has been ongoing, and completed cuts were backfilled and recontoured using material from subsequent cuts.

Equipment and water treatment

The following equipment was used on site:

- two Hitachi Zaxis 290 excavators
- Caterpillar D8 bulldozer

The wash plant consisted of a 1.2 by 2.4 m (4 × 8 ft) trommel with a 3/4" screen, capable of processing material at a rate of up to 31 m³ (40 yd³)/hr. Concentrate was processed with a long tom and completed with a table in town.

Surficial geology and stratigraphy

Swede Creek exhibits typical braided river stratigraphy, including a boulder lag at the bedrock contact. In 2023, the total section thickness ranged from 3.7 to 4.6 m (12–15 ft) and consisted of two units. Unit 1, from 0 to 2.7 m (0–9 ft), is a clast-supported cobble gravel that fines upward into a pebble gravel. Large cobbles dominate the lowermost 0.9 m (3 ft) near the boulder lag. Unit 2, from 2.7 to 3.7 m (9–12 ft), comprises fine sand with minor silt. The lowermost 0.6 m (2 ft) of the gravel unit, along with up to 0.6 m (2 ft) of bedrock, was processed as pay.

Bedrock geology

Bedrock is Klondike Schist.



M. Fraughton's operation in July 2023 on Swede Creek. The image is looking upstream (northwest), toward the headwaters that originate near the Top of the World Highway.



Stripping of M. Fraughton's cut in July 2023, on the left limit of Swede Creek.

Gold characteristics

Gold grain texture is a mix of fine and coarse-grained particles; however, the coarse-grained component is more abundant. The fineness is 730.

Bonanza Creek, a tributary of Klondike River

116B/03 2023: 64°02'03"N, 139°22'49"W

Hawkes, L., 2022–2023

Water license: PM20-016 (active 11/2030)

Active producer (2022–2023) **Operation no. 2**

Location

Bonanza Creek, right limit, at its confluence with the Klondike River valley.

Work history and mining cuts

The Hawkes family has held their claims in the Klondike River valley, at the mouth of Bonanza Creek, since 1980. In 2022, stripping was initiated on a cut 70 by 82 m (230 × 270 ft) located on the far right limit of Bonanza Creek, at the base of Jackson Hill. A section of the cut was sluiced in 2023, in partnership with a second operator. The cut's northernmost edge is situated in a part of the Klondike River valley that was not dredged in the past, as it was located under the original Klondike Highway roadway.

Equipment and water treatment

The following equipment was used on site:

- Hitachi excavator
- rock truck

The wash plant is a trommel capable of processing material at a rate of 42 m³ (55 yd³)/hr.



L. Hawkes stripping the cut in 2023 at the base of Jackson Hill, which is at the confluence of Bonanza Creek and the Klondike River.

Surficial geology and stratigraphy

A section exposed in 2023 included 2.1 m (7 ft) of Klondike River outwash gravel, deposited during the Pre-Reid glaciation (2.6 million to ~200 thousand years ago) that terminated in the Tintina Trench, spilling meltwater down the Klondike River valley. The cobble gravel is stratified, clast-supported, and consists of 65% cobbles, 30% pebbles and 5% small boulders. It has an erosive contact with the underlying bedrock, indicating a high-energy depositional setting for the outwash gravel. The matrix percentage increases in the lowermost 0.9 m (3 ft) of the unit, and is composed of silty sand. Additionally, graphite is noted within the matrix of the gravel suggesting some weathering and reworking of the underlying graphitic schist.

Bedrock geology

Bedrock is graphitic schist.

Gold characteristics

Gold is fine grained.

Jackson/Lovett Hill, high-level bench at the confluence of Klondike River and Bonanza Creek

116B/03 2023: 64°01'08"N, 139°21'30"W

Lovett Hill Corp., 2022–2023
Northern Shoveler Resources Ltd., 2005–2021

Water license: PM21-028 (active 05/2032)
Water license: PM11-018 (expired 07/2021)

Active producer (2021–2023) **Operation no. 3**

Location

Jackson/Lovett Hill, at the confluence of Klondike River and Bonanza Creek.

Work history and mining cuts

Northern Shoveler Resources Ltd. continued to target the buried paleo-Bonanza Creek pay channel that cut through Lovett and Jackson Hill before it was reworked into the Klondike River valley. In 2021, working with



Hydraulic stripping was used to thaw gravel on the north-facing side (Jackson Hill side) of the property in 2022 and 2023. Oxidized Klondike outwash gravel is exposed in the photo.



Lovett Hill Corp. was active on the Lovett Hill side of their property in 2023. The thick deposit of White Channel gravel is systematically stripped in several lifts, as the total thickness of surficial material is approximately 70 m (230 ft).

a crew of 20 employees, they started excavating and processing gravel on Jackson Hill (north side along the Klondike River valley), completing two cuts throughout the season. The property changed hands in spring 2022 when Lovett Hill Corp. took over from Northern Shoveler Resources Ltd. Lovett Hill Corp. immediately approached the hills aggressively, moving overburden both mechanically and hydraulically. They used hydraulics on the north-facing side (Jackson Hill) of the property to thaw and liberate Klondike outwash gravel. The focus in 2023 was on stripping the left limit of Lovett Gulch, including the rim of the Trail Hill bench.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

In 2021, gold production was focused on the Lovett Hill side of the deposit where a section of the pay streak was targeted. This section exposed the left limit of the pay channel where 48 m (157 ft) of White Channel gravel is overlain by 24 m (79 ft) of Klondike outwash gravel. The lower 10 m (33 ft) of the White Channel gravel is moderately oxidized, and sluicing focused on the lowermost 5 m (16 ft) of this unit. A considerable amount of local rip-up clasts are present in the bottom 2.4 m (8 ft) of the unit, indicating a high-energy depositional environment and erosion of the underlying bedrock. The bedrock rises in the cut on the west side, marking the edge of the high-grade pay channel. The channel edge has a slope of three degrees. Thrusted bedrock blocks were encountered in the pay unit, suggesting recent tectonic activity that postdates deposition of the White Channel gravel. Stripping of the uppermost layers of the high terrace exposed a lake sediment that had not previously been identified. This deposit may be the first physical evidence for Glacial Lake Yukon, the 2.5 million-year-old glacial lake that formed when the Yukon River reversal occurred.

In 2023, the operator targeted reworked White Channel gravel deposits on the bedrock surface, and concentrated on the lower slopes of the bench rim. The north-facing hillside is underlain by permafrost and consists of an apron of wind-blown silt (loess) that thickens toward the valley bottom. A combination of hydraulic monitoring and bulldozers were used to strip the loess unit. The rim material and valley-side fluvial deposits were sluiced.

Bedrock geology

Exposed bedrock on Lovett Hill is a chloritic schist.

Gold characteristics

Gold particles are fine grained and have a fineness of 780 to 790 in the Klondike River valley, and a fineness of 815 to 820 on Lovett Hill.

Cripple Gulch, a tributary of Bonanza Creek

116B/03 2023: 64°00'29"N, 139°21'14"W

Algotsson, H., 1989–2023

Water license: PM18-026 (active 08/2028)

Active producer (2021–2023) **Operation no. 4**

Location

Cripple Gulch, right-limit tributary of Bonanza Creek.

Work history and mining cuts

H. Algotsson has mined various locations along lower Bonanza Creek since 1989, working alongside his son, D. Algotsson. Mining activity occurred in 2021, although specific details were unavailable. In 2022, D. Algotsson continued mining on Cripple Gulch, while lessee R. Haines operated on a high-level White Channel bench deposit on the left limit of Bonanza Creek. A second lessee, J. Unrau, was active on Fortynine Gulch. In 2023, three operations were active under PM18-026. D. Algotsson focused on mining the right limit of Cripple Gulch, while two additional lessees, D. Putnaerglis, and D. Nicolas, worked separate operations.

Equipment and water treatment

The following equipment was used on site:

- John Deere 240D LC excavator
- Komatsu PC75 mini excavator

A double screen deck was used to process pay. Water was supplied by a 6" by 4" pump and was 100% recirculated.

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as quartzite, quartz-muscovite-chlorite schist, gneiss and amphibolite (Yukon Geological Survey, 2022a).

Gold characteristics

All recovered gold is fine grained.

Bonanza Creek, a tributary of Klondike River

115O/14 2022: 63°59'50"N, 139°21'34"W

Putnaerglis, D., 2021–2023

Water license: PM18-026 (Active 08/2028)

Active producer (2021–2023) **Operation no. 5**

Location

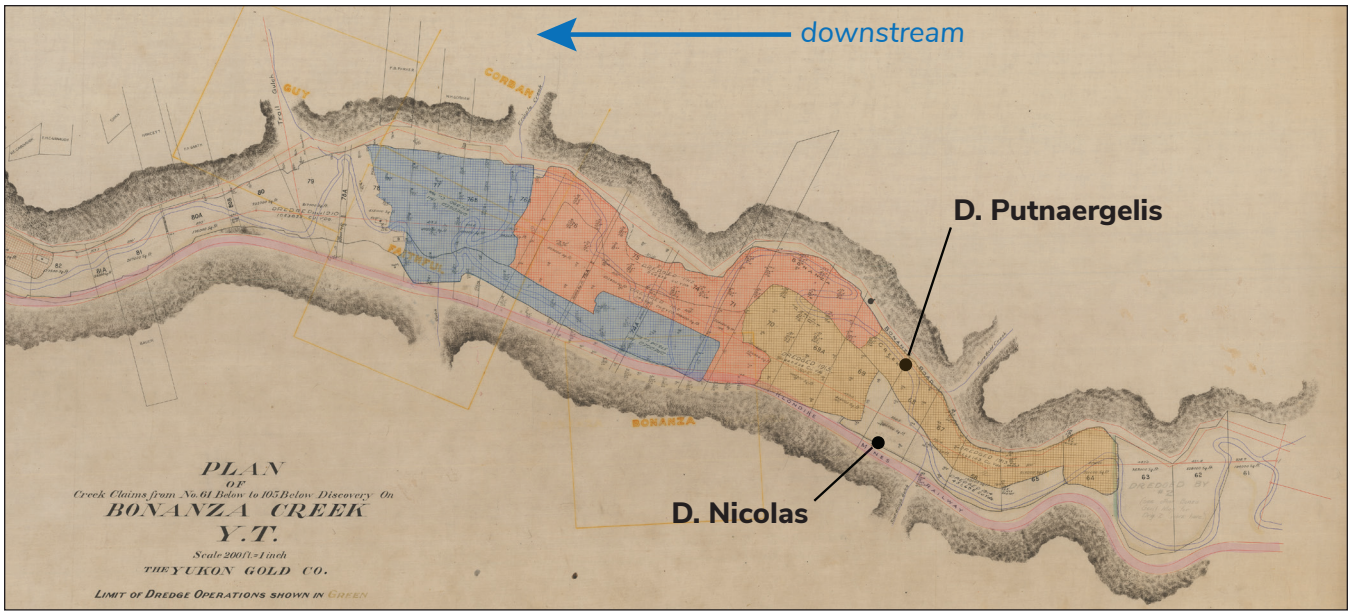
Bonanza Creek, at the mouth of Pure Gold Gulch.

Work history and mining cuts

A lease agreement was established between H. Algotsson and D. Putnaerglis, prior to his first active year on the property in 2021. Operating solo, Putnaerglis spent the past three seasons working on the far right limit of Bonanza Creek, immediately downstream from the mouth of Pure Gold Gulch. A cut measuring 23 by 28 m (76 × 91 ft) was excavated throughout 2022 and 2023. Previous mining activities were conducted in Sourdough Gulch and on Ophir Hill, before relocating to placer claim P 42645.



D. Putnaerglis' operation in 2022 at the mouth of Pure Gold Gulch, at the far right limit of Bonanza Creek.



Clip of historic map number YCGC26018 (Yukon Consolidated Gold Corp., undated), displaying the location of D. Putnaerglis' and D. Nicolas' operations on placer claim P 42645. The Klondike Mines Railway, on the left limit of Bonanza Creek, is highlighted in pink. Area shaded in blue indicates locations dredged in 1911, orange indicates ground dredged in 1912, and yellow indicates ground dredged in 1913.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 200-1 excavator
- Hitachi UH20 excavator

A 1.2 m (4 ft)-diameter by 7.6 m (25 ft)-long trommel was used to process pay at a rate of 15 m³ (20 yd³)/hr. A single sluice run, 0.76 m (2.5 ft) wide by 3.7 m (12 ft) long, was configured with angle iron and expanded metal, and lined with unbacked miner's moss.

Surficial geology and stratigraphy

Using Yukon Consolidated Gold Corp. (YCGC) data to compile the historic work history for lower Bonanza Creek, D. Putnaerglis mined an area that was initially dredged by Dredge No. 2 in 1912 and 1913, and re-dredged by Dredge No. 4 in 1949. Putnaerglis targeted what remained outside the limit of dredging. The overburden consists of technogenic deposits (from previous dredging), as well as colluvium from the hillside as the cut is situated on the far right limit of the drainage.

Bedrock geology

Bedrock is mapped as silvery-grey, muscovite-chlorite-quartz phyllite and micaceous quartzite (Yukon Geological Survey, 2022a).

Gold characteristics

The gold is fine grained.

Bonanza Creek, a tributary of Klondike River

115O/14 2023: 63°59'50"N, 139°21'56"W

Nicolas, D., 2022–2023

Water license: PM18-026 (active 08/2028)

Active producer (2022–2023) **Operation no. 6**

Location

Bonanza Creek, immediately downstream from the mouth of Sourdough Gulch.

Work history and mining cuts

A lease agreement was established between H. Algotsson and D. Nicolas, and their first year of mining began in 2022. A 27 by 27 m (90 × 90 ft) cut on placer claim P 42645 was stripped and processed throughout 2022 and into 2023. The cut was situated on the far left limit of the valley bottom, targeting side pay that evaded dredging efforts due to the thick cover of colluvium on top of the deposit. In mid-2023, a second cut location on the east side of Bonanza Creek Road was initiated.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 235 excavator
- Caterpillar wheel loader
- Komatsu A300 haul truck
- dump truck



Drone image of D. Nicolas' operation on lower Bonanza Creek, immediately downstream from Sourdough Gulch. The two cut locations in 2023 are delineated by black dashed lines. The view is looking downstream or to the north, with Lovett Hill in the background.

The wash plant consisted of a 1.2 by 1.5 m (4 × 5 ft) screen deck equipped with a 1" upper screen and a 1/2" bottom screen. It was capable of processing material at a rate of 50 m³ (65 yd³)/hr.

Surficial geology and stratigraphy

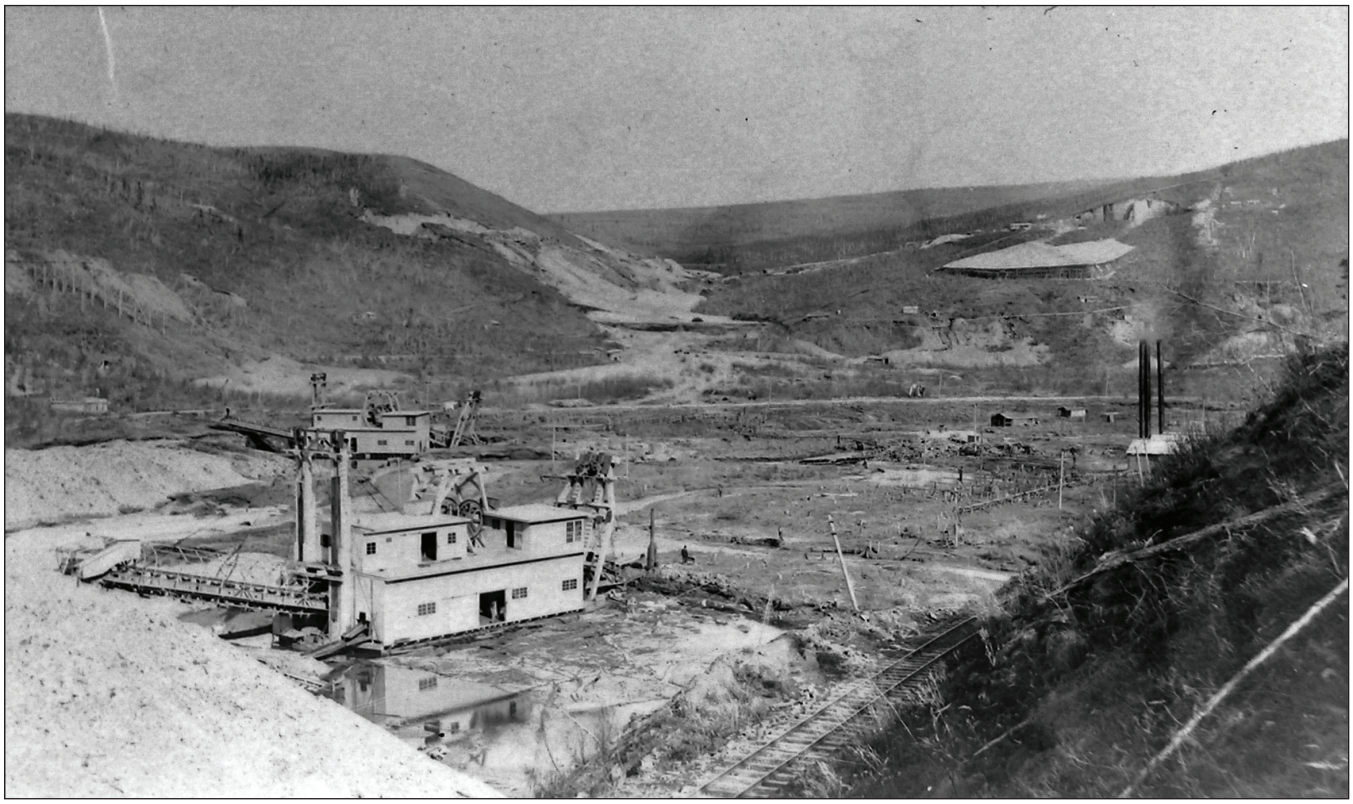
In-situ side pay continues to be identified in prominent Klondike River drainages, and is preserved beneath colluvium or technogenic deposits. Historic data can be valuable in pinpointing areas with high potential, particularly by identifying the locations of historic travel corridors such as roadways and railways, which would have prevented historic mining of these areas. The preservation of in-situ Bonanza Creek gravel in these locales is believed to be influenced by the location of the Klondike Mines Railway immediately upslope. Exposed in-situ Bonanza Creek gravel is a loose, poorly sorted, matrix-supported cobble-pebble gravel, with clasts up to 0.4 m (1.3 ft) in diameter. All gravel encountered was sluiced.

Bedrock geology

Bedrock is chloritic schist.

Gold characteristics

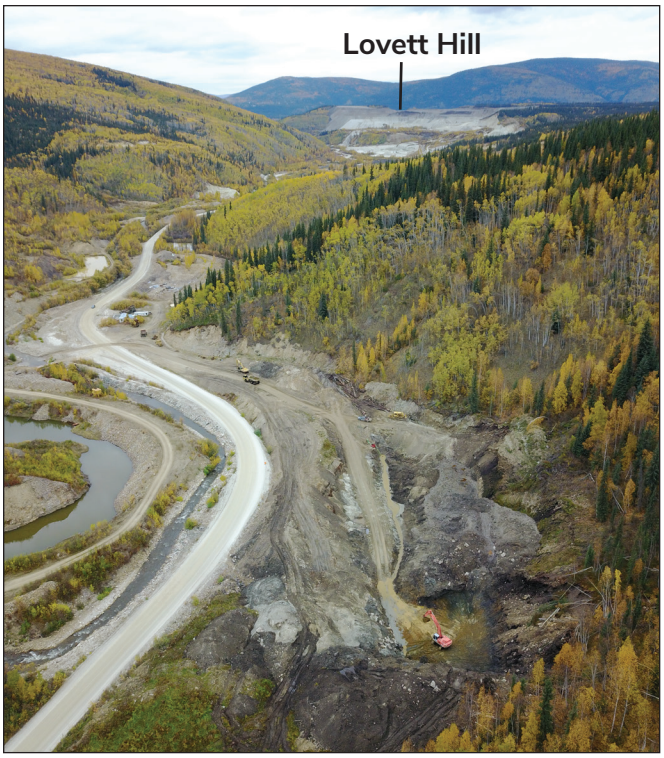
Gold is fine grained.



Historic photograph of Yukon Gold Company (YGCo) Dredge No. 3 and No. 6 working side by side on lower Bonanza Creek. The view is from Trail Hill, looking upstream, with the Klondike Mines Railway on the left limit of the drainage (Ferry, 1909).



In-situ Bonanza Creek side pay at D. Nicholas' operation excluded from previous mining efforts. An ice axe for scale measures 90 cm (3 ft).



Drone image from 2023 of Joe's Own Enterprise's leased ground from Kohlman Explorations Ltd. The area worked from 2021 to 2023 is visible on the right-hand side of the image. The view is looking downstream or to the south; Lovett Hill is in the background.

Bonanza Creek, a tributary of Klondike River

115O/14 2023: 63°59'19"N, 139°21'30"W

Joe's Own Enterprise, 2021–2023
Kohlman Explorations Ltd., 1983–2007, 2011–2020

Water license: PM18-071 (active 02/2031)
Water license: PM10-063 (expired 02/2021)

Active producer (2021–2023) **Operation no. 7**

Location

Bonanza Creek, right limit, 1.2 km downstream from Fortynine Gulch.

Work history and mining cuts

A lease agreement between Kohlman Explorations Ltd. and Joe's Own Enterprise was established in 2021. Operating as a two-person crew, they initiated a right-limit cut on Bonanza Creek, targeting an area that evaded historic dredging due to its proximity to the hillside and a historic rockslide that contributed large rafts of bedrock and boulders that were too challenging to excavate. The initial cut in 2021 was 18 by 55 m (60 × 180 ft), located on an outside bend of Bonanza Creek, downstream from the mouth of Fortynine Gulch. In 2022 and 2023, they continued extending the cut further upstream, paralleling the dredge limit. A total length of 209 m (686 ft), and an average width of approximately 40 m (130 ft), was stripped and mined throughout the three seasons. Old-timer workings were present throughout the length of the cut.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 270 excavator
- Caterpillar 225 excavator
- Caterpillar 14E grader
- Caterpillar D8K bulldozer
- Western Star dump truck

A Derocker was used to process material at a rate of 23 m³ (30 yd³)/hr. Effluent was filtered through tailings and settled in a series of four settling ponds on the left limit of the creek.

Surficial geology and stratigraphy

In-situ Bonanza Creek gravel was protected the from previous excavation as it occurs outside of the dredge limit. Furthermore, it was buried by a thick colluvial deposit consisting of coarse rockslide material. In

2022, the section consisted of three units. Unit 1, from 0 to 3.2 m (0–10.5 ft), is Bonanza Creek gravel, characterized by a coarse, matrix-supported, boulder-cobble gravel containing clasts up to 0.9 m (2.9 ft) in diameter. Clasts range from subrounded to angular, and larger clasts are likely colluvial in origin. The matrix consists of silty sand. The gravel is variably oxidized, moderately sorted, and crudely imbricated (paleocurrent direction parallel to modern flow). The uppermost 1.2 m (3.9 ft) of the gravel fines upwards into an oxidized, discontinuous, moderately sorted pebble gravel and sand. The uppermost fines are well sorted. This fining upward sequence represents changes in the depositional environment over time, as water velocity slowed, the channel migrated, and/or overbank flooding occurred. The gravel is overlain by 3.5 m (11.5 ft) of organics and muck containing massive ice. All gravel, between 3.4 and 4.6 m (11 and 15 ft), and up to 2.4 m (8 ft) of bedrock was sluiced.

Bedrock geology

Bedrock is chlorite-muscovite schist containing abundant quartz veins. It varies from highly weathered and decomposed, to more competent but fractured.

Gold characteristics

Gold is fine grained and flat, and has a fineness of 800.



In-situ Bonanza Creek pay gravel exposed in a 2023 cut at J. McIntyre's property (Joe's Own Enterprise). The upper and lower contacts are poorly exposed.

Bonanza Creek, a tributary of Klondike River

115O/14 2023: 63°58'12"N, 139°21'09"W

Lewes River Mining, 2014–2023

Water license: PM18-002-1 (active 07/2028)

Active producer (2021–2023) **Operation no. 8**

Location

Bonanza Creek, 0.5 km downstream from Mosquito Gulch.

Work history and mining cuts

Lewes River Mining continued operating under an agreement with Dulac Mining from 2021 to 2023. All activity was focused on the far left limit of the modern valley bottom, adjacent to Bonanza Creek Road. In 2021, a three-person crew processed cat push and hydraulic tailings derived from Mosquito Hill. In 2022, the crew increased to five members, and the tailings fan was processed.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 318 excavator
- John Deere 160 excavator
- Caterpillar 966C wheel loader
- dump truck

The wash plant was a Model 50 Gold Watch Project shaker deck, measuring 0.6 by 2.4 m (2 × 8 ft). Sluice runs were 0.8 m (2.7 ft) wide by 1.5 m (5 ft) long, and were configured with blast mat, followed by 0.4 m (1.3 ft) of expanded metal, and a final 0.9 m (3 ft) of 1" riffles. Dredge tailings were processed in the plant at a rate of 9 to 11 m^3 (12–15 yd^3)/hr.

Surficial geology and stratigraphy

Technogenic placer deposits are becoming increasingly economic as gold prices continue to rise. These deposits, derived from hydraulic or cat mining, are at or near the surface, often requiring minimal removal of overburden. Lewes River Mining has been exploiting one of these deposits, where the technogenic material was derived from Mosquito Hill (bench deposit), upslope from their active mining location. The material was cat mined and was produced when R. and J. Archibald mined the bench in 1973 (Yukon Geological Survey, 2010). In 2022, a poorly exposed section on the Mosquito Hill fan revealed an imbricated, in-situ cobble-pebble gravel, suggesting the presence of a mid-level bench. If this is truly an in-situ, mid-level Bonanza Creek bench, it would be a



Lewes River Mining processing material in 2022 at the base of the Mosquito Hill technogenic fan deposit.

reworked deposit of White Channel gravel and could be reconcentrating gold into the hydraulic fan, further increasing the economics of the technogenic deposit.

Bedrock geology

Bedrock is muscovite schist.

Gold characteristics

Gold is fine grained.

King Solomon Hill and Monte Cristo Hill, high-level bench on Bonanza Creek

115O/14 2023: 63°57'26"N, 139°21'04"W
115O/14 2023: 63°57'01"N, 139°20'59"W

Hollis, A., 2021–2023
Van Bibber, N., 2018
Van Bibber, S., 2009, 2013–2017

Water license: PM18-015-2 (active 07/2028)

Active producer (2021–2023) **Operation no. 9**

Location

King Solomon Hill and Monte Cristo Hill, left limit of Bonanza Creek.

Work history and mining cuts

In fall 2021, A. Hollis acquired King Solomon Hill and Monte Cristo Hill, as well as the Fox Gulch claims from D. Jackson and N. Van Bibber. In 2022, Hollis, along with one employee, processed material liberated from the historic ditches or 'races' created by hydraulic operations in the early 1900s. They also worked a high-level bench on the property early in the season. They began efficiently stripping the deposit by employing a custom-fabricated, track-mounted conveyor. Since the Gold Rush, this area has been heavily worked, and to target remnant pay gravel, Hollis has been extensively compiling and interpreting historic data. The data include photos from the Dawson City Museum, air photos of various vintages, dredge data, and historic drilling information from the 1950s. In 2023, Hollis spent the season mining the modern creek and the high-level White Channel bench deposits. In July of 2023, he conducted an exploration program that included auger-drilling and bulk-sampling. This property has undergone several phases of mining activity throughout the last century—from hand mining and shafting, to extensive hydraulic mining and dredging, and finally to modern mining methods used since the 1970s. Understanding the extensive work history and their resulting deposits is essential for evaluating placer potential in these previously mined areas. A two-person crew sluiced 6116 m³ (8000 yd³) of White Channel gravel from Monte Cristo Hill and King Solomon Hill.

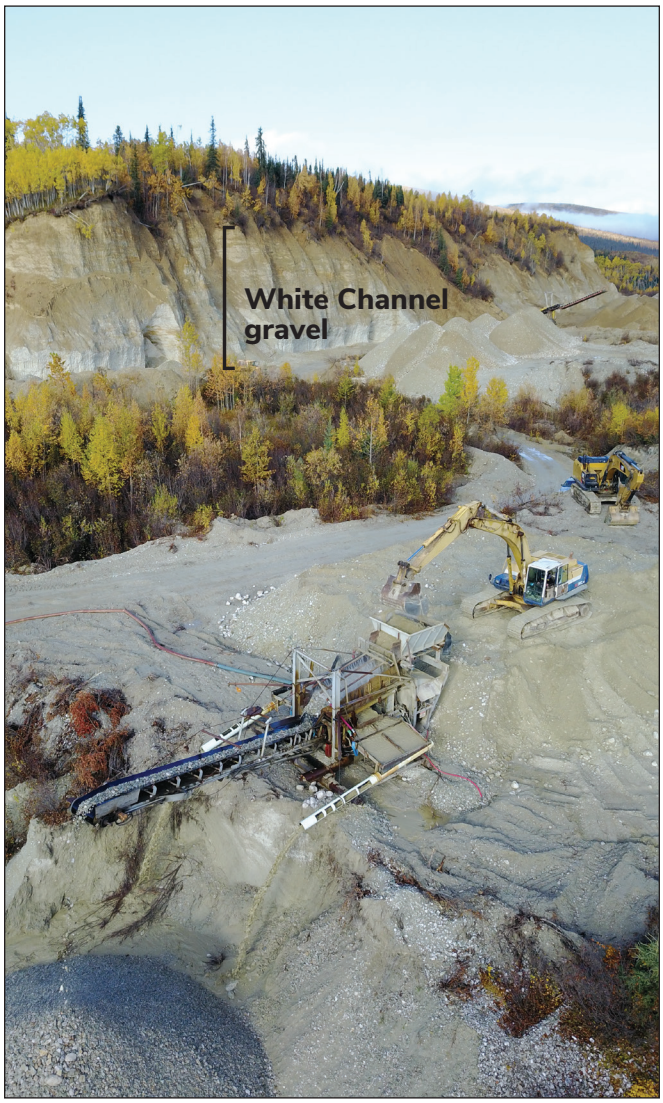
In 2023, Hollis established an agreement with D. Jackson to mine his claims on American Hill.

Equipment and water treatment

The following equipment was used on site:

- Komatsu PC490 excavator
- Komatsu PC300HD excavator
- Caterpillar 336 excavator
- 30-ton Volvo dump truck
- 135 ft-long excavator-mounted conveyor with slinger

The wash plant consisted of a 1.5 by 3.3 m (5 × 11 ft) oscillating screen deck with a 1/2" screen, and a 12 m (40 ft) tailings stacker. Two sluice runs, lined with unbacked Nomad matting, were 2.4 m (8 ft) long and consisted of expanded metal with one boil box. The plant processed material at a rate of up to 61 m³ (80 yd³)/hr. Water was acquired from a recirculation pond via a 5" by 8" Cornell pump. Clean-ups were conducted with a long tom off the end of the main sluice run, followed by a smaller long tom for final concentrate.



Actively sluicing at A. Hollis' operation on a high-level White Channel bench deposit on King Solomon Hill in 2023. Note the deposit of White Channel gravel up to 39.5 m (130 ft) thick in the background.

Surficial geology and stratigraphy

The high-level benches along Bonanza Creek contain up to 39.5 m (130 ft) of White Channel gravel, which is divided into upper and lower units. The lower gravel is characterized by coarser material and often includes subangular clasts suggesting a relatively high-energy depositional setting. It has a higher concentration of gold due to its position lower in the section, which is closer to the bedrock surface. The upper gravel, in contrast, consists of finer, more stratified material, reflecting deposition under lower-energy fluvial conditions.

High-level White Channel benches on Bonanza Creek represent significant placer mining targets. These benches, positioned well above the modern creek, have preserved ancient, preglacial paleochannels that contain high concentrations of gold due to prolonged periods of reworking and deposition. However, mining these elevated deposits poses logistical challenges, including increased stripping ratios and the need for specialized equipment such as the excavator-mounted conveyors that A. Hollis employs.

Bedrock geology

Bedrock is muscovite-chlorite phyllite.

Gold characteristics

Gold particles are bright, flat, and mostly fine grained.

Adams Creek, a tributary of Bonanza Creek

115O/14 2023: 63°55'56"N, 139°20'02"W

Berglund, R. and D. Trudeau, 2019–2023
Lucky Strike Ventures Inc., 2012–2018

Water license: PM18-006-1 (active 08/2028)
Water license: PM20-072 (active 11/2031)
Water license: PM13-051 (active 04/2024)

Active producer (2021–2023) **Operation no. 10**

Location

Adams Creek, lower reach, approximately 0.5 km upstream from its confluence with Bonanza Creek.

Work history and mining cuts

R. Berglund and D. Trudeau spent 2021 to 2023 mining at the mouth of Adams Creek, working beneath the historic hydraulic tailings from Cheechako Hill. Hydraulic mining occurred on the hill from its discovery in 1898 until the early 1900s, resulting in a thick deposit of tailings fanned out on the lower right limit of Adams Creek. With a crew of up to seven people, they reported sluicing for 40 days in 2021, 32 days in 2022, and 48 days in 2023.

Equipment and water treatment

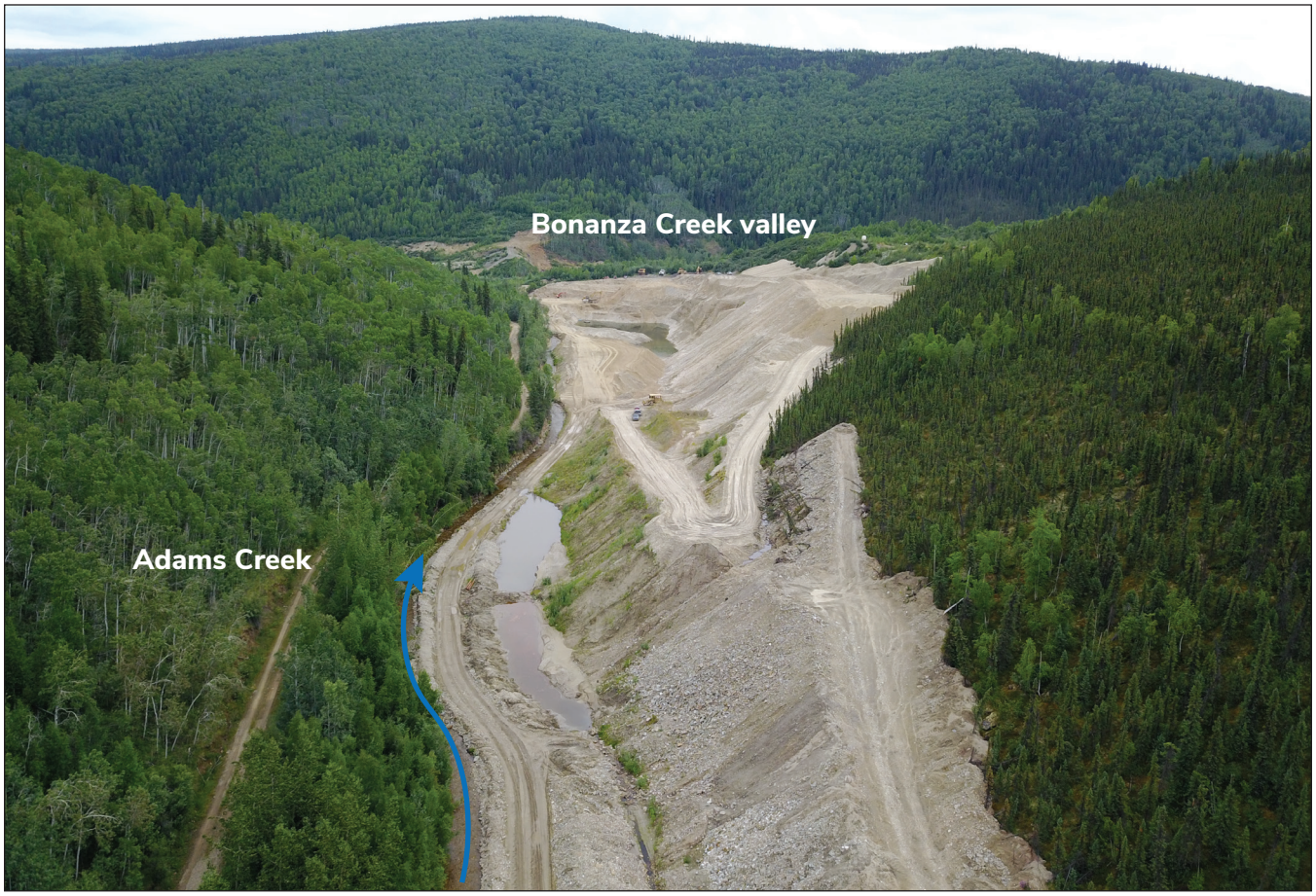
The following equipment was used on site:

- Caterpillar 275 excavator
- Caterpillar 345 excavator
- Halla 220 excavator
- two Kawasaki 952 wheel loaders
- Caterpillar D8 bulldozer
- Caterpillar D10 bulldozer
- two 50 tonne Pay Hauler rock trucks

An oscillating screen deck processed material at a rate of 57 m^3 (75 yd^3)/hr. A 6" Cornell pump powered by a 471 Jimmy engine supplied water to the plant. Water was recirculated through one large pond in a 100% recycled system. Clean-ups were conducted using a pan and gold wheel.

Surficial geology and stratigraphy

The primary placer target on Adams Creek is in-situ gravel on both limits of the drainage, where historic and modern mining efforts also focused on these areas. In 2017, operators began stripping hydraulic tailings to expose right-limit side pay, which has since extended further into the base of Cheechako Hill. The in-situ gravel thickness varies from 1.8 to 3.0 m (6–10 ft). The general stratigraphy comprises two units: unit 1, from 0 to 2.4 m (0–7.9 ft) is a compact, moderately sorted pebble-cobble gravel with 60% cobbles and 40% pebbles. Unit 2 is overburden, consisting of two technogenic deposits: a fan of hydraulic tailings from Cheechako Hill made up of interbedded pebble gravel, sand and silt from 2.4 to 21.9 m (7.9–71.8 ft), and a layer of fine sand and silt from 21.9 to 28.9 m (71.8–94.8 ft) formed in the 1980s from accumulation in a settling pond.



R. Berglund's and D. Trudeau's cut on lower Adams Creek in 2023, where they stripped 26.5 m (86.9 ft) of overburden. The view looks downstream (east) into the Bonanza Creek valley.

Bedrock geology

Bedrock is quartz-rich, green mafic schist.

Gold characteristics

Gold ranges in size from 10 to 12% greater than 4.8 mm (3/16"), 28 to 40% greater than 1.6 mm (1/16"), and 50% fine grained or less than 1.6 mm (1/16"). The fineness is 650.

Bonanza Creek, a tributary of Klondike River

115O/14 2022: 63°56'17"N, 139°20'01"W

Fellhawk Enterprises Ltd., 2022–2023

Water license: PM23-036 (active 05/2034)
Water license: PM13-051 (active 04/2024)

Active producer (2021–2023) **Operation no. 11**

Location

Bonanza Creek, at the base of Adams Hill.

Work history and mining cuts

In 2021, with the assistance of a Yukon Mineral Exploration Program (YMEP) grant, Northern Sonic Drilling and Consulting Inc. completed several drill holes to evaluate the side pay potential on the left limit of Bonanza Creek, immediately upstream from Dredge No. 4 National Historic Site. It was determined that the dredge limits from 1914 at the base of Adams Hill did not fully excavate into the valley limits. It is likely that the dredge would not have been able to effectively operate against the hillside due to the increase in thickness of historic hydraulic tailings. A lease agreement was signed between Fellhawk Enterprises Ltd. and R. Berglund and D. Trudeau in 2021, and mining commenced the following year. In 2022 and 2023, mining was focused on the far right limit of the Bonanza Creek valley.

Equipment and water treatment

The following equipment was documented on site in 2022:

- John Deere 450D excavator
- Hitachi excavator
- screen deck
- two Caterpillar rock trucks
- Caterpillar wheel loader

Surficial geology and stratigraphy

At the time of the site visit in 2022, the exposed stratigraphy consisted of three units. In-situ Bonanza Creek gravel (unit 1) was intersected during the site visit. The unit consists of a cobble-pebble gravel with a matrix of medium sand and minor silt. The thickness was not documented. Unit 2 consists of colluvium 5.6 m (18.4 ft) thick that was reworked from the hillside. Unit 3, from 5.6 to 21.0 m (18.4–69.0 ft), is composed of hydraulic tailings derived from historic hydraulic operations on Adams Hill.



Drone image of Fellhawk Enterprises Ltd.'s cut on the left limit of Bonanza Creek in 2022, immediately upstream from Dredge No. 4 National Historic Site.

Bedrock geology

Bedrock is chloritic schist with interbedded graphitic schist.

Gold characteristics

Not reported.



Sample of unit 1 (in-situ Bonanza Creek gravel) at the time of initial intersection in 2022 at Fellhawk Enterprises Ltd.'s property. The gravel is visible at the bottom of the bucket. Shovel for scale measures 1 m (3.3 ft).

Bonanza Creek, a tributary of Klondike River

115O/14 2023: 63°55'59"N, 139°19'42"W

C+C Placers, 1979–2023

Water license: PM17-042 (active 07/2027)

Active producer (2021–2023) **Operation no. 12**

Location

Bonanza Creek, right limit, immediately across from the mouth of Adams Creek.

Work history and mining cuts

The Sigurdsons of C+C Placers staked their claims in 1979, which are immediately downstream from the confluence of Bonanza Creek with upper Bonanza Creek. Since then, they have consistently maintained a presence on their claims. They operated as a two to three-person crew each season from 2021 to 2023.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 322 excavator
- Hitachi 550 excavator
- Caterpillar D8H bulldozer
- Terex 2766 rock truck

The wash plant consisted of a shaker deck capable of processing material at a rate of 12 to 14 m³ (16–18 yd³)/hr. A single sluice run 0.6 m (2 ft) wide by 2.4 m (8 ft) long was configured with expanded metal and Hungarian riffles, and lined with lawn turf on the upper section and unbacked matting on the lower section. The clean-up process started with a long tom and gold pans, and was completed on a table in town.

Surficial geology and stratigraphy

Bonanza Creek continues to yield economic placer deposits, and C+C Placers have been mining their claims by targeting an intermediate bench deposit, as well as another deposit of mixed colluvium and bench material deposited on the slope where it meets the modern Bonanza Creek valley. More recently, the focus has shifted to a gravel unit in contact with bedrock on the far right limit of the creek. Overlying this gravel unit is over 14 m (45 ft) of flood deposits and sand. The flood deposits were derived from the failure of the upper Bonanza Creek dam in 1960. The dam was constructed in 1906 to deliver water to Gold Hill at Grand Forks via two ditch lines; it also fed an inverted siphon across the Bonanza Creek valley to operate two hydraulic monitors on Gold Hill. In the spring of 1960, the dam collapsed, sending a wall of sediment and water down the creek, which resulted in the partial submergence of Dredge No. 4. Until recently, this flood deposit remained untouched on the far right limit of Bonanza Creek, where C+C Placers has been recently excavating.



Drone image of C+C Placers' operation in 2023 on Bonanza Creek across from Adams Creek. Mining activity from 2021 to 2023 has focused on the upstream side of a bedrock outcrop (outlined by a black dashed line). The view is looking downstream or to the north.

Intermediate benches between the upper White Channel gravel and the modern valley floor are poorly preserved and patchy, often obscured by overburden deposits of colluvium and making them difficult to identify. The use of historic air photos and other imagery to prospect for historic workings and the intermediate benches has proven to be highly invaluable for the Sigurdsons of C+C Placers.

Bedrock geology

Bedrock is muscovite schist.

Gold characteristics

Gold is fine grained. An abundance of magnetite and pyrite was also recovered with the heavy mineral fraction.

Cheechako Hill, a high-level bench on Bonanza Creek

115O/14 2023: 63°55'35"N, 139°19'57"W

Beron Placers Co. Ltd., 2015–2023

Water license: PM24-016 (application)
Water license: PM14-025 (active 09/2024)

Active producer (2021–2023) **Operation no. 13**

Location

Cheechako Hill, between Skookum Gulch and Adams Creek.

Work history and mining cuts

Beron Placers Co. Ltd. operated on Cheechako Hill from 2021 to 2023, focusing on stripping activities. Stripping was conducted strategically in lifts due to the significant thickness of the deposit, which has a total section thickness of up to 38 m (126 ft).

Equipment and water treatment

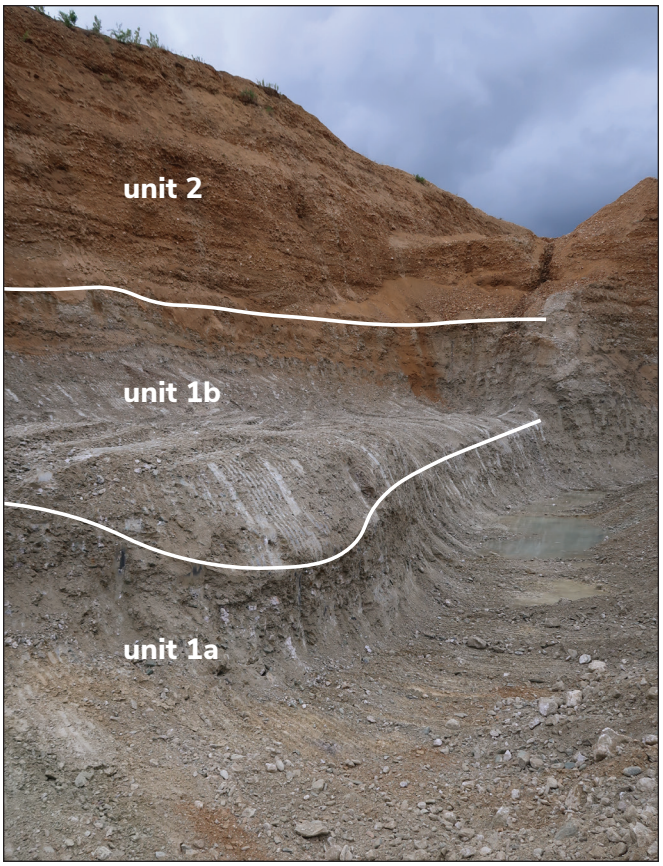
The following equipment was used on site:

- Caterpillar 345 excavator
- Caterpillar 349 excavator
- John Deere 690 excavator
- Caterpillar 966C wheel loader
- Caterpillar 980H wheel loader
- Caterpillar D8K bulldozer
- Caterpillar D6C bulldozer
- two Komatsu HM400 rock trucks

The wash plant system consisted of two separate screen deck plants that operated in sequence. The first deck used 3/4" by 2"-slot screens with two sluice boxes fitted with alternating expanded metal, slick plates and angle iron riffles. Tailings flowed to the second plant, which classified material to 3/16" and used expanded metal in its sluice box. Both plants included 15 m (50 ft) conveyors for oversized material. The plant processed material at a rate of up to 138 m^3 (180 yd^3)/hr.

Surficial geology and stratigraphy

In 2023, an exposure on the eastern edge of Cheechako Hill revealed two units. Unit 1a, from 0 to 3.7 m (0–12 ft), is the pay unit within a deposit of lower White Channel



Exposure on the eastern edge of Cheechako Hill at Beron Placers' operation in 2023.



Drone image of Cheechako Hill in 2022. The view is looking downstream Bonanza Creek; Beron Placers' operation on Cheechako Hill is on the left limit of the drainage (centre left of photo).

gravel. It is a poorly sorted, matrix-supported gravel that has a mixing zone in the lowermost part of the unit near the bedrock contact, which includes weathered bedrock fragments. Unit 1b, from 3.7 to 6.4 m (12–21 ft), is similar to unit 1a but is finer grained and lacks the high percentage of weathered bedrock fragments. Unit 2, from 6.4 to 28.3 m (21–93 ft), is upper White Channel gravel, which is moderately to well sorted, stratified and oxidized.

Bedrock geology

Bedrock is Klondike Schist.

Gold characteristics

Gold is described as 20% greater than 4 mesh (4.8 mm), 30% between 4 and 8 mesh (4.8 and 2.4 mm), 15% between 8 and 12 mesh (2.4 and 1.7 mm) and 35% less than 12 mesh (1.7 mm).

Skookum Gulch, a tributary of Bonanza Creek

115O/14 2023: 63°54'54"N, 139°20'56"W

Daunt, K., 1973–2023

Water license: PM17-013-1 (active 12/2027)
Water license: PM20-043-1 (active 12/2030)

Active producer (2021–2023) **Operation no. 14**

Location

Skookum Gulch, 1.6 km upstream from its confluence with Bonanza Creek.

Work history and mining cuts

K. Daunt previously operated on the northern side of Gold Hill before relocating to upper Skookum Gulch. In 2021, mining activities occurred on Gold Hill; no activity was recorded under water license PM17-013-1 on upper Skookum Gulch. In 2022, Daunt operated solo and constructed a new access road to the upper drainage, and began stripping overburden to expose pay gravel. Activity in 2023 on Skookum Gulch was limited to stripping overburden.

Equipment and water treatment

The following equipment was used on site:

- two Hitachi 230 excavators
- Caterpillar 966 wheel loader
- Caterpillar D250E wiggle wagon

A trommel with dimensions of 1.5 by 2.4 m (5 × 8 ft) and a 1" screen, processed material at a rate of 54 to 61 m^3



Drone image of K. Daunt's operation on upper Skookum Gulch in 2022. The view is upstream, or to the west. Note the narrow, confined nature of the valley.



Cut exposed in 2022 at K. Daunt's operation on upper Skookum Gulch. Yellow measuring tape in photo measures 1.2 m (4 ft).

(70–80 yd^3)/hr. The initial sluice run was 0.9 by 1.5 m (3 × 5 ft) and split into two, 0.9 m (3 ft) runs configured with 1.2 m (4 ft) angle iron, 1.2 m (4 ft) expanded metal and 1.2 m (4 ft) angle iron. Self-leveling hydraulic jacks on the plant allowed for easy adjustments and effortless moves. A screen deck was fabricated to process material from Skookum Gulch.

Surficial geology and stratigraphy

Skookum Gulch is a narrow, steep left-limit tributary of Bonanza Creek. The pay unit is a mixture of weathered bedrock and local gulch gravel and varies in thickness between 0.9 and 1.8 m (3 and 6 ft). The material is locally derived, dominated by reworked bedrock fragments and angular clasts. The gravel is clast supported and contains a matrix of silty, fine to medium sand. Overburden consists of frozen black muck that is up to 9.1 m (30 ft) in thickness.

Bedrock geology

Bedrock is muscovite-schist and exhibits varying degrees of weathering.

Gold characteristics

Up to 30% of the gold is 35 mesh (0.5 mm). The fineness is 780.

Gold Hill, a high-level bench on Bonanza and Eldorado creeks

115O/14 2023: 63°54'57"N, 139°19'12"W

Dulac, J., 2022–2023
Dulac Mining, 2017–2019
535969 Yukon Inc., 2007–2016

Water license: PM15-090-3 (active 07/2026)

Active producer (2022–2023) **Operation no. 15**

Location

Gold Hill, south-facing (upstream) side.

Work history and mining cuts

Dulac Mining was not active on Gold Hill in 2021. In 2022 and 2023, J. Dulac was active on the property operating with a two-person crew. No additional work history is known.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

Gold Hill is a high-level, White Channel bench deposit that has a surficial material thickness of 33 m (108 ft).



Drone image looking at the east-facing side of Gold Hill in 2023. Thick deposits of White Channel gravel are exposed in the centre of the image.

The upper part of the section (upper White Channel gravel) is characterized by iron-stained, stratified gravel containing abundant sand lenses, whereas the lower part of the section consists of poorly sorted, white-coloured gravel (lower White Channel gravel). The upper White Channel gravel is clast supported with 60% clasts and 40% matrix. Clasts in the lower White Channel gravel are subangular cobbles, and there is a high concentration that are composed of locally derived weathered sericite schist. The pay zone, up to 6 m (20 ft) thick, includes the lowermost 1.8 m (6 ft) of gravel and 0.6 to 1.8 m (2–6 ft) of the bedrock surface. A high clay content in the lowermost part of the pay unit, described as 'green gumbo', makes sluicing challenging, and requires mixing with sandier gravel, which results in slower processing. Quartz boulders are common near the bedrock contact, and old-timer drifts and shafts are frequently encountered.

Bedrock geology

Bedrock is sericite schist.

Gold characteristics

The gold is 10% small nuggets containing quartz, 20% coarse gold, and 70% fine gold. The fineness is 770.

French Gulch, a tributary of Eldorado Creek

115O/14 2023: 63°53'35"N, 139°19'50"W

Jackson, D., 2020–2023
Archibald, J., 1978–2019

Water license: PM20-037 (active 03/2031)
Water license: PM10-078-1 (expired 03/2021)

Active producer (2021–2023) **Operation no. 16**

Location

French Gulch, approximately 1.2 km upstream from its confluence with Eldorado Creek.

Work history and mining cuts

D. Jackson has been active on the property since purchasing it from J. Archibald in 2020. Mining occurred in the valley bottom of French Gulch from 2021 to 2023. Each season, Jackson progressively mined upstream from limit to limit in the narrow confines of French Gulch valley. Significant historic mining has occurred on lower French Gulch, but there was less evidence of prior mining activity as the operator moved upstream.



D. Jackson's cut on the left limit of French Gulch in the spring of 2021. The view is looking upstream or to the west.



Historic photo taken at the mouth of French Gulch in 1900, highlighting the significant amount of historic mining activities that have occurred on, and near French Gulch since the Gold Rush (Hegg, 1948).

Equipment and water treatment

The following equipment was used on site:

- two Kobelco excavators
- two Caterpillar 980B loaders
- scraper
- two Caterpillar D6 bulldozers
- Kenworth dump truck

A Derocker plant was used for processing pay and water was 100% recycled.

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is chlorite-sericite schist.

Gold characteristics

The gold fineness is 720.

Eldorado Creek, a tributary of Bonanza Creek

115O/14 2021: 63°53'35"N, 139°18'19"W

Cissell, M., 2018–2023
McKinney, O., 2016–2017

Water license: PM15-059-2 (active 11/2025)

Active producer (2021–2023) **Operation no. 17**

Location

Eldorado Creek, at the mouth of Glacier Gulch.

Work history and mining cuts

M. Cissell has been active each season from 2021 to 2023; however, the level of activity varied each season. Activity was primarily focused on Eldorado Creek at the mouth of Glacier Gulch, and immediately upstream on Glacier Gulch.

Equipment and water treatment

The following equipment was used on site:

- two Caterpillar 235C excavators
- Caterpillar D8 bulldozer
- two Caterpillar rock trucks

The wash plant consisted of a 7.6 m (25 ft)-long trommel with a 1" screen, and a 1.5 by 6 m (5 x 20 ft) sluice run configured with Hungarian riffles and nomad matting. Pumps measuring 2", 3" and 6" supplied water to the plant that processed material at a rate of 46 to 61 m^3 (60–80 yd^3)/hr.

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is decomposed muscovite schist.

Gold characteristics

Not reported.

Eldorado Creek, a tributary of Bonanza Creek

115O/14 2023: 63°53'21"N, 139°17'54"W
115O/14 2022: 63°53'29"N, 139°18'07"W

Rodal Placers, 2011–2015, 2021–2023

Water license: PM22-057 (active 05/2033)
Water license: PM20-052 (active 05/2031)

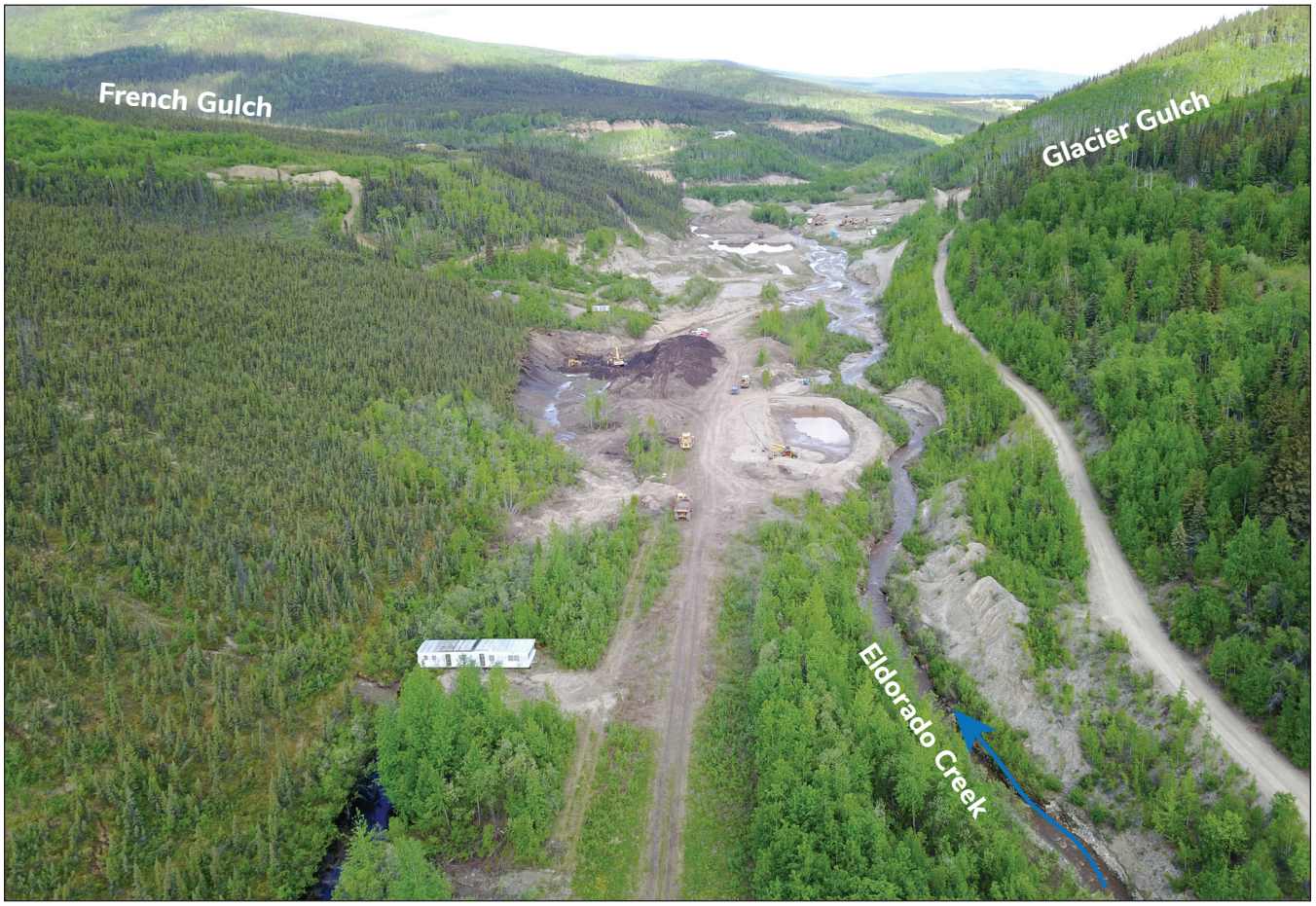
Active producer (2021–2023) **Operation no. 18**

Location

Eldorado Creek, 1.2 km upstream from the mouth of French Gulch.

Work history and mining cuts

Rodal Placers relocated back to their claims on Eldorado Creek between Oro Grande and Gay Gulch in 2021. A cut on the left limit was completed, targeting in-situ Eldorado Creek gravel covered by a thick package of colluvium. In 2022, they moved operations farther downstream and also leased claims from the late D. Johnson. A three-person crew completed a left-limit



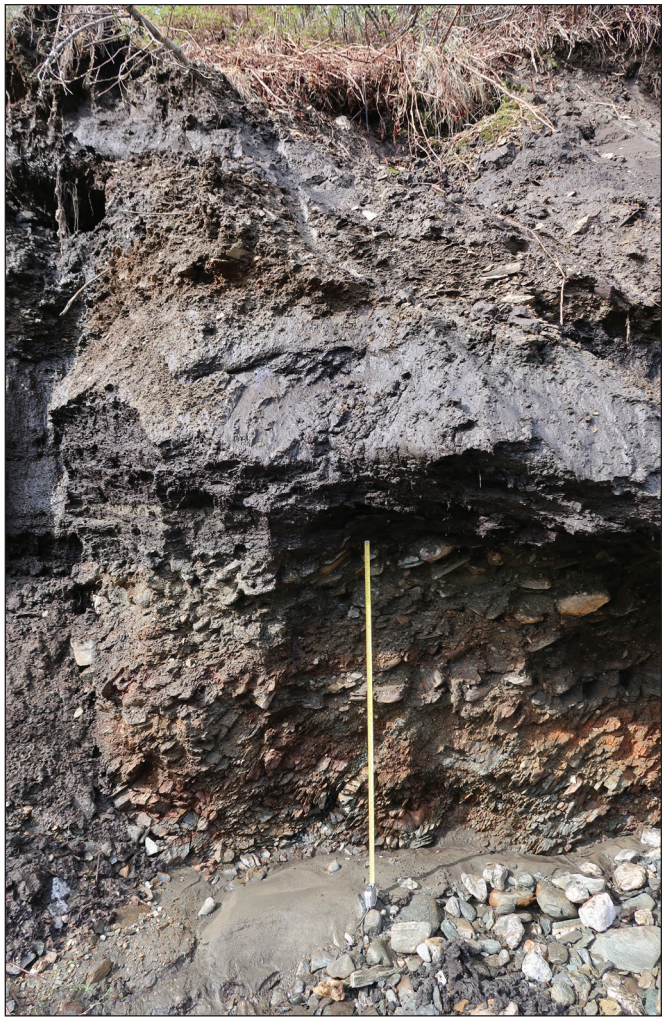
Rodal Placers active on the late D. Johnson's claims upstream from the mouth of French Gulch in 2022. The view is looking downstream (north-northwest); Eldorado Creek road is visible on the right limit.

cut and also mined beneath a local airstrip. Tailings from Johnson's cat mining operation in 1981 and 1982 were also evaluated. In 2023, the left-limit cut was extended further upstream, targeting buried in-situ Eldorado Creek gravel. The total mined area in 2022 and 2023 covered an extent 117 m (385 ft) long and 27 m (90 ft) wide. Rodal Placers was also active mining on their own claims further upstream on the left limit.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 270 excavator
- John Deere 200LC excavator
- Komatsu PC300LC excavator
- screen deck
- Caterpillar D8K bulldozer
- Caterpillar D25C rock truck



Paleo Eldorado Creek gravel exposed on Rodal Placers' claims on Eldorado Creek in 2023. The total length of the tape measure is 1.2 m (4 ft).

Surficial geology and stratigraphy

In-situ Eldorado Creek gravel was the primary target for both of Rodal Placers' mining areas where they operated from 2021 to 2023. The lateral extent of the Eldorado Creek gravel is obscured by a colluvial apron, making it difficult to trace based on topography alone. As stripping progressed into the hillside and overburden thickness increased, paleo Eldorado Creek gravel continued to be exposed. The gravel is pervasively oxidized, poorly sorted, and composed primarily of angular to subangular clasts within a matrix of medium sand and silt. Mud lenses are present and are expected to increase as the limits of the pay gravel are further defined. Gravel thickness decreases toward the hillside. All gravel encountered, or up to 1.4 m (4.5 ft), was sluiced for pay.

Bedrock geology

Bedrock is micaceous schist.

Gold characteristics

Gold grain texture is highly variably and includes flat coarse flakes, rounded grains and dendritic particles. The fineness is 740.

Eldorado Creek, a tributary of Bonanza Creek

115O/14 2022: 63°51'56"N, 139°15'17"W
115O/14 2021: 63°51'44"N, 139°14'42"W

Bear Creek Logging, 2021–2022
Dulac Mining, 2019–2020
Klondike Gold Corp., 2014

Water license: PM22-012 (active 07/2032)
Water license: PM11-071-1 (expired 07/2022)

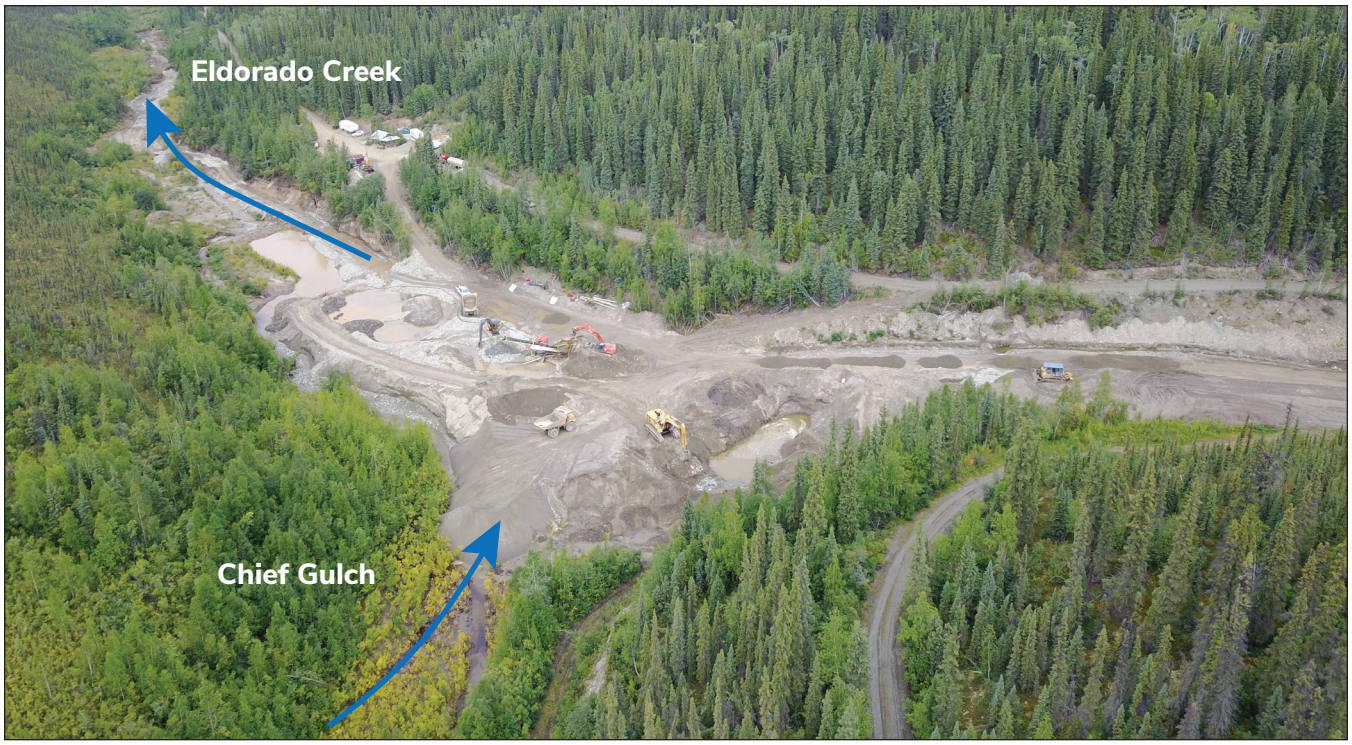
Active producer (2021–2022) **Operation no. 19**

Location

Eldorado Creek, upper reach, 0.6 km downstream from the confluence with Chief Gulch.

Work history and mining cuts

In 2021, Bear Creek Logging spent their first season mining at the confluence of Chief Gulch and Eldorado Creek, under an option agreement with Klondike Gold Corp. A three-person crew focused on mining the bedrock surface and sluicing up to 1.2 m (4 ft) of bedrock. Cumulatively, they sluiced 6109 m³ (8000 yd³) of material and completed reclamation on ground previously mined by Dulac Mining in 2019 and 2020. Activity continued in 2022 at the confluence, as well as downstream from the confluence on the right limit of Eldorado Creek. The property was not active in 2023.



Drone image from 2021 of Bear Creek Logging actively mining at the confluence of Chief Gulch and Eldorado Creek. The view is looking to the north.

Equipment and water treatment

The following equipment was used on site:

- John Deere 800C excavator
- Hitachi 200 LC excavator
- Komatsu 85DX bulldozer

The wash plant consisted of a screen deck that processed material at a rate of 46 m^3 (40 yd^3)/hr. Water was supplied to the plant using a 6" pump, and effluent was settled in a series of three ponds.

Surficial geology and stratigraphy

An incised bedrock gutter extending from Chief Gulch into Eldorado Creek was previously identified and mined out by Dulac Mining. In 2021, Bear Creek Logging aimed to excavate the bedrock surface down to a depth of up to 1.2 m (4 ft) as gold enrichment was identified in fractures in the schistose bedrock. Additionally, Dulac Mining previously targeted in-situ Chief Gulch gravel preserved near the valley limits. In 2022, Bear Creek Logging excavated a similar target downstream from the confluence of Chief Gulch and Eldorado Creek. At the time of the site visit, a limited exposure of in-situ Eldorado Creek was observed. The gravel varied in thickness and was up to 1.2 m (4 ft) thick. The deposit is a poorly sorted, cobble-dominant gravel containing weathered bedrock fragments throughout, suggesting an erosive, high-energy depositional environment.



Exposure in 2022 on the right limit of Eldorado Creek, located immediately downstream from the mouth of Chief Gulch.

Bedrock geology

Bedrock is a variably decomposed chloritic schist.

Gold characteristics

The majority of the gold is fine-grained although nuggets are present, including a 29 g nugget that was recovered. The fineness is 700.

Gauvin Gulch, a tributary of upper Bonanza Creek

115O/14 2022: 63°56'44"N, 139°14'45"W

Tatra Ventures Ltd., 2022
R & W Mining, 1989–2020

Water license: PM13-016-1 (expired 06/2023)

Active producer (2022) **Operation no. 20**

Location

Gauvin Gulch, 3.2 km upstream from its confluence with upper Bonanza Creek.

Work history and mining cuts

In 2021, Tatra Ventures Ltd. acquired upper Gauvin Gulch, a right-limit tributary of upper Bonanza Creek, allowing them to consolidate the upper claims with their pre-existing lower claim block. In 2022, a three-person crew initiated mining on the upper reaches of the drainage, focusing on a left-limit, Pliocene bench. Bulk testing was completed on different areas of the bench to gain a better understanding of the extent of the pay unit. Near the end of the 2022 season, they identified a higher-grade pay channel within the bench deposit, which will remain an important focus for future mining efforts. The addition of the bench deposit to the unmined valley bottom, has resulted in a large amount of minable ground remaining in this upper Bonanza Creek tributary. No activity occurred in 2023.

Equipment and water treatment

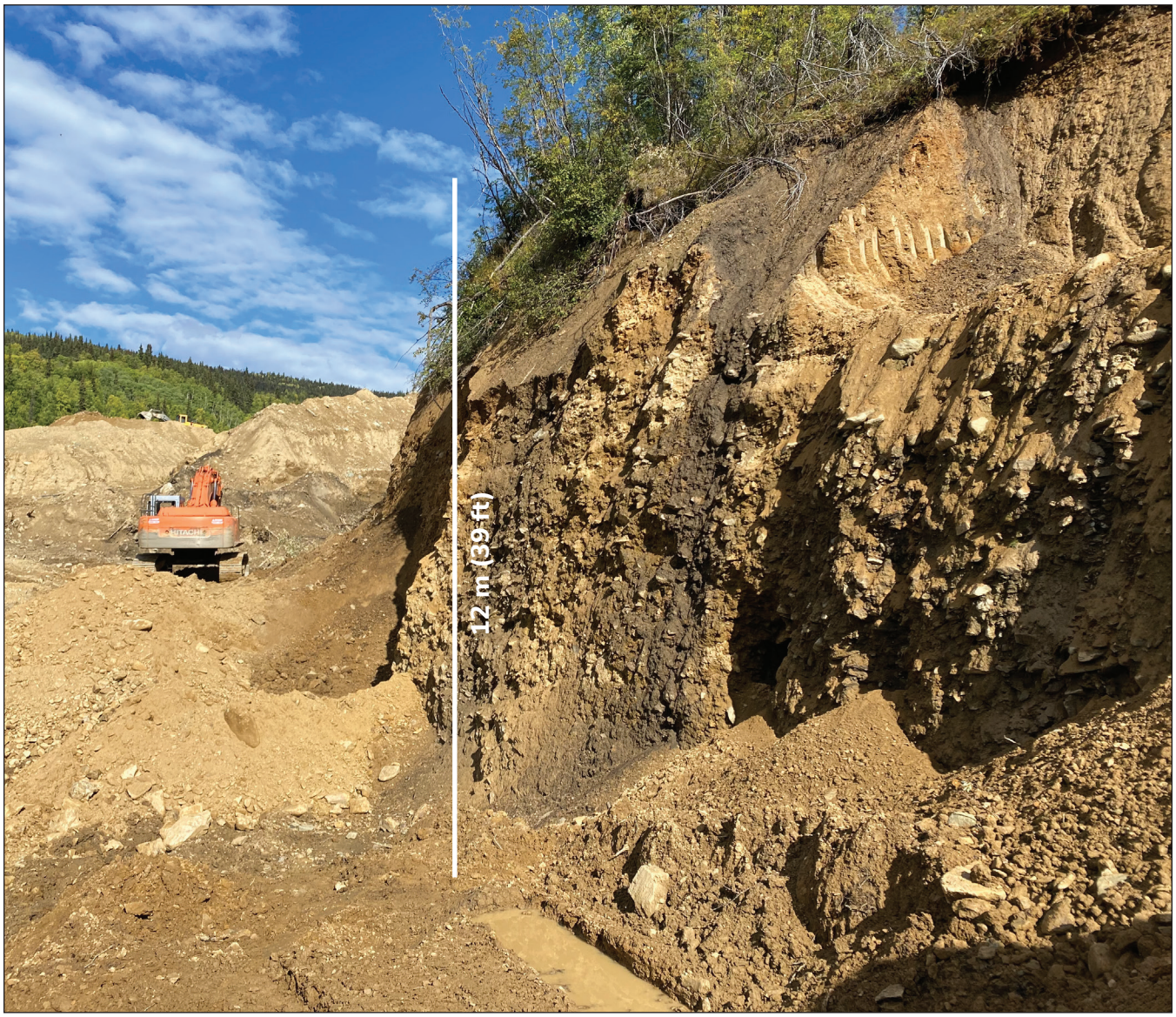
Not reported.

Surficial geology and stratigraphy

A bench deposit on the left limit of Gauvin Gulch has been the focus of mining for many years. Previous work



Drone image from 2022 of Tatra Ventures Ltd.'s operation on upper Gauvin Gulch. The view is looking downstream, or to the south.



Left-limit Pliocene bench exposed in 2022 on upper Gauvin Gulch.

documented a total thickness of 12 m (39 ft) for the surficial material, and the lowermost 5 m (16 ft) was targeted as pay. A boulder lag with clasts up to 1.2 m (3.9 ft) marks the top of the pay unit and serves as a marker horizon. Below the lag, the gravel fines before coarsening again at the bedrock contact. The compact pay gravel contains abundant locally derived clasts of chloritic schist with quartz veining.

Bedrock geology

Bedrock is weathered brown schist; the bedrock surface is undulating.

Gold characteristics

Gold is both coarse and fine grained and has a rough surface texture. Gold fineness is 666.

13 Pup, a tributary of Victoria Gulch

115O/14 2022: 63°53'32"N, 139°12'46"W

McMahon, T., 2012–2023

Water license: PM14-061 (active 05/2025)

Active producer (2021–2023) **Operation no. 21**

Location

13 Pup, a left-limit tributary of Victoria Gulch.

Work history and mining cuts

T. McMahon operated solo on 13 Pup, a left-limit tributary of Victoria Gulch. He was actively mining the drainage from 2021 to 2023, advancing further upstream each season.



Aerial view of T. McMahon's operation on 13 Pup in 2022. The view is looking upstream or to the south.



Base of T. McMahon's cut in 2022, consisting of a mixture of weathered bedrock, gulch gravel and reworked colluvium. Shovel for scale is 1 m (3.3 ft) long.

Equipment and water treatment

The following equipment was used on site:

- John Deere 330LC excavator
- Caterpillar D8H bulldozer
- Daewood Solar 220LC-III excavator

A 1.2 m (4 ft)-diameter trommel with a 5/8" and 1/2" screen, processed material at a rate of up to 46 m^3 (60 yd^3)/hr. Water was supplied to the plant using a 6" pump, and all water was 100% recycled. Clean-ups were conducted using a long tom and concentrates were tabled in town.

Surficial geology and stratigraphy

13 Pup is a steep, narrow drainage, measuring 55 m (180 ft) in width at the 2022 mining location and narrowing upstream to 15 m (50 ft). The gradient increases significantly further upstream. The drainage is blanketed by an apron of colluvium, and the targeted material comprises reworked bedrock, gulch gravel and reworked colluvium. All material is processed except for the surface fines, which include sand and silt.

Bedrock geology

Bedrock is oxidized micaceous schist.

Gold characteristics

Gold is all very angular, and has a fineness of 820.

Upper Bonanza Creek, a tributary of Klondike River

115O/14 2023: 63°54'01"N, 139°08'15"W

Kohlman Explorations Ltd., 2023
Pitman, B., 2015–2017, 2022

Water license: PM16-057-1 (active 02/2027)

Active producer (2022–2023) **Operation no. 22**

Location

Upper Bonanza Creek, 0.9 km downstream from Ready Bullion Gulch.

Work history and mining cuts

No activity was conducted on the property in 2021. In 2022, B. Pitman reported 250 hours of sluicing. In 2023, the claims were transferred from B. Pitman to Kohlman Explorations Ltd. Activity was indicated to have occurred in 2023, but no specific work history is known.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as silvery-grey, muscovite-chlorite-quartz phyllite and micaceous quartzite (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Upper Bonanza Creek, a tributary of Klondike River

115O/14 2022: 63°53'34"N, 139°07'42"W

Anglerock LLC, 2013–2019, 2022

Water license: PM21-031 (active 03/2032)
Water license: PM11-051-1 (expired 03/2022)

Active producer (2022) **Operation no. 23**

Location

Bonanza Creek, across from the mouth of Ready Bullion Gulch.

Work history and mining cuts

Anglerock LLC was not active in 2021, and activity resumed in 2022. They reported sluicing a total of 40 hours throughout that summer. No work history is known for 2023.

Equipment and water treatment

The following equipment was used on site:

- Komatsu PC300 LC excavator
- Caterpillar D5 LG bulldozer

The wash plant consisted of a 1 m (3.5 ft)-diameter by 3 m (10 ft)-long trommel that screened material to 3/4". It had a 6 m (20 ft) tailings conveyor and processed material at a rate of 35 m³ (46 yd³)/hr. Water was supplied by a 6" pump, and effluent was settled in a series of three out-of-stream settling ponds. Clean-ups were conducted daily using a small, long tom and pan.

Surficial geology and stratigraphy

An extensive, low-level, right-limit bench was targeted and consisted of two units. Unit 1, from 0 to 1.3 m (0–4.3 ft) is a poorly sorted, cobble-pebble gravel with 60% cobble-sized clasts and less than 2% quartz boulders up to 0.6 m (2 ft). A mixing zone at the base of the unit that contains angular rip-up clasts of bedrock, indicates a high-energy depositional environment. The gravel is primarily clast-supported and contains sand lenses throughout. Unit 2, from 1.3 to 8.3 m (4.3–27.3 ft), consists of muck and colluvium.

Bedrock geology

Bedrock is weathered, green schist that varies from moderately to highly oxidized.

Gold characteristics

Gold is flaky in texture and fairly coarse grained.

Upper Bonanza Creek, a tributary of Klondike River

115O/14 2022: 63°52'49"N, 139°05'11"W

McKort Mining Co., 2014–2020, 2022

Water license: PM14-054 (active 02/2027)

Active producer (2022) **Operation no. 24**

Location

Upper Bonanza Creek, headwaters.

Work history and mining cuts

McKort Mining Co. was not active in 2021 or 2023. In 2022, a cut that was completed in 2020 was extended further upstream.

Equipment and water treatment

The following equipment was used on site:

- Hitachi EX200 LC excavator
- Caterpillar D8 bulldozer
- Michigan wheel loader
- Dump truck

A 2 by 6 m (7 × 20 ft) trommel was used to process material at a rate of up to 19 m^3 (25 yd^3)/hr. The trommel screened to 1/2" and had one main sluice run measuring 0.9 by 3.0 m (3 × 10 ft) and configured with expanded metal. A new larger trommel was fabricated in 2022.

Surficial geology and stratigraphy

A cut in 2022 exposed two units. Unit 1, from 0 to 1.2 m (0–3.9 ft), is a poorly sorted modern gulch gravel that consists of angular clasts, within a varied matrix composed of silt, to fine sand and granules. Unit 2, from 1.2 to 2.5 m (3.9–8.2 ft), is reworked colluvium.

Bedrock geology

Bedrock is decomposed muscovite-calcite schist.

Gold characteristics

Gold grains have a dull appearance and are angular.

Bear Creek, a tributary of Klondike River

116B/03 2023: 64°00'44"N, 139°14'42"W

16406 Yukon Inc., 2011, 2013–2023

Water license: PM21-018 (active 06/2032)
Water license: PM11-029 (expired 09/2021)

Active producer (2021–2023) **Operation no. 25**

Location

Bear Creek, 2.2 km upstream from its confluence with the Klondike River.

Work history and mining cuts

T. Morgan of 16406 Yukon Inc. focused on the left limit of Bear Creek from 2021 to 2023 in an area where the creek splits around a bedrock high. At this location, past dredging focused on the right limit of the valley, leaving the far left limit channel unworked. Dredging efforts in the drainage were conducted in 1916 by the Canadian Klondyke Mining Company.

Equipment and water treatment

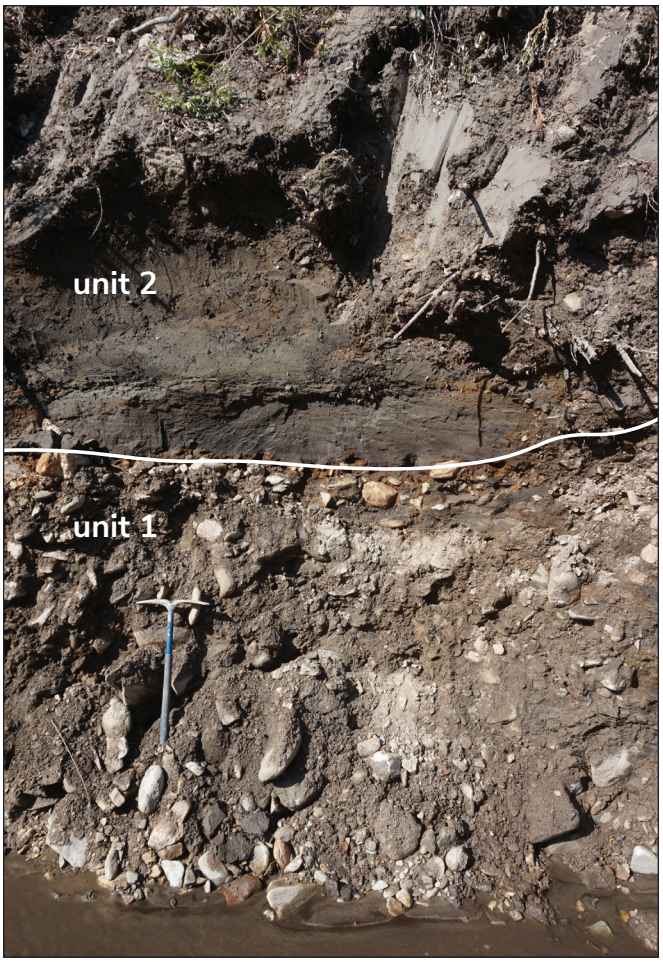
The following equipment was used on site:

- Hitachi EX300LC excavator
- Caterpillar 330C excavator
- Caterpillar D8K bulldozer
- 25-ton International rock truck

The wash plant consisted of a 1.2 by 6 m (4 × 20 ft) trommel that screened to 1½" and fed a 1.2 m (4 ft)-wide sluice run. A Ross box was also used on site.

Surficial geology and stratigraphy

In 2021, the left-limit cut revealed dredge material on the east side of the cut, and virgin gravel on the west side, at the base of the cut. The virgin gravel consists of two units. Unit 1, from 0 to 2 m (0–6.6 ft), is a poorly sorted, Bear Creek gulch gravel containing 40% pebbles, 40% cobbles and 20% boulders. This poorly sorted gulch deposit, having abundant organic material throughout, indicates a high-energy depositional environment. Moderately sorted gravel lenses within the deposit also display imbrication. Unit 2, from 2 to 2.6 m (6.6–8.5 ft), consists of overbank silt with organic material.



Section in 2021 on the left limit of Bear Creek at 16406 Yukon Inc.'s active cut. A pick for scale is 0.6 m (2 ft).

Bedrock geology

Bedrock is schist that varies from competent and slabby, to weathered.

Gold characteristics

The gold grain size is described as dominantly 20 mesh (0.84 mm); some larger grains are approximately 4 mesh (4.8 mm).

Klondike River, a tributary of Yukon River

116B/03 2022: 64°01'43"N, 139°15'48"W

Yukon Strike Mining, 2020–2022

Water license: PM17-054-3 (active 08/2027)

Active producer (2021–2022) **Operation no. 26**

Location

Klondike River, left limit, at the mouth of Deadman Gulch.

Work history and mining cuts

Yukon Strike Mining optioned a section of claims from C. Brown on the left limit of the Klondike River valley in 2020. In 2021, a total of 76 500 m³ (100 000 yd³) of in-situ Klondike River valley gravel was processed. The far left limit of the valley had never been dredged, likely due to the presence of a bedrock reef. Extensive reclamation on the cut was the focus in the latter part of the 2021 season. In 2022, a three-person crew sluiced a total of 26 750 m³ (35 000 yd³) immediately upstream of their cut from the previous season. The property was inactive in 2023.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 330 excavator
- Komatsu 650 excavator
- Komatsu 85EX bulldozer
- Komatsu 155 bulldozer

A floating trommel with a fully recirculating system was used to process material at a rate of up to 92 m³ (120 yd³)/hr. Clean-ups were conducted using a long tom and completed on a table in town.

Surficial geology and stratigraphy

The far left limit of the Klondike River, near the mouth of Deadman Gulch, was never dredged due to the presence of a bedrock rim. Additionally, an alluvial fan from Deadman Gulch resulted in a total section thickness that was unworkable for historic dredging operations. The stratigraphy of the Deadman Gulch fan consists of 6.4 m (21 ft) of Klondike River gravel on bedrock, overlain by 2.4 m (8 ft) of muck, and capped with 3.7 m (12 ft) of fan deposits. The fluvial fan deposit comprises coarse gravel near the apex, and transitions to finer sediments of sand and silt toward the toe of the fan. Crossbedding and imbrication are present, indicating high-energy flow conditions at the mouth of the tributary, and decreasing energy downstream as the deposit enters the Klondike River valley. All gravel was sluiced, along with up to 1.2 m (4 ft) of soft, weathered bedrock, and up to 0.3 m (1 ft) of slabby, more competent bedrock.

Bedrock geology

Bedrock is graphitic schist, containing an abundance of cubic pyrite crystals, some reaching up to 1 cm in size.

Gold characteristics

Gold from the Deadman Gulch fan is smoother compared to gold recovered from the Klondike River gravel. The fineness is 730.



Floating trommel used at Yukon Strike Mining's operation on the left limit of the Klondike River at the mouth of Deadman Gulch.

Klondike River, a tributary of Yukon River

116B/03 2021: 64°01'25"N, 139°10'37"W

Tatra Ventures Ltd., 2017–2023

Water license: PM14-055 (active 05/2025)
Water license: PM14-065-2 (active 10/2025)

Active producer (2021–2023) **Operation no. 27**

Location

Klondike River, left limit, immediately downstream from its confluence with Hunker Creek.

Work history and mining cuts

In 2020, Tatra Ventures Ltd. completed mining their Klondike River valley cut, which was situated immediately adjacent to the modern river channel. In 2021, operations were refocused on the far left limit of Klondike River valley, immediately downstream from its confluence with Hunker Creek. With a crew of up to six people, they extended the cut throughout 2022 and 2023, progressively mining downstream along the valley limit.

Equipment and water treatment

The following equipment was used on site:

- two John Deere 450DLC excavators
- John Deere 230CLC excavator
- two Caterpillar D400D haul trucks
- Volvo L220E wheel loader

A 2 by 11.5 m (6 × 38 ft) trommel with 1/2" punch plate was used to process material at a rate of up to 115 m^3 (150 yd^3)/hr. The operation used an out-of-stream reservoir/settling system, and water was recycled.

Surficial geology and stratigraphy

In 2021, the far left limit of the Klondike River cut exposed three units. Unit 1, from 0 to 3.7 m (0–12 ft), is Klondike River gravel, which consists of subrounded to rounded clasts in a sandy matrix. Unit 2, from 3.7 to 5.9 m (12–19.5 ft), is Hunker Creek gravel, composed of angular to subangular clasts in a matrix with a higher silt content, reflecting a lower-energy depositional environment. Unit 3, from 5.9 to 9.2 m (19.5–30 ft), is a loess deposit.



Aerial view of Tatra Ventures Ltd.'s operation on the far left limit of the Klondike River valley, immediately downstream from its confluence with Hunker Creek. The view is looking toward the east, across the mouth of the Hunker Creek valley.



Tatra Ventures Ltd. reclaimed a mining cut from 2020 in the middle of the Klondike River valley, under PM14-055. This reclamation project created a well-received summer recreational area for residents of Dawson and tourists alike.

Bedrock geology

Bedrock is graphitic schist with quartz veins.

Gold characteristics

Not reported.

Klondike River, a tributary of Yukon River

116B/03 2021: 64°02'05"N, 139°12'12"W

Hawker, F., 2021
New Zealand Mid-Arctic Gold Mining Limited, 2018–2019

Water license: PM14-076-2 (active 06/2025)

Active producer (2021) **Operation no. 28**

Location

Klondike River, left limit, 0.4 km upstream from Foster Gulch.

Work history and mining cuts

New Zealand Mid-Arctic Gold Mining Limited was not active in 2020, and leased the property to F. Hawker in 2021. Hawker extended a cut immediately upstream from the location previously mined by New Zealand Mid-Arctic Gold Mining Limited in 2019. In 2023, the claims were transferred to Singh Gold Mine Inc.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

The surficial deposits in the Klondike River drainage are uniform, consisting of a single gravel unit known as the Klondike River gravel. The lower sections of this gravel are remnants of glacial meltwater deposits, whereas the upper sections are more recent river valley deposits. A distinguishing feature of the Klondike River gravel, compared to the White Channel gravel, is the presence of dark-coloured clasts that include chert, slate and quartzite. These lithologies originated from the Ogilvie Mountains, located to the north of the Klondike, and are not commonly found in other gravel deposits in the Dawson area. For example, the White Channel gravel and other modern creek gravel deposits in the Dawson area were primarily derived from the more local source of bedrock, which is composed of light-coloured schist. The total thickness of surficial material at this locale is 7.3 m (24.0 ft).

Bedrock geology

Bedrock is foliated quartz-muscovite schist interbedded with graphitic schist. Undulations on the bedrock surface vary in relief and are up to 1 m (3 ft).

Gold characteristics

The fineness is 870 to 890.

Klondike River, a tributary of Yukon River

116B/03 2023: 64°01'48"N, 139°09'45"W

Slonski, G. and K. Elgie, 2020–2023
Farley's Machine Inc., 1995–2019

Water license: PM15-032-1 (active 07/2025)

Active producer (2021–2023) **Operation no. 29**

Location

Klondike River valley, left limit, at the base of Australian Hill.

Work history and mining cuts

In 2020, a new operation moved into the Klondike River valley at the mouth of Hunker Creek, and at the base of Australian Hill. The first full season of sluicing commenced in spring 2021. G. Slonski and K. Elgie operated with a five-person crew and sluiced an estimated 46 000 m³ (60 000 yd³) of material, and mechanically stripped an estimated total of 180 000 m³ (235 000 yd³). In 2022, an estimated 55 200 m³ (72 200 yd³) of material was sluiced, and a total of 216 000 m³ (283 000 yd³) of material stripped. Activity continued throughout the 2023 season, extending the cut that was worked in previous years at the base of Australia Hill. Progressive reclamation was completed each season, and cuts were backfilled with tailings, contoured and top coated with organics.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

The main target was 5 m (16 ft) of Klondike River gravel situated on bedrock. The Klondike River gravel is overlain by 3 m (10 ft) of sand derived from Hunker Creek.

Bedrock geology

Bedrock is mapped as quartzite, graphitic quartzite, and quartz-muscovite-chlorite-schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.



G. Slonski's and K. Elgie's cut at the base of Australian Hill in the Klondike River valley in 2021.

Hunker Creek, a tributary of Klondike River

116B/03 2023: 64°01'04"N, 139°09'10"W
116B/03 2021: 64°01'04"N, 139°08'34"W

Henry Gulch Explorations Ltd., 1997–2000, 2005–2023

Water license: PM14-069 (active 05/2025)

Active producer (2021–2023) **Operation no. 30**

Location

Hunker Creek, at the mouth of Henry Gulch.

Work history and mining cuts

Henry Gulch Explorations Ltd. spent the last three seasons winding down the scale of their operation on lower Hunker Creek. Since 1997, they have completed cuts both inside and outside the dredge limit, successfully mining in-situ gravel, side pay, and areas proven to be reprocessed post-dredging operations. The last major mining effort on the property for Henry Gulch Explorations Ltd. occurred during the 2021 season. They worked with a crew of four employees and reported a total of 277 hours of sluicing. In 2021, a cut was completed on the left limit, and measured 61 by 76 m (200 × 250 ft) and was 10.7 m (35 ft) deep. A total of 28 hours of sluicing was reported in 2022, and 25 hours reported in 2023. A significant amount of reclamation was completed throughout all active seasons.

Equipment and water treatment

The following equipment was used on site:

- Hitachi EX400 excavator
- Hitachi EX270 excavator
- Hitachi EX200LC excavator
- two Caterpillar D400E articulating trucks
- Caterpillar D9H bulldozer
- Volvo L220E loader

The wash plant consisted of an oscillating single screen deck with a 3/4" punch plate, followed by two sluice runs with expanded metal, four boil boxes and hydraulic riffles. The plant processed material at a rate of 61 to 76 m³ (80–100 yd³)/hr, and water was supplied to the plant using a 6 by 6" Indeng pump powered by an Isuzu engine at a flow rate of 1500 IGPM. Clean-ups were conducted using a long tom over a two-cell jig and a 0.9 m (3 ft) gold wheel.



Drone image from Henry Gulch Explorations Ltd.'s operation on lower Hunker Creek in 2021. The cut mined in 2021 is delineated by a white dashed line. J. Alton of Henry Gulch Explorations Ltd. has conducted progressive reclamation throughout his active mining seasons, and vegetation has largely been reestablished on the lowermost claims.

Surficial geology and stratigraphy

The left limit of Hunker Creek, below Henry Gulch, features a significant former cut bank where Hunker Creek eroded the hillside, resulting in an extensive deposit of Hunker Creek side pay on the far left limit of the drainage. This deposit was subsequently buried under a substantial accumulation of muck. This area has been a focal point of mining activities for several years and requires hydraulic monitoring to effectively strip the thick, frozen muck. The Hunker Creek valley bottom and a low-level bench on the left limit were also targeted, and up to 1.2 m (4 ft) of gravel and approximately 0.6 m (2 ft) of bedrock were sluiced.

Bedrock geology

Bedrock is a blocky grey schist.

Gold characteristics

Gold is predominantly 16 to 18 mesh (1.2–1.0 mm) and angular. Fineness ranges from 730 to 750.

Henry Gulch, a tributary of Hunker Creek

116B/03 2023: 64°00'37"N, 139°08'34"W

Gillespie, R., 1995–2020, 2022–2023

Water license: PM19-053 (active 01/2030)

Active producer (2022–2023) **Operation no. 31**

Location

Henry Gulch, 1.1 km upstream from its confluence with Hunker Creek.

Work history and mining cuts

R. Gillespie has been mining solo on Henry Gulch since 1995. In recent years, he was also active on a property on Eldorado Creek. No work was conducted in 2021 on Henry Gulch, as efforts were focused on Eldorado Creek. In 2022, reclamation was completed, and no additional work history is known. Stripping and stockpiling pay was carried out in 2023.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 225 excavator
- Caterpillar 212 excavator
- Caterpillar 966C wheel loader
- Volvo rock truck

A 1.5 by 3 m (5 × 10 ft) oscillating screen deck was used to process material at a rate of 38 to 46 m^3 (50–60 yd^3)/hr.

A single sluice run, 1 by 3 m (3 × 10 ft) consisted of 1¼" angle iron and expanded metal. Water for sluicing was 100% recycled and acquired from a reservoir pond on Henry Gulch.

Surficial geology and stratigraphy

Henry Gulch is a narrow drainage that has been extensively worked since the Gold Rush. The modern placer target consists of in-situ gravel on an undulating bedrock surface. Henry Gulch gravel is a high-energy, cobble-pebble gravel containing angular rip-up clasts of bedrock, as well as woody debris throughout. Within the in-situ gulch gravel are gravel lenses that were derived from old-timer workings, which can sometimes be difficult to discern; however, the in-situ gravel is less sorted. Overburden in the lower reaches of the drainage consists of loess and organics, up to 12 m (40 ft) thick.

Bedrock geology

Bedrock varies from decomposed schist to blocky quartzite.

Gold characteristics

Gold is coarse grained and includes nuggets that are up to 14 g (0.5 oz).



Aerial view of R. Gillespie's operation on the left limit of Henry Gulch; the view is looking upstream or to the west.

Dago Hill and Last Chance Creek (tributary of Hunker Creek)

116B/03 2023: 64°00'11"N, 139°06'57"W

Favron Enterprises Ltd., 2000–2023

Water license: PM14-022 (active 11/2024)
Water license: PM14-023 (active 11/2024)

Active producer (2021–2023) **Operation no. 32**

Location

Last Chance Creek and Dago Hill, tributary and a bench of Hunker Creek, respectively.

Work history and mining cuts

Favron Enterprises Ltd. sluiced on Dago Hill in 2022, and were dividing their time between Hunker Creek and another one of their properties on Sulphur Creek. A 9290 m² (100 000 ft²) cut, 21 m (70 ft) deep, was prepared for sluicing, and half of the cut material was processed in 2022. Frozen gravel was encountered in the lowermost 4.5 m (15 ft) of the cut, which slowed down production. On Bremner Hill, a left-limit bench on Last Chance Creek, an additional 22 936 m³ (30 000 yd³) of material was sluiced that was excavated and stockpiled in 2018. In 2022, activities also included a large stripping program, as well as reclamation on 27 870 m² (300 000 ft²) of previously mined ground. Favron Enterprises Ltd. received the Robert E. Leckie award in 2022, and were recognized for their responsible and innovative exploration and mining practices. Ongoing stripping and reclamation occurred on Dago Hill throughout the 2023 season.

Equipment and water treatment

The following equipment was used on site. Equipment is used interchangeably between all active Favron Enterprises properties:

- John Deere 850D excavator
- Hitachi EX750 excavator
- Hitachi Zaxis 850 excavator
- John Deere 330 excavator
- Volvo L190 wheel loader
- Caterpillar 988G wheel loader
- Caterpillar D9N bulldozer
- Caterpillar D10N bulldozer
- two Terex 8220 bulldozers
- Komatsu D155-6 bulldozer
- three Komatsu HM400 rock trucks
- four John Deere 460E rock trucks

The wash plant consisted of a 1.8 by 13.7 m (6 × 45 ft) trommel with a 9 m (30 ft) wash section and 4.5 m (15 ft)



Drone image of Favron Enterprises Ltd.'s operation on Dago Hill. The view is looking downstream on Last Chance Creek, or to the northeast. Hunker Creek valley is visible in the far background of the image.

of 3/4" screen. Eight sluice runs, each measuring 0.9 by 6 m (3 × 20 ft), contained expanded metal and riffles, and were lined with unbacked nomad matting. A 1 m (3.5 ft)-diameter test trommel was also used. Water was supplied via a 10" Pioneer pump powered by a Detroit diesel engine. Water was fully recycled with no discharge.

Surficial geology and stratigraphy

Placer gold targets on Dago Hill include the following: Pliocene gravel terraces (White Channel and Paradise gravel) on Hunker and Last Chance creeks; gulch placers from small tributaries eroding Pliocene deposits; and technogenic deposits under hydraulic tailings. Mining near Dago Hill focused on an intermediate-level, left-limit terrace of Hunker Creek at the base of Dago Hill. Gold accumulations on this intermediate-level terrace are derived from a reworked, high-level terrace of Pliocene White Channel gravel upslope. Overburden of muck deposits on the terrace also contain lenses of reworked White Channel gravel, making hydraulic monitoring effective for capturing gold from both the colluvium and the terrace gravel.

Bremner Hill consists of White Channel gravel overlain by colluviated loess (silt-rich muck). Due to surface erosion, the White Channel gravel deposits vary in thickness from 10 to 12 m (33 to 39 ft); the lowermost 2.1 m (7 ft) of the gravel was processed as pay. The underlying bedrock surface is undulating, and the bedrock is highly weathered and decomposed, which results in a high clay content in the pay gravel near the bedrock contact. To manage the high clay content and maximize gold recovery, hydraulic monitoring was used on the lowermost 0.6 m (2 ft) of pay gravel before excavation. The uppermost 1.5 m (5 ft) of the pay gravel was easily extracted using an excavator.



Drone image from 2023 of Ace Placer Mining Ltd. actively stripping at the confluence of Last Chance Creek with Hunker Creek. The company used a combination of hydraulic and mechanical methods for stripping. The view is to the northwest.

Bedrock geology

Bedrock is altered black and orange schist, and Late Cretaceous Carmacks Group volcanic and sedimentary rocks.

Gold characteristics

Gold from Dago Hill is 80% fine-grained, but contains nuggets up to 21 g (0.75 oz).

Hunker Creek, a tributary of Klondike River

116B/03 2021: 64°00'30"N, 139°05'36"W

Ace Placer Mining Ltd., 2017–2023

Water license: PM16-073-1 (active 01/2027)

Active producer (2021–2023) **Operation no. 33**

Location

Hunker Creek, left limit, immediately upstream from the mouth of Last Chance Creek.

Work history and mining cuts

Ace Placer Mining Ltd. continued to divide their time between Hunker Creek and their operation on Dominion Creek. For several seasons, significant hydraulic and mechanical stripping was used to reach pay gravel on Hunker Creek. In 2021, with a crew of four people working a split shift, they sluiced all the thawed gravel they were able to liberate that season. Stripping continued throughout 2022 and 2023.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 235C excavator
- Caterpillar 349F excavator
- two Caterpillar 980 wheel loaders
- Caterpillar D9G bulldozer

A 36 m (120 ft) conveyor feeder was added to the wash plant, which included a screen deck with a 3/4" screen.

The screen deck processed material at a rate of up to 115 m³ (150 yd³)/hr.

Surficial geology and stratigraphy

On the left limit of Hunker Creek, just upstream from the mouth of Last Chance Creek, three levels of intermediate Hunker Creek benches were exposed. The benches occur at three levels above the modern valley bottom: 6.6 m (21.7 ft), 4 m (13.1 ft) and 3.5 m (11.5 ft); they are all overlain by frozen black muck. These terraces (benches) formed in response to changes in the base level of Hunker Creek. As the base level lowered, the creek eroded deeper into its bed, creating a new, lower valley floor. Subsequent rises in the base level led to sediment deposition, forming new benches. This cycle of base level changes and sediment deposition repeated over time, resulting in multiple bench elevations.

The imbrication of the gravel within the bench deposits indicates paleoflow direction parallel to Last Chance Creek flow, suggesting that not all of the gravel was derived from Hunker Creek, and there was a significant input from Last Chance Creek. Additionally, there are two distinct populations of gold recovered from these deposits. Despite the area's extensive mining history, there remains a sizeable area of ground that has never been mined, highlighting the potential for undiscovered resources in prominent Klondike-area drainages.

Bedrock geology

The bedrock is composed of deformed siltstone and sandstone, which has been overlain by Carmacks Group basalt that has been dated at 72 million years old. There is evidence of soft sediment deformation in the sedimentary bedrock.

Gold characteristics

The gold is all fine grained.

Last Chance Creek, a tributary of Hunker Creek

116B/03 2023: 64°00'38"N, 139°05'56"W

Tatra Ventures Ltd., 2014–2015, 2023

Water license: PM14-068 (active 04/2025)

Active producer (2023) **Operation no. 34**

Location

Last Chance Creek, 0.6 km upstream from its confluence with Hunker Creek.

Work history and mining cuts

In 2023, Tatra Ventures Ltd. resumed activity on their



Drone image from 2023 of Tatra Ventures Ltd.'s operation at the mouth of Last Chance Creek. The main cut, located upstream from Dredge No. 11, is outlined with a white dashed line. A second cut that was initiated just before the site visit, is also delineated with a white dashed line.

Last Chance Creek claims after a seven-year hiatus. Previous mining in 2015 on Last Chance Creek occurred beneath the tailings stacker of Dredge No. 11, which protected in-situ Last Chance Creek gravel. In 2023 they investigated the extent of the remaining Last Chance Creek side pay on the left limit, upstream from Dredge No. 11. By mid-season, they completed a 76 by 107 m (250 × 350 ft) cut. They continued to extend the cut throughout the season, following the side-pay deposit. Discovering this extensive Last Chance Creek side-pay unit in a heavily mined area highlights the importance of exploration programs, especially in locations that have undergone historic and modern mining activity at such high density. A second test cut was initiated in mid-July that revealed a continuation of the side-pay unit on the far left limit of Last Chance Creek at the confluence with Hunker Creek.

Equipment and water treatment

The following equipment was used on site:

- John Deere 230C excavator
- Hitachi excavator
- Caterpillar excavator
- trommel
- Caterpillar bulldozer
- wheel loader
- two rock trucks

Surficial geology and stratigraphy

Mining inside and outside historic dredge limits has proven economic in many prominent drainages in the Klondike. At the mouth of Last Chance Creek, despite several vintages of dredging, operators are still able to recover economic values of placer gold. Tatra Ventures Ltd. targeted the side pay of Last Chance Creek, which had evaded dredging and modern mining due to a thick package of technogenic overburden.

In 2023, a left-limit cut on lower Last Chance Creek revealed four units. Unit 1 represents the Last Chance Creek side pay, averaging 1.8 m (6 ft) in thickness. It consists of a matrix-supported, poorly sorted, loose and muddy gravel. The clasts are subrounded to rounded, and mostly cobble-sized. Zones of iron and manganese staining are present throughout the unit. Unit 2, from 1.8 to 4.6 m (6–15 ft), comprises moderately sorted pebble gravel with lenses of sand. It is unclear whether this unit formed from a waning in fluvial energy resulting in a finer grained deposit, or if it is a technogenic deposit from mining in the early 1900s. Unit 3, ranging from approximately 4.6 to 9 m (15–30 ft), consists of dredge tailings that are muddy in composition. Unit 4, from 9 to 12 m (30–40 ft), is a technogenic deposit comprised of fine-grained material, which may be tailings derived from previous hydraulic or mechanical mining.

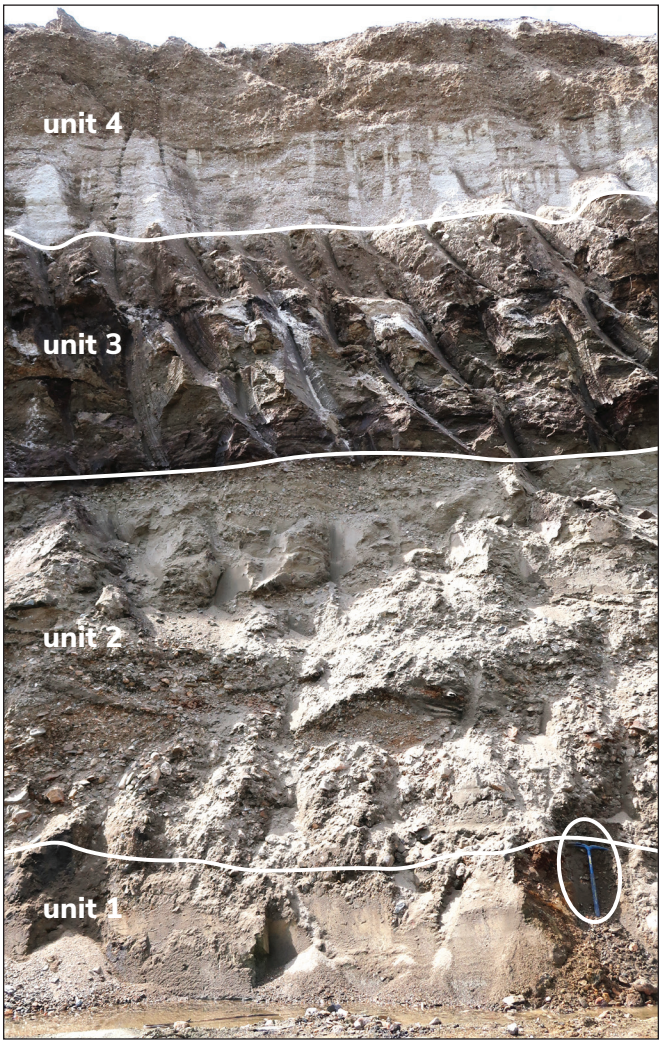
In the Klondike region, technogenic dredge deposits are the result of extensive historic mining efforts. These deposits form large, uniform piles of tailings, composed of fine-grained sediment, sand and cobbles. The fine-grained tailings and dredge mud exhibit very uniform layering, which is distinctive of anthropogenic activity and distinguishes them from natural deposits.

Bedrock geology

Bedrock is weathered and oxidized, carbonaceous metasedimentary rocks. The bedrock surface is undulating having reliefs of up to 0.7 m (2.3 ft).

Gold characteristics

Not reported.



Left-limit cut exposed in 2023, exposing four units. The lowermost unit, unit 1, was processed as pay. A pick for scale (circled in white) in the bottom right of the photo measures 0.6 m (2 ft).

Last Chance Creek, a tributary of Hunker Creek

115O/14 2023: 63°59'21"N, 139°07'03"W
115O/14 2021: 63°58'00"N, 139°08'18"W

Golden Wrench Mining Ltd., 2016–2023
Last Chance Placers Ltd., 1991–2015

Water license: PM14-063-1 (active 05/2025)

Active producer (2021–2023) **Operation no. 35**

Location

Last Chance Creek, 0.6 km downstream from 8 Above Pup.

Work history and mining cuts

Golden Wrench Mining Ltd. has been active in the Last Chance Creek drainage since purchasing the property in 2016. In 2021, a one-year lease agreement was established with C. Arkinstall and A. Sigurdson to mine in the drainage near the mouth of Henrietta Pup. From 2021 to 2023, Golden Wrench Mining Ltd. focused on mining downstream from 8 Above Pup. The majority of activity was concentrated on bench deposits on the left limit of Last Chance Creek, between 8 Above Pup and Discovery Pup. Golden Wrench Mining Ltd. primarily mined as a one-person operation.

Equipment and water treatment

The following equipment was used on site:

- two Hitachi 450 excavators
- Hitachi Zaxis 270LC excavator
- Caterpillar 324DL excavator
- Massey Ferguson 66 wheel loader
- Caterpillar 980 wheel loader
- Caterpillar D7 bulldozer
- Caterpillar D9L bulldozer
- three rock trucks

The wash plant consisted of a trommel with a 3/4" screen capable of processing material at a rate of 76 m³ (100 yd³)/hr. A 6" pump supplied water the plant and water was 100% recycled.



Aerial view of activity in 2021 on upper Last Chance Creek, looking downstream (to the northeast) toward the location where C. Arkinstall and A. Sigurdson were mining.

Surficial geology and stratigraphy

Extensive old-timer workings were identified on the main stem of Last Chance Creek, near the mouth of Henrietta Pup. In areas where pay gravel is in situ, the thickness varies from 0.6 to 0.9 m (2–3 ft). The pay gravel is compact and coarse, and fines upward into a pebble gravel in the uppermost 4.3 m (14 ft).

A mid-level bench between 8 Above Pup and Discovery Pup, previously worked by Last Chance Placers Ltd., was revisited by Golden Wrench Mining. They initiated activity in 2023 on the bench, and excavated another lift of the bedrock surface. No alluvial gravel remained on the bench and the target was gold recovered from the fractured bedrock. Approximately 1.2 m (4 ft) of the bedrock surface was excavated.

Bedrock geology

Bedrock is volcanic breccia.

Gold characteristics

Gold grains are a variety of sizes including a minor constituent of coarse-grained particles. The fineness is 690.

Paradise Hill, a bench on Hunker Creek

115O/14 2023: 64°00'02"N, 139°04'48"W
115O/14 2020: 63°59'34"N, 139°04'22"W

535901 Yukon Inc., 2021–2023
Tamarack Inc., 1983–1986, 1989–1999, 2005–2012, 2015–2020

Water license: PM18-022 (active 02/2029)

Active producer (2021–2023) **Operation no. 36**

Location

Paradise Hill and Hunker Creek, between Last Chance Creek and Hester Creek.

Work history and mining cuts

In 2021, the company reported sluicing 23 hours a day for a total of 82 days. Reclamation efforts were also completed in the middle of the claim block, and included backfilling of previous cuts, and recontouring an area behind the camp. Mining on top of Paradise Hill was carried out throughout the 2022 and 2023 seasons.



535901 Yukon Inc.'s active cut in 2021 on Paradise Hill. Note the highly oxidized nature of the Paradise gravel.

Equipment and water treatment

An inventory of equipment was not reported.

Pay was delivered to a trommel using a 9 m (30 ft) conveyor. The wash plant consisted of a 2.4 m (8 ft)-diameter land trommel that was 15 m (50 ft) in length and screened to 3/4". The trommel is lined with 6" flights to help agitate and break down the clay-rich gravel. The sluice runs consisted of six, 0.6 by 4.5 m (2 × 15 ft) oscillating runs, and the plant processed material at a rate of 229 to 268 loose m³ (300–350 loose yd³)/hr. Water was collected from an in-stream reservoir on Hunker Creek, and effluent was released into a series of settling ponds in the Hunker Creek valley.

Surficial geology and stratigraphy

Paradise gravel is a unit that predates the White Channel gravel deposits. It is highly altered and contains a diverse variety of clasts with differing lithologies. When climate change initiated the erosion and formation of the White Channel gravel, the Paradise gravel was already significantly weathered, and most clasts, except for quartz, were altered and broken down to clay and sand. The weathering and erosion of the Paradise gravel removed most of the clay-altered clasts from the Hunker Creek basin, leaving behind an accumulation of quartz clasts. This reworking period also influenced gold distribution. Where the White Channel gravel reworked the underlying Paradise gravel, there would have been an increased concentration of gold on the bedrock surface. The Paradise gravel was first identified at Paradise Hill in 2015, and was also documented at Preido and Dago hills to the north (Bond, 2016).

An exposure in 2021 revealed three units. Unit 1, from 0 to 3.9 m (0–12.8 ft), is interpreted as Paradise gravel, a cobble-pebble gravel containing minor boulders up to 1 m (3.3 ft) in diameter on the bedrock surface. It is pervasively oxidized and contains highly decomposed clasts of mixed lithologies. Unit 2, from 3.9 to 11.5 m (12.8–37.7 ft), is interpreted as back-channel deposits of White Channel gravel. The unit is light grey in colour and consists of interbedded sand and silt; some of the beds of sand are oxidized. Unit 2 has a sharp lower contact with unit 1. Unit 3, from 11.5 to 13 m (37.7–42.7 ft), is composed of loess. All of unit 1 was processed as pay.

Bedrock geology

Bedrock consists of highly decomposed fine-grained sedimentary rocks that are mapped as Indian River Formation. The bedrock surface is highly undulating.

Gold characteristics

Gold is fine grained, and the fineness is 860.

Hester Creek, a tributary of Hunker Creek

115O/14 2023: 63°59'03"N, 139°02'57"W

P.A.P. Enterprises Ltd., 2011–2020, 2022–2023

Water license: PM20-067 (active 03/2032)
Water license: PM18-013-1 (active 06/2028)

Active producer (2021–2023) **Operation no. 37**

Location

Hester Creek, approximately 0.9 km upstream from its confluence with Hunker Creek.

Work history and mining cuts

P. Phillips of P.A.P. Enterprises Ltd. was active on his other property on Clear Creek in 2021 and resumed operations on Hester Creek in 2022. A total of 1632 hours of sluicing was reported for the 2022 season. In 2023, activity continued with progressive mining upstream. Each season, up to four employees were active on site. Hydraulic stripping was used on the property to thaw the thick, frozen overburden. As a result, significant time was devoted to monitoring early in the season, and to continue throughout the season, allowing the pay gravel to thaw before excavation.

Equipment and water treatment

The following equipment was used on site:

- Komatsu PC200 excavator
- Komatsu PC400 excavator
- Hitachi EX300 excavator
- two Caterpillar 8L bulldozers
- Caterpillar 980 wheel loader
- two Caterpillar 300B rock trucks

The plant consisted of a New Zealand-style trommel on skids measuring 1.5 by 6.1 m (5 × 20 ft) that processed material at a rate of up to 76 m³ (100 yd³)/hr. An in-stream reservoir supplied water for the monitor.

Surficial geology and stratigraphy

Hester Creek is a relatively narrow drainage with a significant accumulation of interbedded organic-rich and sediment-rich muck containing ice lenses. Organic-rich muck formed during interglacial periods, whereas sediment-rich muck accumulated in a preglacial environment during glacial periods. During glacial periods, the Klondike region experienced increased aridity, grassland-dominated vegetation, rapid runoff and prevalent loess (wind-blown sediment) deposition, which contributed to the accumulation of sediment-rich muck.

Bedrock geology

Bedrock is graphitic schist with quartz veins.

Gold characteristics

Not reported.

Trilby Hill, a bench on Hunker Creek

115O/15 and 16 2023: 63°58'37"N, 138°59'31"W

Kreft, B., 2018–2020, 2023

Class 3: LPO1238 (active 11/2028)

Active producer (2023) **Operation no. 38**

Location

Trilby Hill, a right-limit, high-level bench of Hunker Creek across from Colorado Creek.

Work history and mining cuts

In 2023, B. Kreft, along with a two-person crew, mined under a Class 3 land use permit on Trilby Hill. Previous exploration conducted from 2018 to 2020 was able to determine the economic viability of mining the high-level White Channel bench. No activity occurred on the property in 2021 and 2022.

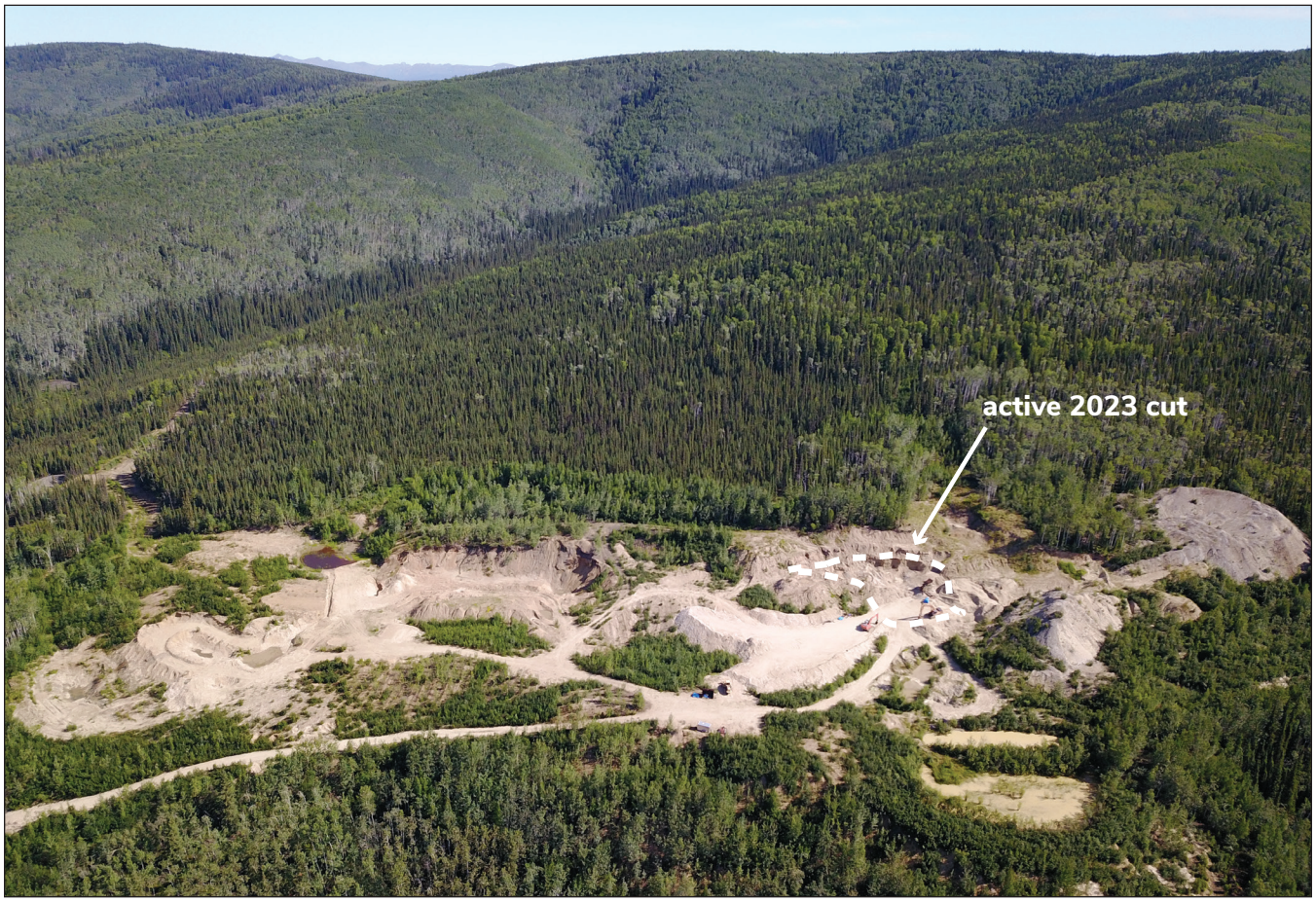
Equipment and water treatment

The following equipment was used on site:

- Hitachi Zaxis 200 excavator
- Komatsu 320 wheel loader

Surficial geology and stratigraphy

An exposed section from previous work revealed three units. Unit 1, from 0 to 6 m (0–20 ft), is lower White Channel gravel, which is a poorly sorted cobble gravel with subangular to subrounded clasts of quartz. The full thickness of unit 1 was not exposed at the time of the site visit. Unit 2 consists of upper White Channel gravel deposits and is subdivided into three subunits. Unit 2a, from 6 to 7 m (20–23 ft), is a pebble-cobble gravel that is oxidized and moderately sorted with a diverse lithology of clasts. Unit 2b, from 7 to 9 m (23–29.5 ft), consists of a deposit of overbank floodplain silt, indicating a



Aerial view of B. Kreft's operation on Trilby Hill in 2023. The active cut is delineated by a white dashed line, and located on the most upstream side of Trilby Hill.

distal position from the active stream at the time of deposition. Unit 2c, from 9 to 13 m (29.5–43.0 ft), is an oxidized, moderately to well-sorted, pebble-dominated gravel with interbeds of sand. Unit 3, from 13 to 18 m (43–59 ft), is a dark grey to black gravel, dominated by pebbles and cobbles composed of dark grey quartzite of the Finlayson (Nasina) assemblage, which were likely sourced from tributaries such as Bee or Trilby gulches.

Bedrock geology

Bedrock includes both Klondike Schist, and Finlayson assemblage quartzite and schist.

Gold characteristics

Not reported.

Hunker Creek, a tributary of Klondike River

115O/15 2023: 63°58'39"N, 139°00'18"W

Daval Mining, 1982–2023

Water license: PM19-009-1 (active 03/2030)

Active producer (2021–2023) **Operation no. 39**

Location

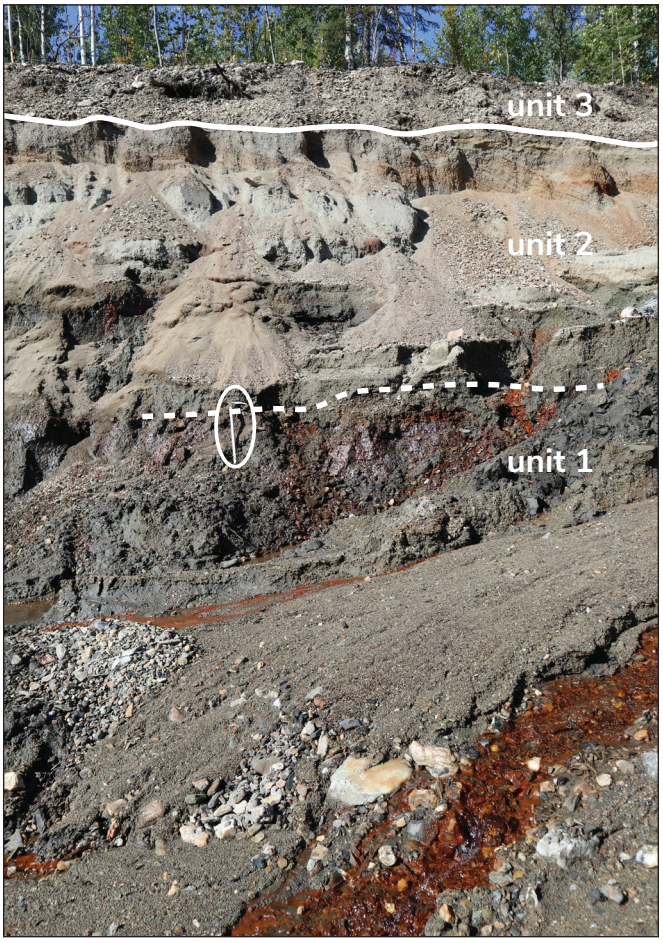
Hunker Creek, 260 m downstream from the mouth of Colorado Creek.

Work history and mining cuts

Daval Mining primarily operated with a three-person crew, and has spent the last three seasons focusing their mining efforts at the mouth of Colorado Creek. In this historically dredged area, their targets include side pay, in-situ gravel, as well as the bedrock interface that previous dredging efforts missed, could not reach, or did not effectively excavate. The late D. Gould of Daval Mining passionately researched historic mining methods and the dredge history of the Klondike, and devoted decades of his life to understanding both the geological and mining history of the Hunker Creek valley. Having this depth of knowledge combined with the completion of a significant drill program, Daval Mining has been able to effectively and efficiently inventory their claims on Hunker Creek. In 2021, a cut was completed inside the dredge limits on the left limit of the Hunker Creek valley, immediately downstream from the mouth of Colorado Creek, and measured 38 by 61 m (125 × 200 ft). In 2022, a total of 320 hours of sluicing was carried out. In 2023, with a crew of three additional employees, they completed a 62 by 96 m (204 × 315 ft) cut on the right limit of Hunker Creek valley.



Drone image of Daval Mining active on Hunker Creek at the mouth of Colorado Gulch in 2023. The 2022 and 2023 seasons were focused on the right limit of the valley, adjacent to the Hunker Creek Road. The view is looking upstream or to the southeast.



Exposure in 2021 from the cut inside the dredge limit on the left limit of the Hunker Creek. Ice axe for scale (circled in white) measures 0.9 m (3 ft).

Equipment and water treatment

The following equipment was used on site:

- Hitachi Zaxis 450 excavator
- Hitachi Zaxis 470 excavator
- Komatsu PC220 excavator
- two Caterpillar 769B haul trucks
- Caterpillar D9N bulldozer
- Caterpillar D3 bulldozer

The wash plant consisted of a 1.5 by 6.1 m (5 × 20 ft) trommel with a 1/2" screen, and was used to process material at a rate of up to 27 m³ (35 yd³)/hr. A single, side sluice run was 3 m (10 ft) wide by 2.4 m (8 ft) long and consisted of hydraulic riffles and expanded metal. Water was 100% recycled, and no direct effluent was discharged into Hunker Creek. A screen and magnet were initially used for clean-ups, and the concentrate was completed on a wheel.

Surficial geology and stratigraphy

In 2021, a cut inside the dredge limits on the left limit of Hunker Creek, immediately downstream from the mouth of Colorado Creek, revealed three units. Unit 1, from 0 to 2.0 m (0–6.7 ft), is in-situ Hunker Creek gravel that remained undisturbed during previous mining activities. Unit 2, from 2.0 to 5.6 m (6.7–18.5 ft), consists of dredge slickens and tailings. Unit 3, from 5.6 to 9.4 m (18.5–30.9 ft), consists of coarse dredge tailings and modern technogenic deposits left over from the stripping of earlier cuts.

In 2023, an exposure of side pay at the dredge limit consisted of two units. Unit 1, from 0 to 2.1 m (0–7 ft), is in-situ Hunker Creek side pay. The thickness of the gravel deposit varies greatly due to bedrock undulations, which can add an additional 0.9 to 1.2 m (3–4 ft) of gravel to the pay unit. Paleo Hunker Creek gravel is a loose, matrix-supported cobble gravel. The matrix makes up 30% of the unit and is composed of silty, fine-grained sand. All clasts are subrounded. The unit fines upward to a pebble gravel. Unit 2 is up to 6.1 m (20 ft) thick and consists of black muck and dredge slickens/tailings, depending on which side of the dredge limit the exposure cuts through. Gravel seams were also encountered in the dredge mud. Although challenging to isolate during excavation, these seams yielded economic returns. There are two theories for the gravel within the dredge mud: it may be derived from coarse tailings from dredging, or may be an input of virgin gravel into the technogenic deposit when the dredge turned.

Bedrock geology

Bedrock is muscovite schist containing abundant pyrite crystals.

Gold characteristics

The gold is bright and very fine grained; 4% of the gold recovered was larger than 12 mesh (1.7 mm). Large (several centimetres), cubic pyrite crystals were also recovered. Gold fineness is 815.

Hunker Creek, a tributary of Klondike River

115O/15 2021: 63°58'02"N, 138°58'50"W

Fraser, I., 2014–2023
Fraser, J., 1978–1998

Water license: PM23-016 (active 01/2034)
Water license: PM13-023 (expired 07/2023)

Active producer (2021–2023) **Operation no. 40**

Location

Hunker Creek, left limit, 0.7 km downstream from Gold Bottom Creek confluence.

Work history and mining cuts

The Fraser family has been mining on Hunker Creek since 1978. Their operation, located downstream from Gold Bottom Creek, is locally known as ‘Fraserville’. In recent years, I. Fraser has been working historically dredged ground, identifying economic deposits both inside and outside the historic dredge limits. In 2021, a cut on the left limit was completed, which was located adjacent to the previous year's cut. A total of 30.5 hours of sluicing was reported. In 2022, a mid-valley cut was completed, and a total of 44 hours of sluicing was reported. In 2023, activities were focused solely on exploration, and material was stockpiled for future sluicing.

Equipment and water treatment

The following equipment was used on site:

- Hitachi Zaxis 350LC excavator
- Caterpillar 950 wheel loader
- Caterpillar D6 bulldozer
- dump truck

A 2.1 by 4.6 m (7 × 15 ft) screen deck with a 3/4" screen was used to process material at a rate of 23 m³ (30 yd³)/hr. Water was supplied to the plant using a 6 by 6" pump. Effluent was settled in one pond, seeped through the tailings, and was part of a closed system that was 100% recirculating.

Surficial geology and stratigraphy

The section of Hunker Creek downstream from Gold Bottom Creek was first dredged by Dredge No. 7 in



Aerial view of I. Fraser's operation on Hunker Creek in 2021. The view is from the left limit of Hunker Creek looking across the valley or to the southwest.

1910, and significant hand mining had also occurred prior to dredging. A second dredging program took place in the late 1930s. Due to the multiple phases of mining activity, determining the origin of deposits can be challenging. Furthermore, tracing pay units and paleo channels can be difficult as they can change abruptly. In 2021, a mid-valley cut exposed two units. Unit 1, from 0 to 2.7 m (0–9 ft), is believed to be a technogenic deposit, characterized by its massive texture, matrix-supported structure, and stratification that dips toward the left limit of Hunker Creek. Unit 2, from 2.7 to 6.4 m (9–21 ft), is overburden consisting of pebble-rich muck and historic tailings. The thickness of the units varies greatly, and pockets of in-situ gravel are preserved on the undulating bedrock surface. These pockets of in-situ gravel contain rip-up clasts of weathered bedrock.

Technogenic deposits from historic dredging efforts can include a variety of materials such as tailings, overburden and reworked sediments. These deposits often contain a mix of materials from different periods of mining activity, making it difficult to identify their precise origin. The sediments can exhibit abrupt changes in composition and structure due to the different mining techniques and the timing of when the activities took place. This complexity underscores the challenges faced when mining in areas with long and varied mining histories.

Bedrock geology

Bedrock is quartz-sericite schist that is often highly weathered and decomposed.

Gold characteristics

Gold is 60% fine grained and 40% medium to coarse grained. The fineness is 810.

Gold Bottom Creek, a tributary of Hunker Creek

115O/15 2023: 63°53'15"N, 138°58'58"W
115O/15 2022: 63°53'54"N, 138°59'32"W

Tim Coles Enterprises Ltd., 2016–2023

Water license: PM21-049 (active 07/2032)

Active producer (2021–2023) **Operation no. 41**

Location

Gold Bottom Creek, upper reach, 250 m upstream from the confluence with Soap Creek.

Work history and mining cuts

During most of the reporting period, mining efforts by Tim Coles Enterprises Ltd. focused on Gold Bottom Creek upstream from the mouth of Gold Bottom Gulch. A crew of three to four people mined a total length of 610 m (2000 ft) of the valley bottom during both the 2021 and 2022 seasons. Mining over these seasons targeted virgin side pay as well as cat tailings from previous mining. Five hundred hours of sluicing was completed during each of these seasons. In 2023, operations were focused on upper Gold Bottom Creek upstream from the confluence with Soap Creek. Previous mining in this reach of the drainage focused on a narrow section of the valley bottom and missed significant side pay. A 305 m (1000 ft)-long section of upper Gold Bottom Creek was targeted in 2023, focusing on the right-limit side pay. The mining cut measured approximately 23 by 305 m (75 × 1000 ft).

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 349E excavator
- Kobelco SK350 excavator
- John Deere 380G excavator
- Caterpillar 980G wheel loader
- John Deere 470G excavator
- Terex 4060 rock truck
- Caterpillar D9H bulldozer

The wash plant consisted of a 1.8 by 4.3 m (6 × 14 ft) double screen deck, featuring a vibrating 1½" punch plate that overlaid a second 3/4" screen. Material that passed through the bottom screen fed two boil boxes and sluice runs, which were overlain with expanded metal.



Drone image from 2023 of Tim Coles Enterprises Ltd.'s active operation at the confluence of Soap Creek and upper Gold Bottom Creek. The view is looking downstream (northeast), to the cuts that the operator previously completed.



Section consisting of three units exposed at the confluence of Soap Creek and upper Gold Bottom Creek in 2023. A pick for scale (circled in white) measures 0.6 m (2 ft).

Surficial geology and stratigraphy

In 2023, a section on the right limit of upper Gold Bottom Creek exposed three units. Unit 1, from 0 to 1.4 m (0–4.6 ft), is the pay gravel and consists of poorly sorted cobble-boulder gravel with a silty sand matrix. Abundant mafic schist clasts are present within this unit and are derived from the local bedrock. Unit 2, from 1.4 to 6.0 m (4.6–15.1 ft), is a moderately sorted, imbricated, oxidized sandy gravel. Unit 3 is a deposit of organic-rich silt; the thickness of this unit was not documented as it was disturbed. Both units 2 and 3 were stripped. All material was frozen on the left limit (east-facing slope), but remained unfrozen on the right limit (west-facing slope).

Bedrock geology

The 2023 cut exposed bedrock of silvery schist in contact with a more resistant green mafic schist containing vuggy vein quartz.

Gold characteristics

The fineness is 790, and 30% of the gold is greater than 12 mesh (1.7 mm).

Hunker Creek, a tributary of Klondike River

115O/15 2023: 63°57'23"N, 138°56'00"W
115O/15 2021: 63°57'25"N, 138°56'17"W

Mogul Gold, 2005–2023

Water license: PM17-075 (active 04/2028)

Active producer (2021–2023) **Operation no. 42**

Location

Hunker Creek, immediately downstream from 16 Below Pup.

Work history and mining cuts

From 2021 to 2023, Mogul Gold focused on mining Hunker Creek, covering a stretch 0.6 km upstream from the mouth of 23 Gulch, and working to the mouth of 16 Below Pup. With a crew of up to four people working daily ten-hour shifts, they concentrated on remining an area that was previously dredged. Intermittent deposits of side pay, preserved on the far left limit of the drainage, were also targeted. In 2023, a cut measuring 183 m (600 ft) was completed, focusing on the left limit of Hunker Creek and moving upstream toward the mouth

of 16 Below Pup. In 2023, hydraulic stripping methods were used to thaw the frozen overburden.

Also operating under PM17-075 and leasing ground from D. Millar of Mogul Gold was A. Aimola. He was active from 2021 to 2023 and operated solo on Gold Bottom Creek, mining upstream from the mouth of Soda Creek.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 270 excavator
- Hitachi 300 excavator
- Caterpillar 966C wheel loader
- Caterpillar 966C wheel loader
- Caterpillar D9G bulldozer
- two Caterpillar D40D articulated rock trucks

A trommel with a hopper and a tailings stacker was used to process pay. Water was supplied to the plant using a 10 by 12" pump. The plant was 100% recirculating. Clean-ups were conducted using a long tom and a wheel, and the final concentrate was tabled in town.

Surficial geology and stratigraphy

The Hunker Creek drainage and its tributaries have been extensively mined in the past using various methods, including hand mining, hydraulic mining, dredging and cat mining. Like other operations in the area, the Millar family of Mogul Gold focused on in-situ side pay on the left limit of Hunker Creek, as well as deposits preserved beneath dredge tailings. In 2022, as mining activity moved toward the confluence of 16 Below Pup, the stratigraphy changed from typically consisting of paleo Hunker Creek gravel overlain by technogenic deposits, to including a fan deposit overlying the paleo Hunker Creek gravel. Though poorly exposed at the time of the site visit, this fluvial fan deposit, derived from the left-limit tributary of 16 Below Pup, consisted of typical fan material characterized by a fining upward sequence and imbrication. All of the Hunker Creek gravel and up to 0.6 m (2 ft) of bedrock was sluiced.

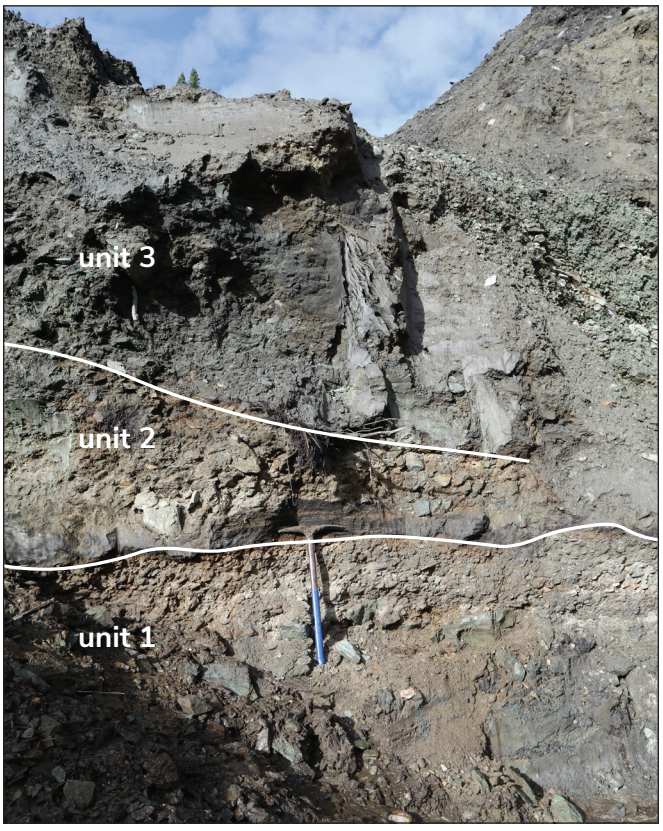
Modern mining efforts continued to uncover in-situ Hunker Creek gravel deposits that were buried and preserved by thick frozen muck and sediment input from tributaries. These sections were either too thick or too frozen for historic dredging efforts to process, thus preserving significant reserves of pay gravel, which are now accessible using modern mining methods.

Bedrock geology

Bedrock is weathered chlorite schist. The bedrock surface has undulations with significant relief.



Aerial view of Mogul Gold's operation in 2023 on Hunker Creek, immediately downstream from 16 Below Pup. The view is looking downstream, or to the northwest.



A cut in 2022 on the left limit of Hunker Creek exposed three units. A pick for scale measures 0.6 m (2 ft).

Gold characteristics

The gold is rough in texture. It is mostly coarse-grained, and includes a minor constituent of fine-grained gold.

Hunker Creek, a tributary of Klondike River

115O/15 2023: 63°57'17"N, 138°55'38"W

KT Mining, 2007; 2018–2023

Water license: PM15-089 (active 05/2026)

Active producer (2021–2023) **Operation no. 43**

Location

Hunker Creek, immediately downstream from Little Gem Gulch.

Work history and mining cuts

KT Mining, consisting of K. Thompson and R. Klein, initiated major mining efforts on their property in 2021. Throughout the 2021 season, all activity was focused on the right limit, and a total of 70 hours was sluiced. In 2022, KT Mining excavated a section of virgin Hunker Creek gravel on the left limit of the drainage. Located immediately downstream from Little Gem Gulch, the cut measured 9 m (30 ft) in width. In 2023, a 45.7 by 22.9 m (150 × 75 ft) cut on the left limit was completed. In 2022, extensive shafting from old-timer workings was revealed.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 235 excavator
- Caterpillar 980B wheel loader
- Caterpillar D9 bulldozer

A 1.2 by 5.5 m (4 × 18 ft) trommel with a 1/2" screen was used to process material at a rate of 31 m³ (40 yd³)/hr. One sluice run was used that measured 0.9 m (3 ft) in width by 1.8 m (6 ft) in length, and consisted of two boil boxes with expanded metal. Water was supplied to the plant using a 6" pump powered by a Deutz engine, and the water was 100% recycled.

Surficial geology and stratigraphy

The general stratigraphy at this site consists of Hunker Creek gravel, overlain by colluvium containing massive ice. The side pay was likely preserved due to the narrow valley-bottom setting and thick cover of frozen muck, which would have been challenging for the dredges. KT Mining owns claims in a very narrow stretch of Hunker Creek, only 24 m (80 ft) wide, where the dredge



Aerial view of KT Mining's operation on the left limit of Hunker Creek valley in 2023. The view is looking upstream, or to the southeast.



Actively sluicing at KT Mining's operation on Hunker Creek in 2023.

would have only been able to make one pass, and the frozen ground was likely too difficult to thaw. What is unusual about this location is that the overlying silt/muck deposit is not evident by examining the topography alone, suggesting the potential for other locations that may be concealing virgin Hunker Creek gravel beneath the muck. This discovery proves that even in prominent Klondike drainages that have been extensively mined in the past, side pay still exists, which is encouraging for this historic district.

In 2021 and 2022, exposed Hunker Creek gravel measured 1.8 m (6.0 ft) in thickness. It consists of a coarse, compact gravel with well-rounded clasts. A boulder lag is situated at the bedrock contact. Black muck (loess) containing massive ice overlies the gravel and is up to 14.6 m (48.0 ft) thick at the farthest limit of the valley.

Bedrock geology

Bedrock is blocky, slabby quartzite on the left limit, and decomposed chlorite-sericite schist on the right limit of the valley.

Gold characteristics

Gold is primarily fine-grained, and has a fineness of 838.

Whiskey Hill, a bench of Hunker Creek

115O/15	2023: 63°57'10"N, 138°54'59"W
115O/15	2022: 63°57'35"N, 138°57'22"W
115O/15	2021: 63°57'15"N, 138°54'26"W

Whiskey Hill Mining, 2013–2023

Water license: PM21-047 (active 06/2032)
Water license: PM12-023-1 (expired 05/2022)

Active producer (2021–2023) **Operation no. 44**

Location

Whiskey Hill, a right-limit bench of Hunker Creek, located between Little Gem Gulch and Six Below Pup.

Work history and mining cuts

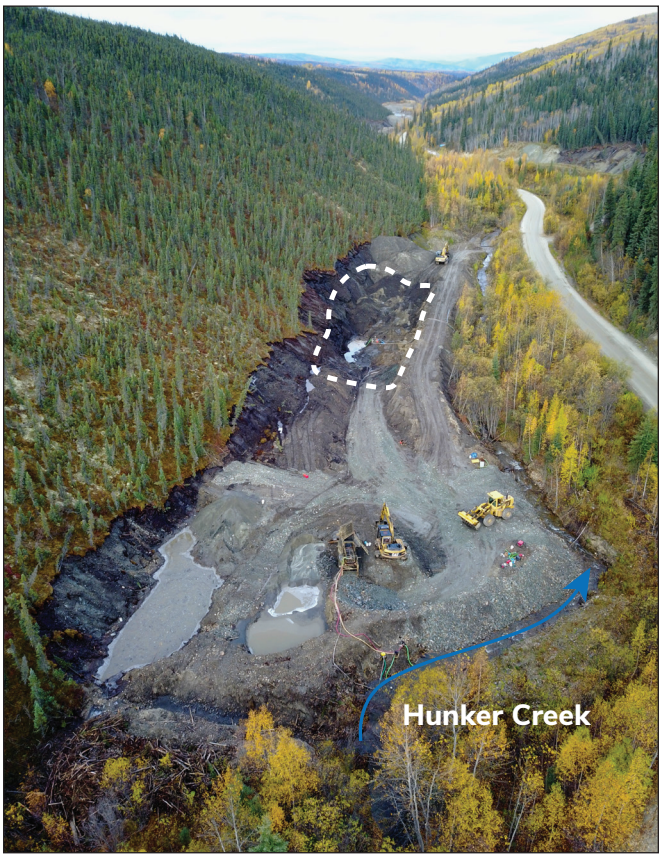
Whiskey Hill Mining was active at various locations from 2021 to 2023. In 2021, their operation consisted of one person who mined on Whiskey Hill and completed a cut 7.3 m (24 ft) deep. Early in the 2022 season, activity continued at the same location as the previous season on Whiskey Hill. Mid-season, Whiskey Hill Mining established a lease agreement with Mogul Gold to operate on Del Hi Hill, a left-limit bench of Hunker Creek, immediately upstream from the mouth of Gold Bottom Creek. Working with a two-person crew, mining efforts were focused on reprocessing historic tailings and material from old-timer ditches or races. A stripping program on the left limit of Hunker Creek at the base of Whiskey Hill concluded the 2022 season. In 2023, Whiskey Hill Mining spent the first half of the season leasing claims from Mogul Gold on Temperance Hill. In mid-July, the two-person crew of Whiskey Hill Mining relocated to their own claims at the base of Whiskey Hill, 2.3 km downstream from Mint Gulch. A 14 by 55 m (45 × 180 ft) cut on the left limit of Hunker Creek was completed.

Equipment and water treatment

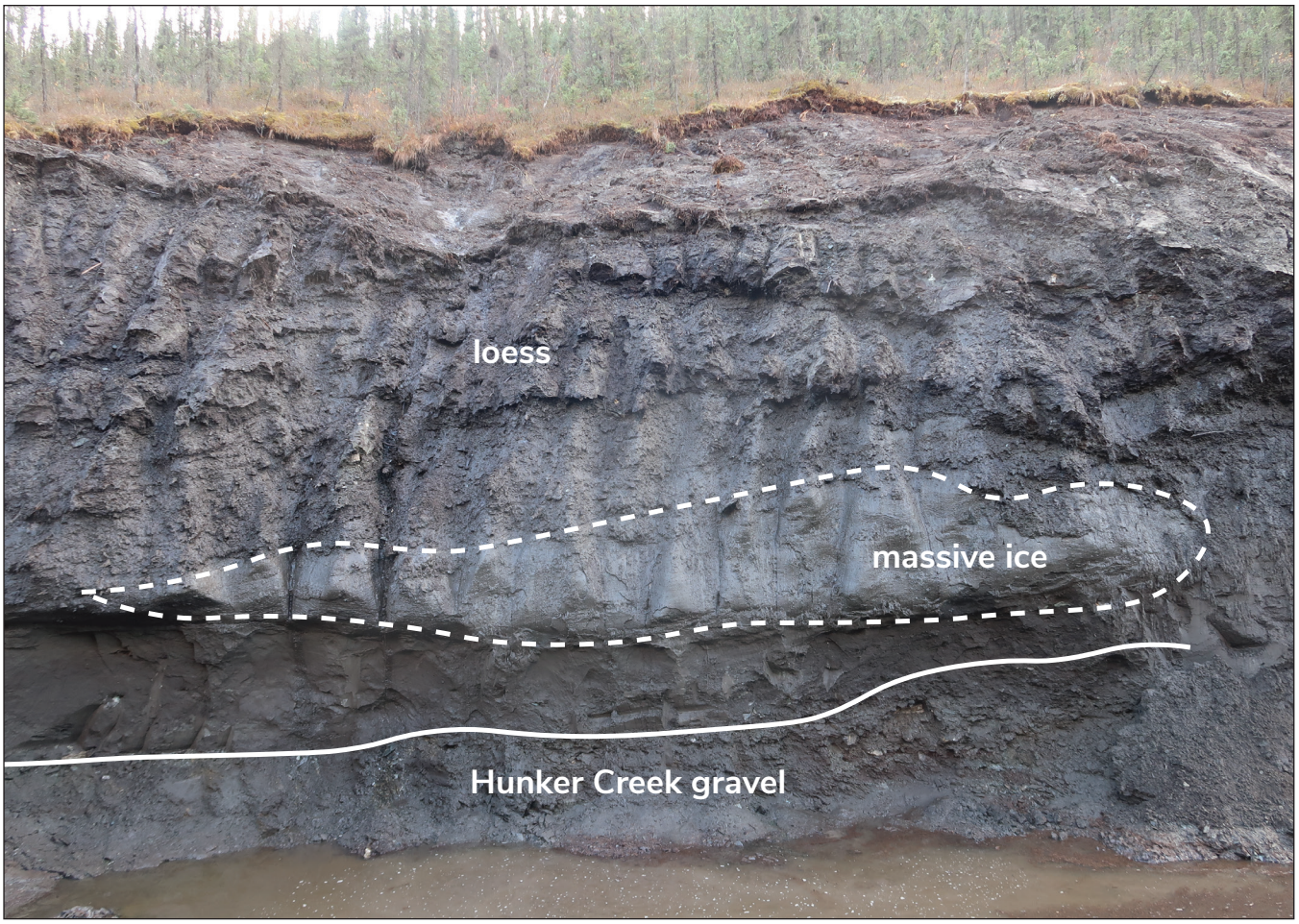
The following equipment was used on site:

- Caterpillar 312BL excavator
- Caterpillar 330 excavator
- Case 480E backhoe
- Caterpillar 966C wheel loader

A double-screen shaker plant measuring 1 by 2 m (3 × 6 ft) was used to process material at a rate of up to 31 m³ (40 yd³)/hr. Water was 100% recirculated. Clean-ups were conducted using a long tom with Goldhog matting, and the final concentrate was tabled.



Aerial view of Whiskey Hill Mining's operation on the left limit of Hunker Creek in 2023. The active cut is delineated with a white dashed line. The view is downstream on Hunker Creek or to the northwest.



Left-limit exposure in 2023 at Whiskey Hill Mining's cut on the left limit of Hunker Creek. The upper part of the paleo Hunker Creek gravel is exposed just above the water line. The loess unit exposed in this image is up to 12 m (40 ft) thick.

Surficial geology and stratigraphy

Pay units on Whiskey, Del Hi and Temperance hills are all similar, and modern mining efforts target deposits consisting of historic tailings and pillars of in-situ gravel that were preserved in and between historic shafts, trenches and ditches. All gravel encountered, and up to 0.3 m (1 ft) of bedrock was sluiced.

On the left limit of Hunker Creek, a blanket of colluvium containing massive ice overlies the pay gravel, protecting it from both historic dredging efforts and even some recent modern mining. A section in 2023 exposed up to 1.5 m (5 ft) of Hunker Creek gravel, overlain by 12 m (40 ft) of overburden. The overburden consists of a mix of materials, including organics, reworked colluvium and loess. The presence of massive ice within the loess suggests that permafrost conditions have persisted in this narrow stretch of Hunker Creek, making it difficult for previous miners to work the full width of the valley.

Bedrock geology

Bedrock is decomposed quartz-mica schist.

Gold characteristics

Gold from in-situ gravel is all fine-grained, whereas gold recovered from tailings has a minor constituent of coarse-grained gold.

Mint Pup, a tributary of Hunker Creek

115O/15 2023: 63°55'48"N, 138°55'02"W

535584 Yukon Inc., 2015–2023

Water license: PM22-054 (active 05/2033)
Water license: PM13-033-2 (expired 08/2023)

Active producer (2021–2023) **Operation no. 45**

Location

Mint Pup, 1.4 km upstream from its confluence with Hunker Creek.

Work history and mining cuts

F. and K. Hawker of 535584 Yukon Inc. have been advancing up their property on Mint Gulch, using two



Drone image from 2023 of 535584 Yukon Inc.'s operation on Mint Gulch. The view is looking downstream (to the northeast) from the active cut, toward the Hunker Creek valley.

monitors to thaw the ground and then sluice the material that is liberated. All activity from 2021 to 2023 was focused on the right limit of the drainage. Each season, between 3440 and 4205 m³ (4500 and 5500 yd³) of material was sluiced.

Equipment and water treatment

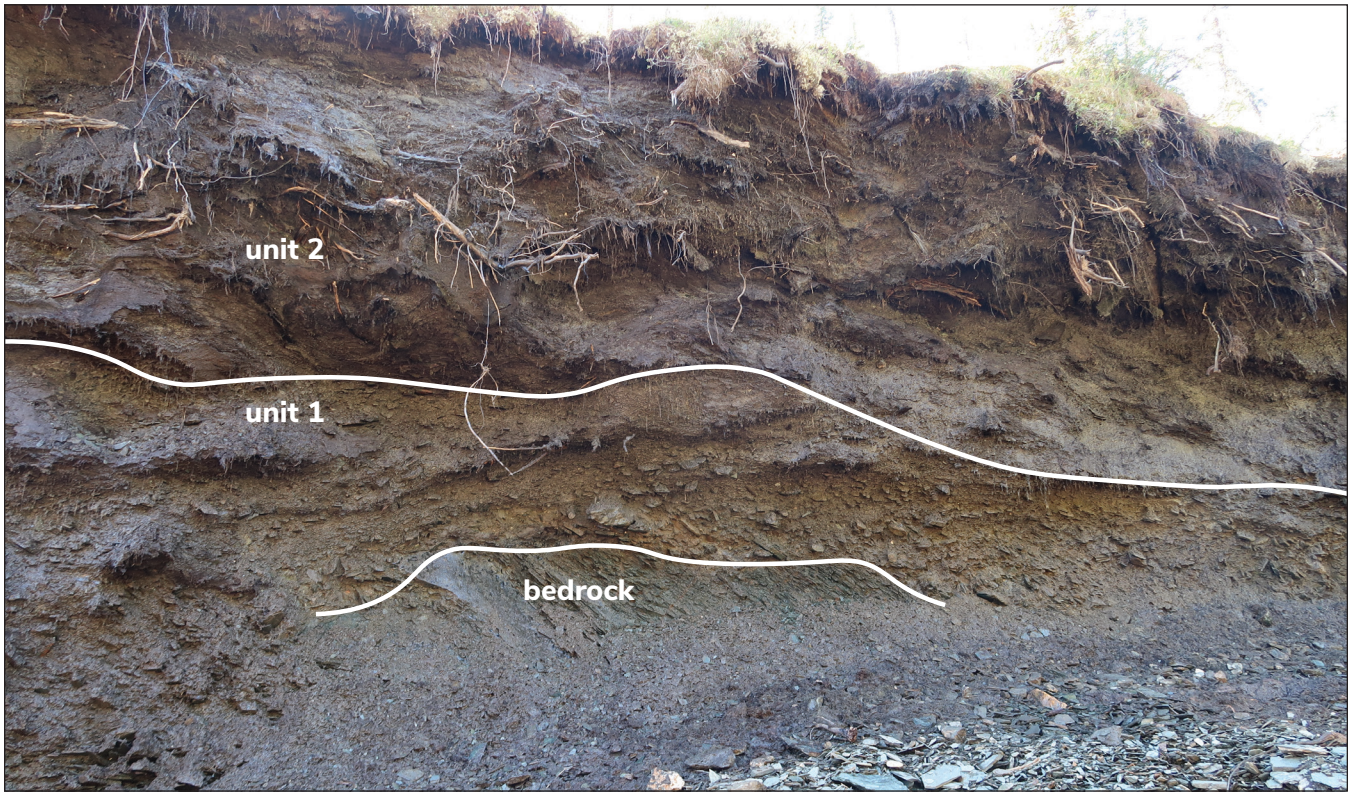
The following equipment was used on site:

- Hitachi EX450LCH excavator
- Hitachi EX200 excavator
- Caterpillar 740 rock truck
- two monitors

A custom-fabricated, shaker screen deck wash plant was used to process material at a rate of 30 m³ (40 yd³)/hr. The plant featured two sluice runs, each measuring 2.4 by 2.4 m (8 × 8 ft), and made of expanded metal. Water was supplied to the plant using a 10 by 6" pump, and was sourced from Hunker Creek. A large, out-of-stream settling pond in the Hunker Creek valley was used to settle the effluent. Clean-ups were completed using a long tom.

Surficial geology and stratigraphy

Mint Gulch is steep and narrow, and the total width of the valley ranges from 17 to 23 m (55–75 ft). The pay channel follows the right limit of Mint Gulch, or the



Right-limit exposure on Mint Gulch in 2023.

base of the north-facing slope. A cut in 2023 exposed a section consisting of two units. Unit 1, from 0 to 1 m (0–3.3 ft), is a wavy unit of poorly sorted high-energy gravel. The unit is frozen and compact, and consists of coarse matrix-supported gravel. Clasts consist of 70% cobbles, 28% pebbles and 2% small boulders. The matrix, which makes up 25 to 30% of the unit, is composed of medium sand and silt. Unit 2, from 1 to 5 m (3.3–16.3 ft), is frozen black muck (loess) containing organics and massive ice lenses. In 2023, a bedrock reef was encountered in the cut described above, which influenced the thickness of unit 1. All of unit 1 and up to 0.3 m (1 ft) of bedrock was sluiced.

Bedrock geology

Bedrock is micaceous schist that varies from decomposed, to slabby and competent.

Gold characteristics

Gold is mostly coarse-grained, and the fineness ranges from 820 to 850.

Unnamed creek, tributary of Hunker Creek

115O/15 2023: 63°55'22"N, 138°53'37"W

Roberts, W., 2021–2023

Land Use Permit: LPO1475 (active 05/2027)

Active producer (2022–2023) **Operation no. 46**

Location

Unnamed left-limit tributary, approximately 1 km downstream from the confluence of the forks on upper Hunker Creek.

Work history and mining cuts

A discovery claim was first staked in 1988 on the unnamed left-limit tributary of Hunker Creek, and an additional five claims were staked between 1989 and 2017. W. Roberts has been active on the property since 2021 and operates solo. All activity occurred 0.5 km up the drainage from its confluence with Hunker Creek. Hand mining was carried out in 2021, and mechanized earth moving began in 2022. Stripping began mid-season in 2022 and continued throughout the 2023 season.

Equipment and water treatment

The following equipment was used on site:

- Case 220B excavator
- International TD-8 bulldozer

In 2022, a 3 m (10 ft)-long by 0.3 m (1 ft)-wide long tom, consisting of expanded metal and lined with century matting, was used to process material. Water was 100% recycled.

Surficial geology and stratigraphy

An exposure in 2022 consisted of 0.37 m (1.2 ft) of reworked colluvium in contact with bedrock, overlain by 3.9 m (12.8 ft) of black muck. The lowermost part of the reworked colluvium, and up to 0.3 m (1 ft) of the bedrock surface were processed as pay.

Bedrock geology

Bedrock is chloritic schist.

Gold characteristics

Not reported.



Aerial view in 2023 of W. Roberts' operation on an unnamed left-limit tributary of Hunker Creek. The active cut shown in the photo is on the right limit, and is approximately 1 km upstream from the confluence with Hunker Creek. The view is looking upstream or to the west.

Upper Hunker Creek, a tributary of Klondike River

115O/15 2023: 63°54'42"N, 138°53'10"W

CG Mining and Equipment Services, 2022–2023
Larose, S., 2007–2017

Water license: PM18-023 (active 06/2028)

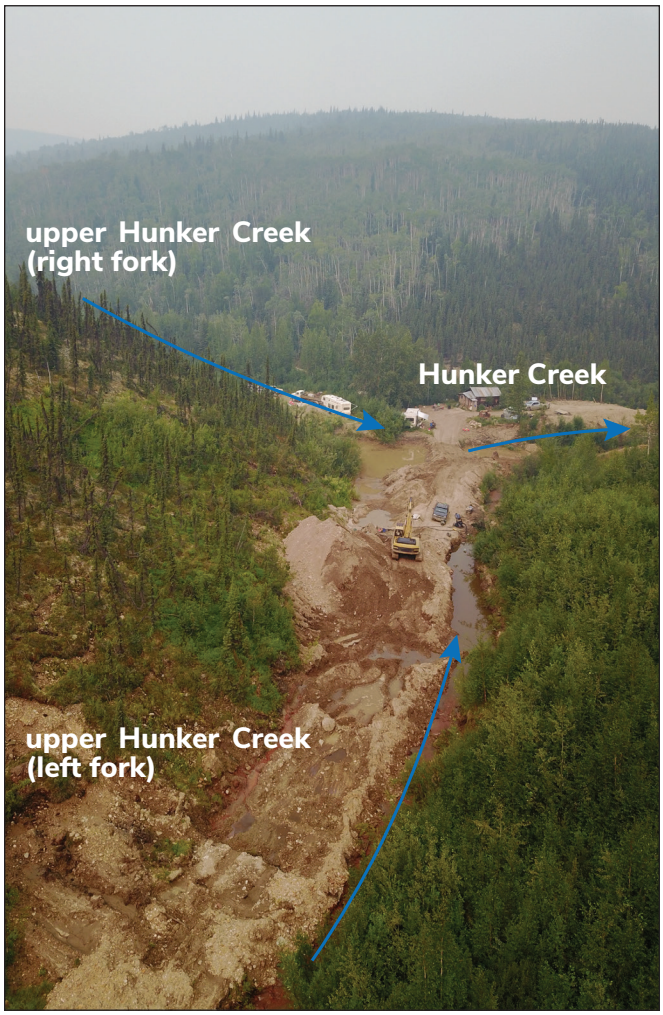
Active producer (2022–2023) **Operation no. 47**

Location

Upper Hunker Creek, left fork, immediately upstream from the confluence of the forks on upper Hunker Creek.

Work history and mining cuts

No mining activity occurred on the property in 2021. A stripping program was completed in 2022. In 2023, CG Mining and Exploration Services mined a 50 m (165 ft)-long cut on the left fork of upper Hunker Creek, 130 m (427 ft) upstream from the confluence of the forks on upper Hunker Creek. Throughout the season, a three-person crew mined from rim to rim in the narrow tributary, which has a valley width of only 23 m (75 ft).



Drone of CG Mining and Exploration Services' operation in 2023 on the left fork of upper Hunker Creek. The view is looking downstream (northwest) on the left fork toward the confluence with the right fork.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 325 excavator

The wash plant consisted of a screen over a hopper with a 6.1 m (20 ft) sluice run. The sluice run featured 0.6 m (2 ft) of expanded metal at the top end, and the remainder was modified with Hungarian riffles. The plant processed material at a rate of 15.3 to 22.9 m³ (20–30 yd³)/hr, depending on the sediment type. Water was delivered to the plant using 4" down to 3" pumps. Effluent was settled in a series of two ponds. A screen, long tom and gold pan were used for final clean-ups.

Surficial geology and stratigraphy

The upper reach of the Hunker Creek drainage narrows significantly, and the left fork narrows to 23 m (75 ft) just above its confluence with the right fork. Despite the narrowing of the valley, the gradient does not dramatically increase. This may have contributed to the preservation of a relatively thick deposit of gravel, which is not typical in the uppermost reaches of drainages. This stable gradient allows for the accumulation of sediments without excessive erosion, maintaining the thickness of the gravel.

In 2023, an exposure on the eastern side of the active cut uncovered sediment input derived from a small tributary pup. The unit is a fan deposit composed of reworked colluvium containing small clasts of pebbles and granules. The fan deposit is oxidized and exhibits a fining upward sequence.

The gravel in the modern valley bottom of the left fork of upper Hunker Creek is up to 1.5 m (5 ft) thick. It is a coarse, boulder-rich unit, and clasts are predominantly subangular. The matrix, which makes up 20% of the unit, is composed of medium sand to silty sand. The sluiced section includes all gravel and up to 0.6 m (2 ft) of bedrock.

Bedrock geology

Bedrock is grey quartzite. At the bedrock surface, the quartzite is highly weathered and decomposed 'gumbo', and becomes blockier and more fractured at depth.

Gold characteristics

Approximately 70% of the gold is coarse-grained and the texture suggests a local source. The fineness is 910.

24 Pup, a tributary of upper Hunker Creek

115O/15 2023: 63°54'42"N, 138°54'17"W

Ahnert, G. and E., 1978–2023

Water license: PM15-081 (active 02/2026)

Active producer (2021–2023) **Operation no. 48**

Location

24 Pup (locally known as No Bottom Gulch), a left-limit tributary of the right fork of upper Hunker Creek.

Work history and mining cuts

The Ahnerts are long-standing placer miners that have been working on the right fork of upper Hunker Creek for over four decades. As hand miners, their progress varies from year to year. No specific information is known for 2021 to 2023.

Equipment and water treatment

The Ahnerts mine by hand, and process material using a long tom that measures 7.3 m (24 ft) in length by 0.3 m (1 ft) in width. Water from the ground-sluicing operation flows onto the ground surface forming a small fluvial fan and water percolates into the subsurface prior to reaching upper Hunker Creek.

Surficial geology and stratigraphy

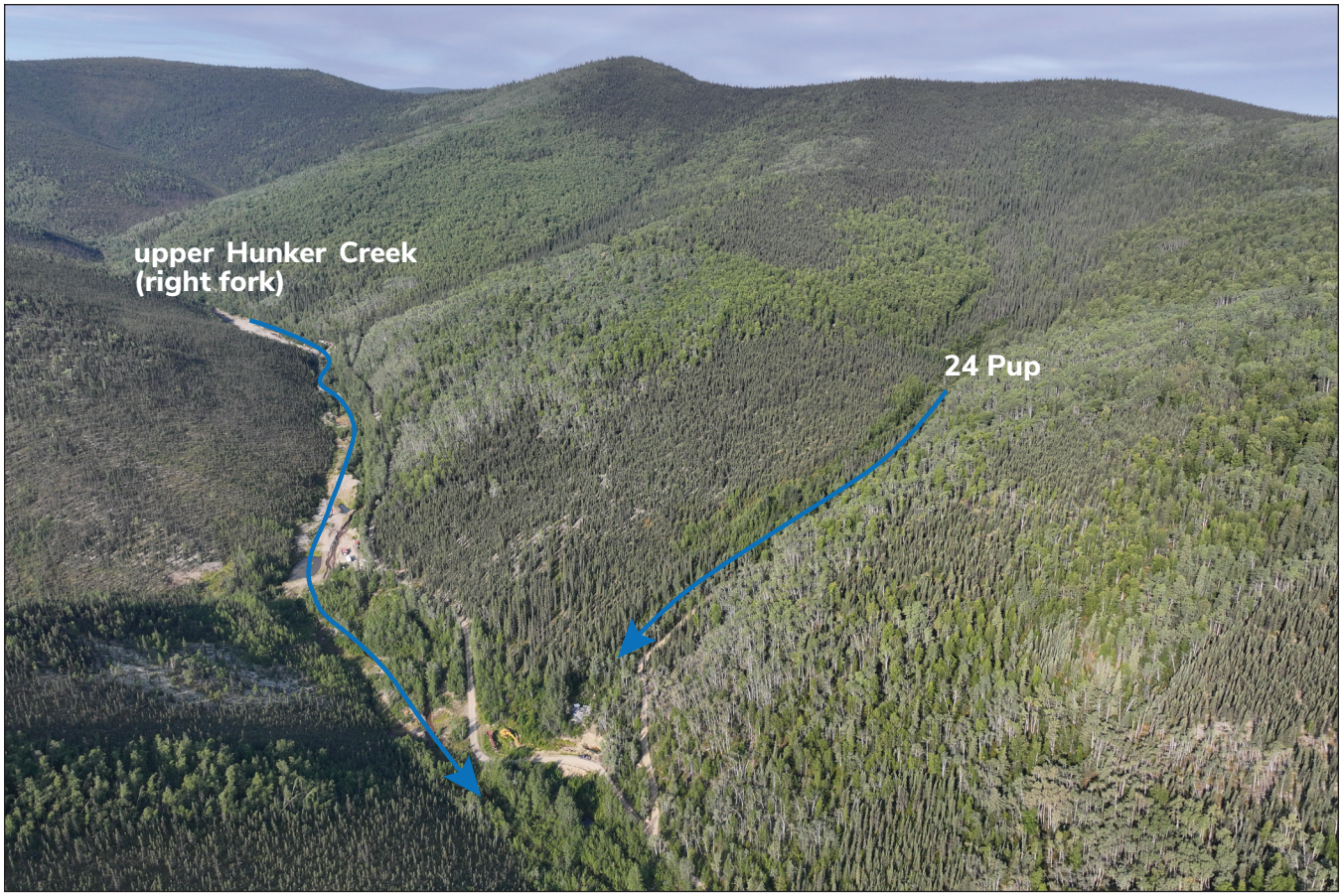
A section from previous work exposed two units consisting of 0.6 to 1 m (2–3 ft) of poorly sorted cobble-pebble gravel, overlain by up to 3.0 m (10 ft) of loess containing colluvial rock fragments. The gravel unit contains small boulders of quartzite and vein quartz. All gravel was sluiced.

Bedrock geology

Bedrock varies from weathered quartz-muscovite-calcite schist to blocky quartzite.

Gold characteristics

Three types of gold are recovered: nuggets, dendritic gold and very fine gold. The fineness is 845.



Aerial view looking upstream (west) on the right fork of upper Hunker Creek. The location of 24 Pup, where the Ahnerts mine, is also labeled.

Right fork upper Hunker Creek, a tributary of Klondike River

115O/15 2021: 63°54'26"N, 138°54'17"W

Hunter, T. and B. Lammers, 2015–2021

Water license: PM16-075 (active 03/2027)

Active producer (2021) **Operation no. 49**

Location

Upper Hunker Creek, right fork, approximately 1 km upstream from its confluence with the left fork of upper Hunker Creek.

Work history and mining cuts

T. Hunter and B. Lammers own two claims on the right fork of upper Hunker Creek, situated approximately 1 km upstream from the confluence of the right and left forks. Actively mining the claims since 2018, the two-person crew completed two cuts in 2021 and sluiced for a total of 11 days. The first cut, at the top end of their lowermost claim (P 45550), was situated mid-valley. The second cut was located on the same claim, downstream from the first cut and on the right limit. Reclamation was also completed throughout the season. No activity occurred in 2022 or 2023.

Equipment and water treatment

The following equipment was used on site:

- 20 ton excavator
- CanDig mini excavator
- front-end wheel loader
- Caterpillar D6 bulldozer

A 0.6 m (2 ft)-diameter trommel was used to process material at a rate of up to 15 m^3 (20 yd^3)/hr. A 3" trash pump delivered water to the plant, and effluent was settled in a series of two ponds. Clean-ups were conducted using a pan and small long tom.

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as silvery-grey muscovite-chlorite-quartz phyllite and micaceous quartzite (Yukon Geological Survey, 2022a).

Gold characteristics

Gold is coarse-grained.



Aerial view in 2022 of T. Hunter's and B. Lammers' operation on the right fork of upper Hunker Creek. The operation was not active at the time of this photo. The view is looking downstream or to the northeast.

Right fork upper Hunker Creek, a tributary of Klondike River

115O/15 2022: 63°54'17"N, 138°54'52"W

Palagian, L. and S., 2009–2023

Water license: PM19-039 (active 07/2030)

Active producer (2021–2023) **Operation no. 50**

Location

Upper Hunker Creek, right fork, approximately 1.6 km upstream from its confluence with left fork of upper Hunker Creek.

Work history and mining cuts

The Palagians purchased their four claims on the right fork of upper Hunker Creek in 2009, and have been active in the drainage since. In 2022, they operated as a two-person crew. The stretch of creek they were actively working had been historically mined in the main channel; the Palagians focused on re-processing the tailings of these past operations. Extensive historic workings and shafts are present in the drainage, and where shafts were encountered, pillars of virgin gravel remained.

Equipment and water treatment

The following equipment was used on site:

- John Deere 240DLC excavator
- Case 1155E crawler loader
- John Deere 35G backhoe

Material was processed in a trommel with a 1" screen, at a rate of up to 5 m³ (7 yd³)/hr. A sluice run totaling



The Palagians actively sluicing in 2022 at their operation on the right fork of upper Hunker Creek. The view is looking upstream, or to the southwest.

4.3 m (14 ft), consisted of 0.9 m (3 ft) of expanded metal overlain by punch plate, two sections of Hungarian riffles, and a final run of expanded metal. Miner's moss, both unbacked and backed, lined the upper part of the run, whereas the bottom run was lined with astro turf. Water was supplied to the plant using 2 and 3" pumps, necked down to 1½". Effluent was settled in a series of three ponds.

Surficial geology and stratigraphy

Historic tailings were processed from previous mining operations in the drainage, including from the 1930s, and more recently P. Erickson's operation from the 1970s. Side pay is preserved on the right limit of the claims, but has since been buried by a thick deposit of overburden. Where the bedrock surface was weathered and soft, up to 1.2 m (4 ft) was sluiced, and in areas where the bedrock was more competent, up to 0.3 m (1 ft) was processed.

Bedrock geology

Bedrock is mapped as silvery-grey muscovite-chlorite-quartz phyllite and micaceous quartzite (Yukon Geological Survey, 2022a).

Gold characteristics

The gold is mostly fine-grained, and has a fineness of 800.

Right fork upper Hunker Creek, a tributary of Klondike River

115O/15 2022: 63°53'11"N, 138°55'42"W

Brong, R. and E. Dotzler, 2012–2023

Water license: PM20-038 (active 05/2031)
Water license: PM10-069-1 (expired 05/2021)

Active producer (2021–2023) **Operation no. 51**

Location

Upper Hunker Creek, right fork, approximately 4 km upstream from its confluence with the left fork of upper Hunker Creek.

Work history and mining cuts

R. Brong and E. Dotzler have been mining the upper reaches of the right fork of upper Hunker Creek since 2012, progressively moving upstream each season. In 2022, a 56 m (185 ft)-long cut was completed. The two-person crew have been efficiently mining the narrow drainage, which has a total width of 20 m (65 ft), and completing progressive reclamation as they advance upstream.

Equipment and water treatment

The following equipment was used on site:

- Kubota KX080-3 excavator
- Ford dump truck
- Caterpillar 910 wheel loader

The wash plant consisted of a 0.9 by 3.7 m (3 × 12 ft) trommel with a hopper and grizzly over a single sluice run measuring 0.6 by 2.4 m (2 × 8 ft), and made entirely of expanded metal. Water is supplied to the plant using a 3" pump, allowing the trommel to process material at a rate of 8 m³ (10 yd³)/hr. Water was 100% recycled through a series of four ponds, with no discharge. A pan and wheel were used for clean-ups.

Surficial geology and stratigraphy

The right fork of upper Hunker Creek is narrow with steep hillsides, and a valley width of 20 m (65 ft) as measured in 2022. An abundance of old-timer workings are present, including shafts, tailings, flumes and drainage ditches, indicating it was heavily worked by earlier miners. In 2022, a section exposed a coarse, high-energy gravel 0.4 m (1.3 ft) in thickness. The gravel is clast-supported, and clasts are subangular ranging in size from cobbles to boulders; boulders are up to 0.7 m (2.3 ft) in diameter. The matrix makes up 10–15% of the unit and is composed of medium to coarse sand and silt. The gravel is overlain by colluvium, which consists of reworked silt, weathered bedrock and organics.

Bedrock geology

Bedrock is blocky, quartz-rich muscovite-schist.

Gold characteristics

Two different textures of gold grains were recovered on the upper right fork of Hunker Creek, whereby some grains are distinctly more weathered. The fineness is 805.

Goring Creek, a tributary of Klondike River

116B/02 2021: 64°00'17"N, 138°53'49"W

Big Valley Mining, 2007–2021

Water license: PM23-038 (active 12/2034)
Water license: PM13-056-1 (active 04/2024)

Active producer (2021) **Operation no. 52**

Location

Goring Creek, 5.3 km upstream from its confluence with the Klondike River.

Work history and mining cuts

Big Valley Mining, operating as a two-person crew, did not sluice any material in 2021, but completed reclamation on previous test pits. All recent activity has focused on a bench deposit on the left limit of Goring Creek. No mining was carried out in 2022 or 2023.

Equipment and water treatment

The following equipment was used on site:

- Hough 65 pay loader
- Caterpillar D9G bulldozer
- Caterpillar 980 wheel loader
- track loader
- dump truck

A 1.2 by 4.9 m (4 × 16 ft) trommel was used to process material at a rate of 23 to 31 m³ (30–40 yd³)/hr. A shaker deck with a 31 m³ (40 yd³)/hr capacity was fabricated for use in 2021. Water was supplied to the plant using a 12 by 10" pump powered by a GM diesel engine. A long tom was used for clean-ups.

Surficial geology and stratigraphy

Goring Creek is located within the Pre-Reid (early Pleistocene) glacial limits. The most prominent landform in Goring Creek generated from this glaciation is a Pre-Reid glaciofluvial terrace on the left limit of Goring Creek. This intermediate terrace, approximately 53 m (175 ft) above the current creek level, is overlain by organic material. This terrace and accompanying moraines formed during the advance of ice from the Ogilvie Mountains into the Klondike River valley. For more details on the surficial geology in the Dawson Region including Gording Creek area, refer to McKenna and Lipovsky (2014).

Bedrock geology

Bedrock is mapped as quartzite and quartz-rich, muscovite-chlorite schist (Yukon Geological Survey, 2022a).

Gold characteristics

Gold is mostly coarse grained.

Allgold Creek, a tributary of Flat Creek

115O/15 2023: 63°55'44"N, 138°38'34"W

Dulac Mining, 2021, 2023
M&M Mining and Dulac Mining, 2021
Dulac Mining, 2012–2019

Water license: PM14-062 (active 05/2025)

Active producer (2021, 2023) **Operation no. 53**

Location

Allgold Creek, 2 km upstream from its confluence with Flat Creek.



Aerial view of Dulac Mining's operation on Allgold Creek in 2021. The view is looking upstream or to the west.

Work history and mining cuts

Minimal activity has occurred on Allgold Creek in recent years; however, a lessee initiated mining in 2021. M&M Mining initiated operations on a high-level bench deposit on the left limit of the drainage, which was last pursued by Dulac Mining in 2016. Leasing from Dulac Mining, M&M Mining completed a sizable cut using two mini excavators. A two-person crew identified a pay channel, and as the season progressed, they frequently tested the cut using a gold pan to determine the limits of the pay channel. In 2022, there was a pause in mining while reclamation was carried out. In 2023, Dulac Mining, along with L. Lougheed, returned to operating on lower Allgold Creek, 2.7 km upstream from its confluence with Flat Creek.

Equipment and water treatment

The following equipment was used on site:

- Hitachi EX200 excavator
- excavator
- John Deere 450B bulldozer

A screen deck was used to process pay, featuring a single sluice run measuring 0.4 by 4.6 m (1.4 × 15.0 ft) and comprised of punch plate, expanded metal and angle iron. A mini screen deck and a wheel were used for clean-ups.

Surficial geology and stratigraphy

The stratigraphy of the left-limit, intermediate-level bench consists of two units. Unit 1, from 0 to 0.7 m (0–2.3 ft), is a matrix-supported, cobble-pebble gravel with 60% pebbles and 40% cobbles; clasts are subrounded to subangular clasts of local schist. The matrix makes up 25% of the unit and is composed of medium sand. Cobble enrichment occurs at the bedrock contact, and the bedrock surface is undulating. The most economic pay occurs within the bedrock undulations and in the coarser gravel at the bedrock contact. Unit 2, from 0.7 to 2.2 m (2.3–5 ft), is overburden.

Bedrock geology

Bedrock is muscovite schist.

Gold characteristics

Bench gold consists of 20% greater than 8 mesh (2.4 mm), 50% between 8 and 16 mesh (2.4 and 1.2 mm), 15% between 16 and 30 mesh (1.2 and 0.6 mm), and 15% less than 30 mesh (0.6 mm). The fineness is 880.

Leotta Creek, a tributary of Klondike River

115O/15 2021: 63°58'24"N, 138°44'24"W

Brown, D. and T., 2018–2021

Water license: PM24-021 (active 10/2034)

Active producer (2021) **Operation no. 54**

Location

Leotta Creek, 250 m upstream from its confluence with the Klondike River.

Work history and mining cuts

Since 2018, all mining activity has been focused on lower Leotta Creek, at its confluence with the Klondike River valley. In recent years, exploration has been carried out in the mid-section of the drainage, and road construction was ongoing. In 2021, activities included stripping and sluicing on the property's two lowermost claims, P 10728 and P 10729, as well as road construction



Drone image from 2021 of D. and T. Brown's operation on Leotta Creek. The Klondike River is seen on the left hand side of the image, and the view is looking downstream Klondike River toward the northwest.

on claims P 10743 to P 10746, located approximately 2.4 km upstream from the confluence with the Klondike River valley. The property was inactive in 2022 and 2023.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 330LC excavator
- John Deere 50D mini excavator
- Caterpillar D8 bulldozer
- DMC 1450 hydraulic auger drill

A Pearson Derocker was used to process material at a rate of up to 61 m³ (80 yd³)/hr. The punch plate varies from 1/2" to 3/4" to 1", and the concentrate was fed into a primary run measuring 0.6 by 4.9 m (2 × 16 ft), followed by a secondary run measuring 0.9 by 3.0 m (3 × 10 ft). The primary run consisted of expanded metal, whereas the secondary run featured a slick plate and vortex matting on the lower half. Water was supplied to the plant using a 6" pump, and was 100% recirculated. Clean-ups were conducted using a long tom and pans.

Surficial geology and stratigraphy

The stratigraphy in the Klondike River valley, on lower Leotta Creek, consists of Klondike outwash gravel and locally derived Leotta Creek gravel. A fluvial fan deposit from the Leotta Creek drainage cuts into the left-limit margin of the Klondike River valley, creating a mixed fan deposit. Parts of the fan consist of Leotta Creek gravel, whereas the margins incorporate Klondike River gravel. The fluvial fan deposit is variably sorted and characterized by a range of clast sizes, from fine sediments to cobbles. The presence of clasts of foreign lithology, such as chert, suggests some reworking of the Klondike outwash gravel. Overburden (muck) thickness varies from 3 to 6 m (10–20 ft); the thickness of muck increases toward the margin of the valley.

Bedrock geology

Bedrock is chlorite schist. The bedrock surface is undulating.

Gold characteristics

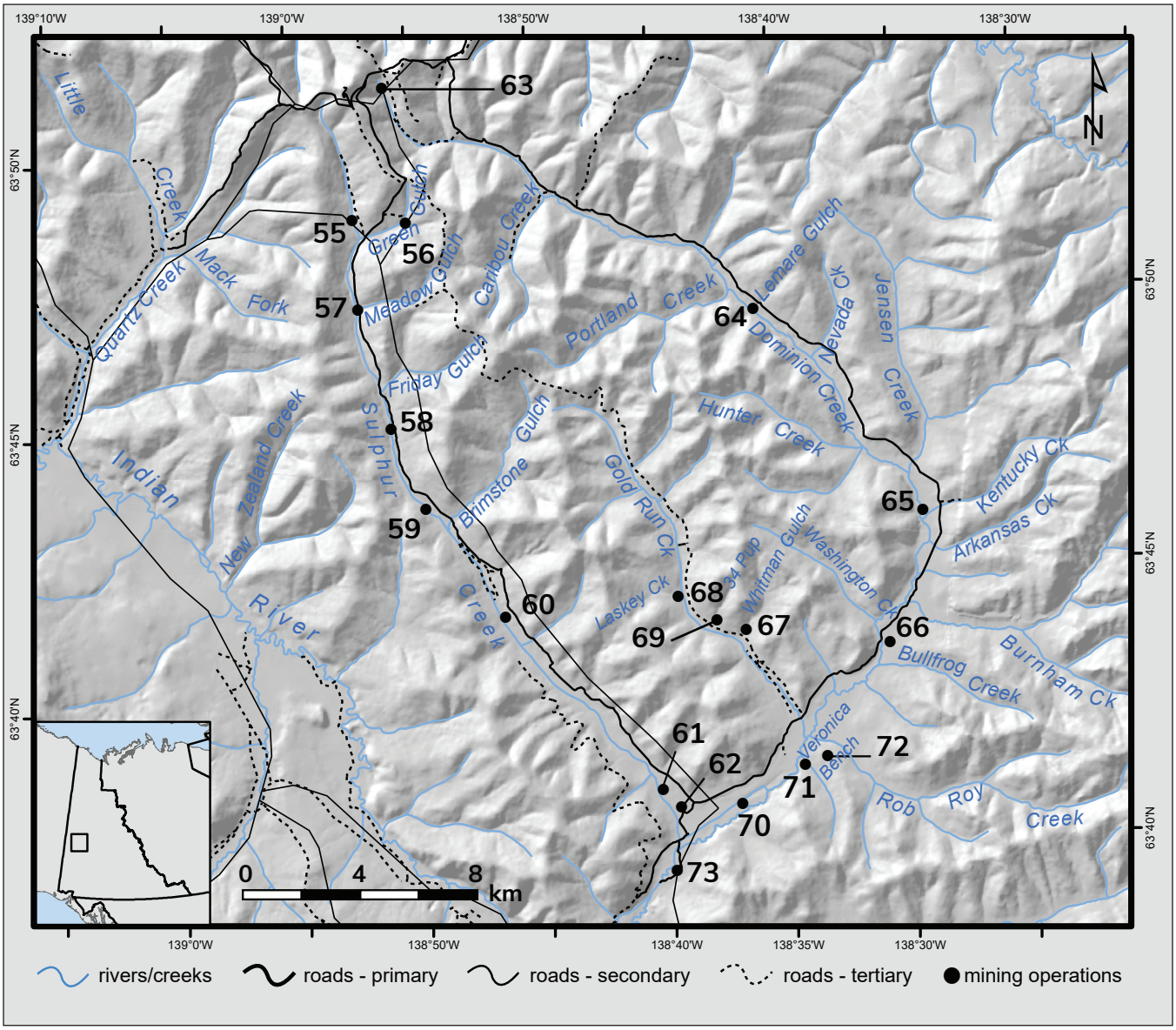
Gold is mostly fine grained, and fineness is 820.



D. and T. Brown's cut in 2021. The photo is taken at the eastern edge of the cut, closest to the Klondike River, where the Klondike outwash gravel is exposed. Note the presence of large boulders up to 3 ft (1.1 m) in diameter.

Dominion-Sulphur
placer mining area

Sites 55–73



Legend

55. 837482 Yukon Inc.
56. Lucky Dog Mining Inc.
57. D.C. Klippert Exploration
58. T.D. Oilfield Services Ltd.
59. Schmidt Mining Corp.
60. Yukon Alpine Heliski Ltd.
61. Favron Enterprises Ltd.
62. T.D. Oilfield Services Ltd.
63. Gwilliam, W.
64. Ace Placer Mining Ltd.
65. Hollis Mining & Exploration Ltd.
66. Little Flake Mine ULC
67. 536784 Yukon Inc.
68. L&M Mining Ltd.
69. T.D. Oilfield Services Ltd.
70. NBC Contracting
71. McGuffie, J.
72. Gimlex Enterprises Ltd.
73. Gatenby Enterprises Ltd.

Sulphur Creek, a tributary of Dominion Creek

115O/15 2022: 63°49'41"N, 138°56'18"W

837482 Yukon Inc., 2022–2023
Tunica Gold Placers, 1980–2020

Water license: PM15-027-1 (active 07/2025)

Active producer (2022–2023) **Operation no. 55**

Location

Sulphur Creek, upper reach, 0.7 km upstream from the confluence with Green Gulch.

Work history and mining cuts

Tunica Gold Placers mined for several decades on the upper reaches of Sulphur Creek. May 2021 was the end of an era when the claims were transferred to 837482 Yukon Inc. Activity on the claims was not initiated by the new owners until 2022, when they conducted a two-day drilling campaign. In 2023, the company began stripping 0.7 km upstream from the confluence with Green Gulch in preparation for 2024.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as quartzite, quartz-muscovite-chlorite schist, gneiss and amphibolite (Yukon Geological Survey, 2022a).

Gold characteristics

Gold is mostly fine grained and has a fineness of 800.

Green Gulch, a tributary of Sulphur Creek

115O/15 2023: 63°49'44"N, 138°54'05"W

Lucky Dog Mining Inc., 2022–2023
DK Gold Inc., 2021
Morgan, D. Sr., 1998–2020

Water license: PM21-001 (active 04/2031)

Active producer (2022–2023) **Operation no. 56**

Location

Green Gulch, right fork, 1.7 km upstream from its confluence with Sulphur Creek.

Work history and mining cuts

In April 2020, D. Morgan transferred the claims to DK Gold Inc. Beginning in 2022, Lucky Dog Mining Inc. leased the claims from DK Gold Inc. and with a crew of six people, completed a cut measuring 40 by 70 m (130 × 230 ft) on the left fork. They sluiced a total of 7 645 m³ (10 000 yd³) of material. In 2023, they completed a cut on the right fork, approximately 130 m upstream from its mouth. Operating with a crew of up to six employees, they ran a daily 12-hour shift and completed a 40 m (130 ft)-wide cut. A monitor was run 24/7 to thaw the frozen pay gravel. Additionally, in the spring of 2023, they completed a drill program consisting of three holes.

Equipment and water treatment

In 2023, the following equipment was used on site

- Komatsu PC 750 LC excavator
- Volvo 35 D haul truck

The wash plant consisted of a 1.2 m (4 ft)-diameter trommel with a 3/4" screen, capable of processing material at a rate of up to 46 m³ (60 yd³)/hr. Water was supplied to the plant with a 6" pump, and effluent was settled in a series of three ponds and recirculated.



Trommel processing pay material in August 2023 at Lucky Dog Mining Inc.'s property. The view is looking upstream or to the east on the right fork of Green Gulch.

Surficial geology and stratigraphy

In 2023, a cut on the right fork exposed two units. Unit 1, from 0 to 1.8 m (0–5.9 ft), is a greenish, compact cobble-pebble gravel with a silty matrix. A mixing zone is present in the lowermost 0.9 m (3 ft) of unit 1, and contains a higher percentage of angular clasts and bedrock fragments. Pervasive but patchy oxidation is present throughout unit 1. A 0.4 m (1.2 ft)-thick, continuous layer of silt is present at the top of unit 1. Unit 2, from 1.8 to 12.1 m (5.9–39.6 ft), is a finer-grained gravel and has a yellow-tan colour. A bedrock gutter was noted in the 2022 cut on the left fork but was not observed in the 2023 cut on the right fork. All of unit 1 and up to 0.9 m (3 ft) of fault gouge was processed as pay.



Aerial view of Lucky Dog Mining Inc.'s mining operation on Green Gulch in 2023. The 2022 and 2023 cuts are outlined with white dashed lines.

Bedrock geology

The bedrock is composed of fault-gouged phyllite and varies in colour from light green to yellow.

Gold characteristics

Gold is fine grained and has a fineness of 835.

Sulphur Creek, a tributary of Dominion Creek

115O/15 2022: 63°48'03"N, 138°55'40"W

D.C. Klippert Exploration, 2007–2023

Water license: PM19-065 (active 07/2030)

Active producer (2021–2023) **Operation no. 57**

Location

Sulphur Creek, upper reach, at the mouth of Meadow Gulch.

Work history and mining cuts

D. Klippert of D.C. Klippert Exploration has spent nearly two decades on the upper reaches of Sulphur Creek. During the 2021, 2022 and 2023 seasons, he predominately operated solo. He used monitoring as it was the most effective method for accessing the pay unit beneath a thick layer of overburden. Consequently, he devoted the majority of his time to freeing the pay gravel from the frozen section and stockpiling it for future sluicing. The primary area of focus in 2021 and 2022 was at the mouth of Meadow Gulch and immediately



Monitoring at the mouth of Meadow Gulch in 2021 at D.C. Klippert Explorations' operation. Unit 1 gravel is poorly exposed due to sloughing material.

downstream. A second location was mined in 2022, on the left limit of Sulphur Creek, where he targeted a low-level bench. Klippert returned to the mouth of Meadow Gulch in 2023, and mined on the right limit of Sulphur Creek, 1.2 km upstream from its confluence with Friday Gulch.

Equipment and water treatment

The following equipment was used on site:

- two John Deere 450D LC excavators
- haul truck
- Caterpillar D8K bulldozer

The wash plant consisted of a Graves Brother trommel that was 1.5 m (5 ft) in diameter and 6.1 m (20 ft) long. It had a 3/4" screen, capable of processing material at a rate of up to 92 m³ (120 yd³)/hr. The single sluice run was 2.4 m (8 ft) wide and contained 0.9 m (3 ft) of expanded metal, 0.9 m (3 ft) of hydraulic riffles, and 0.9 m (3 ft) of angle iron. Water was supplied to the plant via a 6" to 4" pressure pump, and effluent was settled in a series of three ponds before being discharged back into Sulphur Creek. A long tom was used for clean-ups.

Surficial geology and stratigraphy

At the mouth of Meadow Gulch, where Klippert has spent the past several years, the stratigraphy consists of 0.3 to 1.2 m (1–4 ft) of gravel overlain by up to 11 m (36 ft) of black muck containing massive ice and organics. The thickness of overburden increases near the mouth of Meadow Gulch. Massive ice lenses contained in the black muck are up to 0.9 m (3 ft) thick. A finer grained fan gravel from Meadow Gulch was visible on the upstream side of the cut in 2021.

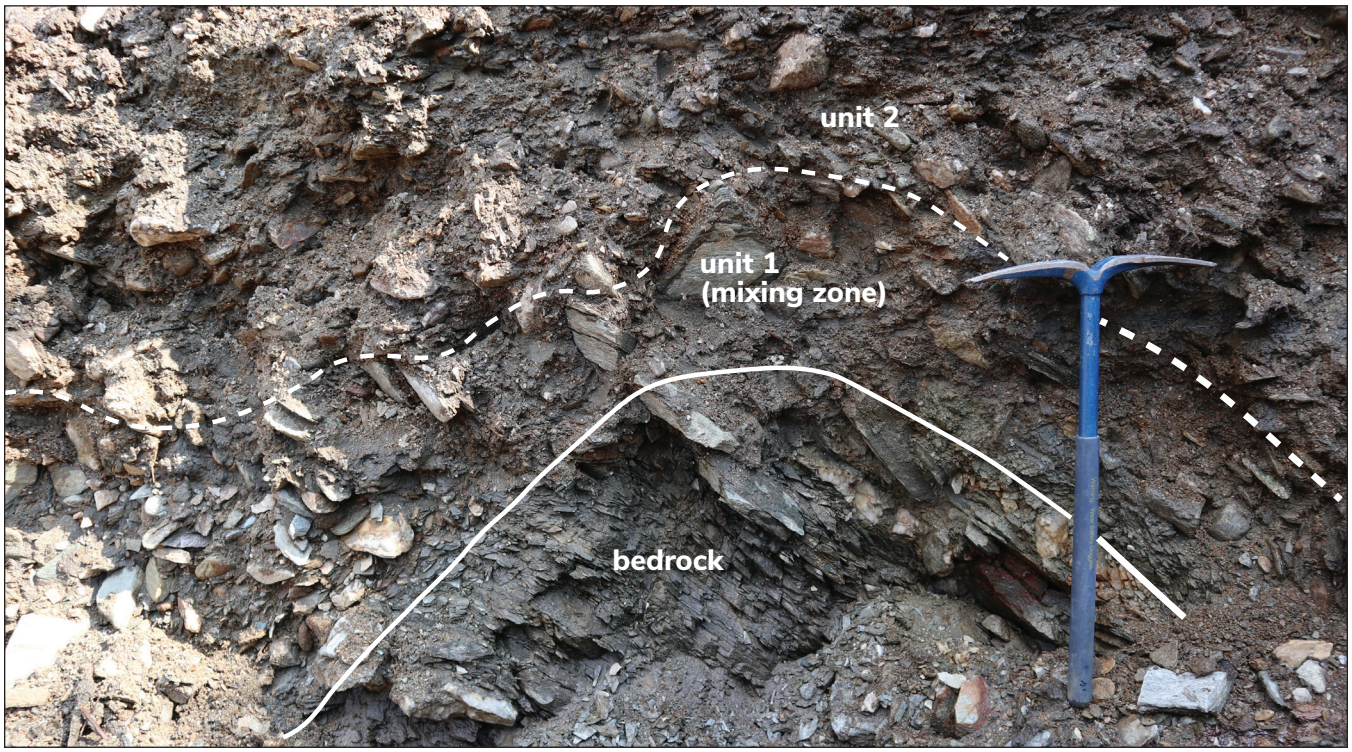
A cut in 2022 on the left limit of Sulphur Creek exposed three units. The cut was slightly elevated from the modern valley bottom, exposing a preserved low-level bench of Sulphur Creek. The gravel thickness in the cut varied significantly due to deposition on a highly undulating bedrock surface, and preservation was restricted to the bedrock lows. The contact between the bedrock surface and unit 1 is sharp and erosive. Unit 1 is a clast-supported, pebble-cobble gravel up to 0.5 m (1.6 ft) thick, and contains a high concentration of bedrock fragments or rip-up clasts. Unit 2 is a compact, matrix-supported gravel containing small pebbles and cobbles. The matrix is silt to fine sand. Unit 2, as exposed in 2022, was up to 0.4 m (1.3 ft) thick. Unit 3 is reworked colluvium.

Bedrock geology

Bedrock is variably oxidized and fractured quartzite and schist.

Gold characteristics

Gold is fine grained and has a fineness of 800 to 810.



Exposure of a low-level bench on the left limit of Sulphur Creek in 2022. Unit 3 is not visible in the photo. A pick for scale measures 0.6 m (2 ft).

Sulphur Creek, a tributary of Dominion Creek

115O/15 2022: 63°45'56"N, 138°53'48"W

T.D. Oilfield Services Ltd., 2022–2023

Water license: PM15-016 (active 08/2025)

Active producer (2022–2023) **Operation no. 58**

Location

Sulphur Creek, 1.2 km downstream from the mouth of Friday Gulch.

Work history and mining cuts

In 2022, T.D. Oilfield Services Ltd. completed a cut on their uppermost claims on Sulphur Creek. The cut measured 64 by 198 m (210 x 650 ft) and was situated 1.2 km downstream from the mouth of Friday Gulch, on the right limit of Sulphur Creek. In 2023, two cuts were completed: an extension of the 2022 cut, measuring approximately 66 by 198 m (215 × 650 ft), and another cut beside it, extending further into the far, right limit, measuring 66 by 96 m (215 × 315 ft).

Equipment and water treatment

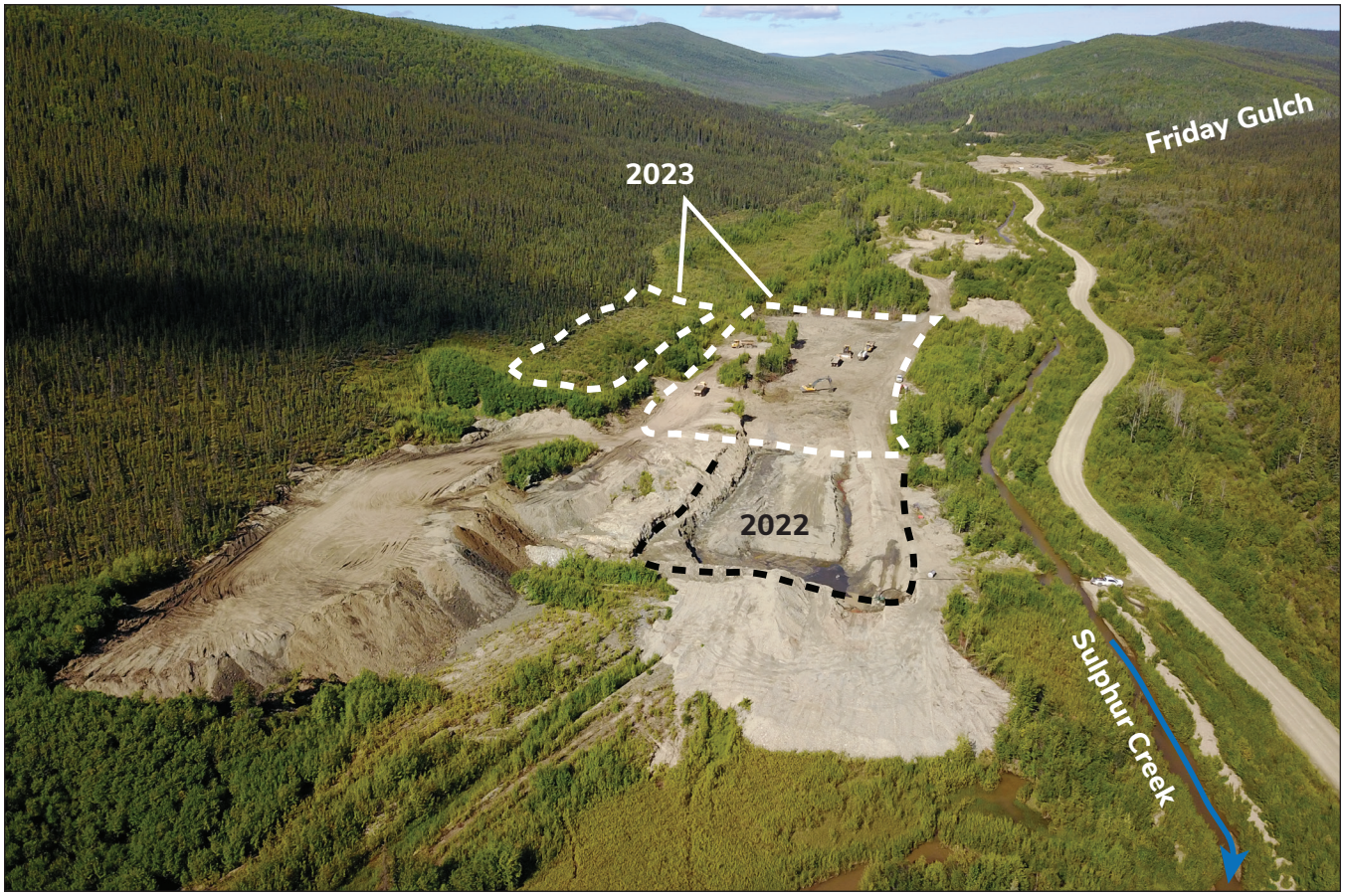
In 2023, the following equipment was used on site:

- Volvo 460C excavator
- three haul trucks
- Caterpillar bulldozer

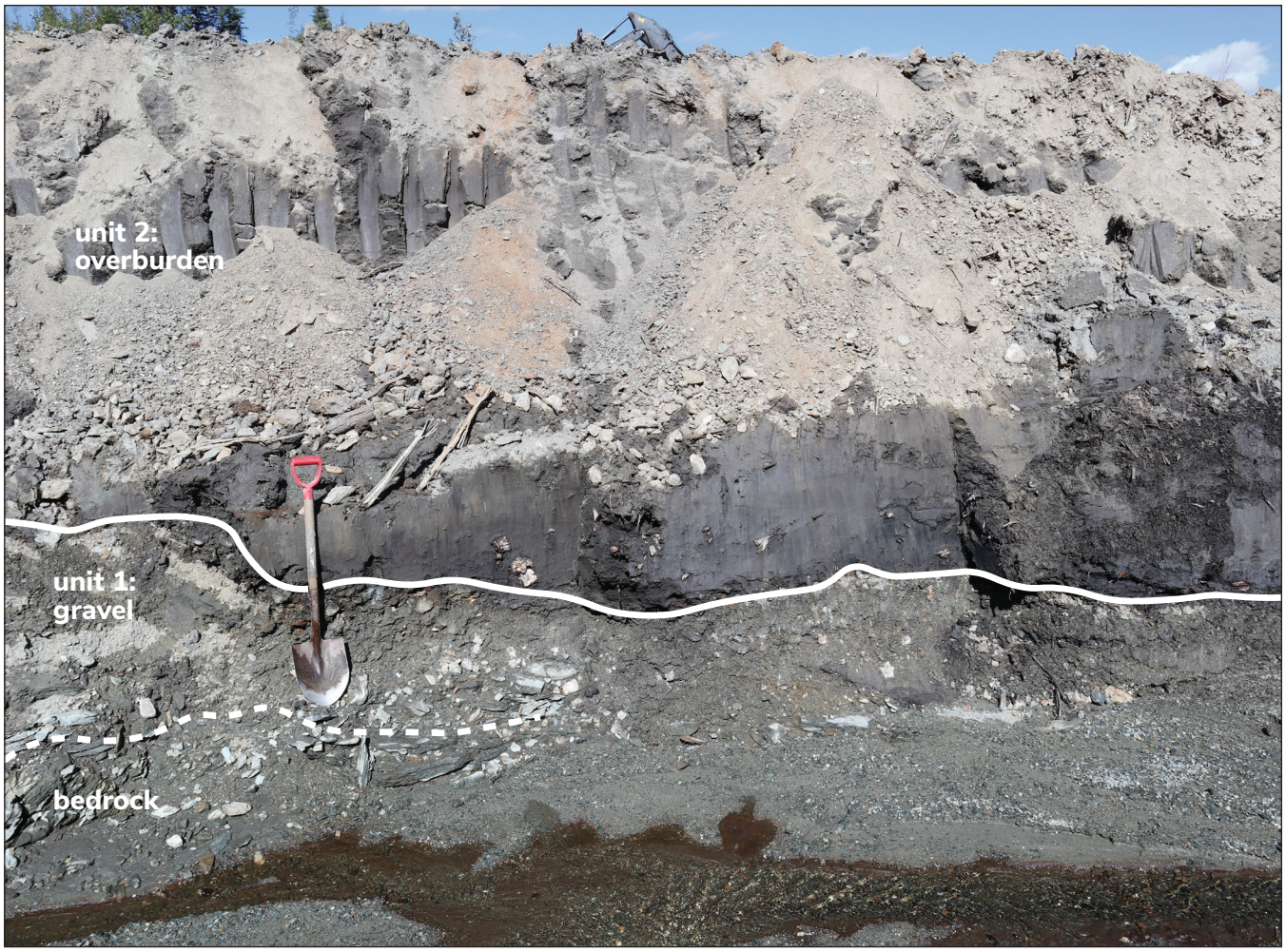
Surficial geology and stratigraphy

Since 1980, Sulphur Creek has produced 143 000 crude ounces of placer gold. Between 1936 and 1966, three dredge operations in the drainage sluiced approximately 39 million m³ (51 million yd³) of material, resulting in C$18 million worth of gold recovered at $36.58 per ounce (Green, 1977). The current value at today's gold price would exceed C$1.2 billion. YCGC operated extensively throughout the region, conducting drilling and dredging, including this particular reach of Sulphur Creek. Upon investigating the YCGC drill results and dredge books, T.D. Oilfields Services Ltd. decided to evaluate the potential of previously dredged ground.

The 2022 cut on the right limit of Sulphur Creek exposed two units. Unit 1, which was not excavated by historic dredging efforts, varied in thickness from 0.6 to



Drone image from 2022 of T.D. Oilfield Services Ltd.'s cut on Sulphur Creek, downstream from Friday Gulch. The 2022 cut is outlined by a black dashed line, and the cuts completed in 2023 are outlined by white dashed lines. The view is looking upstream or to the north toward Friday Gulch.



Exposure in 2022 on the right limit of Sulphur Creek. The lower contact of unit 1 was mostly covered at the time of the photo. Shovel for scale measures 1 m (3.3 ft).

0.9 m (2–3 ft). It is a matrix-supported, pebble-cobble gravel with 70% large pebbles. A poorly defined mixing zone, varying in thickness and up to 0.6 m (2 ft), occurs between the bedrock (foliated biotite schist) and the fluvial gravel of unit 1. This mixing zone is more apparent where the orientation of foliation in the bedrock is favourable resulting in more reworking by the overlying fluvial gravel. A bedrock reef was encountered on the far, right limit of the cut. However, further excavation will determine if the bedrock reef is in fact a low-level bench if it is found to be more continuous. Unit 2, up to 6.1 m (20 ft) thick, consists of massive silt, fine-grained sand, and organic material. Unit 1 and up to 0.3 m (1 ft) of bedrock were processed as pay.

Bedrock geology

Bedrock is biotite schist.

Gold characteristics

Gold is mostly fine grained.

Sulphur Creek, a tributary of Dominion Creek

115O/10	2023: 63°44'34"N, 138°52'02"W
115O/10	2023: 63°44'11"N, 138°51'13"W

Schmidt Mining Corp., 2022–2023
Lucky Lady Placers, 1980–2018

Water license: PM14-006 (active 08/2024)

Active producer (2022–2023) **Operation no. 59**

Location

Sulphur Creek and lower Brimstone Gulch, a left-limit tributary of Sulphur Creek.

Work history and mining cuts

Schmidt Mining Corp. purchased Sulphur Creek and Brimstone Gulch claims from Lucky Lady Placers in 2019. The first earth-moving activities occurred in fall 2022, consisting of a stripping program on the right limit of Sulphur Creek. This program continued throughout



Aerial view of Schmidt Mining Corp.'s stripping efforts on Sulphur Creek, at the mouth of Brimstone Gulch in 2023. The two cut locations are delineated with white dashed lines. The view is looking downstream of Sulphur Creek or to the south.

the 2023 season, resulting in a stripped cut measuring 11 148 m² (120 000 ft²), which was in preparation for sluicing in the 2024 season. An additional cut along the right limit was also completed, revealing a section of in-situ Sulphur Creek side pay.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

Sulphur Creek gravel at the mouth of Brimstone Gulch ranges in thickness from 1.2 to 3.0 m (4–10 ft).

Bedrock geology

Bedrock is interbedded schist and phyllite and has an undulating surface.

Gold characteristics

The fineness of Sulphur Creek gold is 820.

Sulphur Creek, a tributary of Dominion Creek

115O/10 2023: 63°42'44"N, 138°48'18"W

Yukon Alpine Heliski Ltd., 2018–2023
Tusk Explorations Ltd., 2015–2017

Water license: PM14-027 (active 09/2024)

Active producer (2021–2023) **Operation no. 60**

Location

Sulphur Creek, approximately 7.5 km upstream from its confluence with Dominion Creek.

Work history and mining cuts

In late fall 2021, a 55-hole sonic drill program was initiated on the property. As a result of the drilling, Yukon Alpine Heliski Ltd. made a significant discovery in 2022 on Sulphur Creek in an area that was heavily worked by dredging in the 1940s and 1950s. An exploration program consisting of drone surveys,



Drone image from 2023 looking downstream or to the southeast on Sulphur Creek. Yukon Alpine Heliski Ltd.'s 2023 cut is in the foreground of the image, where an excavator is actively digging pay.

resistivity geophysical surveys, and reverse circulation (RC) drilling was conducted in 2022. A YMEP-funded project assisted the company in conducting a 14-hole RC drill program. They identified an area containing up to 1.5 m (5 ft) of virgin Sulphur Creek gravel, which was thicker and more extensive than expected. Throughout the season, they completed a cut measuring 46 by 84 m (150 × 277 ft), immediately upstream from their 2021 mining location. In 2023, a cut measuring 87 by 87 m (285 × 285 ft) was completed by six people operating a daily 16-hour split shift. A second cut on the left limit was initiated and was expected to be completed by the end of the 2023 season.

Equipment and water treatment

The following equipment was used on site:

- Zaxis 450 LC excavator
- Hitachi EX1100 excavator
- Hitachi EX150 excavator
- Caterpillar 245B excavator
- Samsung excavator
- Komatsu HM400 rock truck
- Caterpillar bulldozer
- two Caterpillar wheel loaders

An oscillating screen deck was used to process material at a maximum rate of 92 m³ (120 yd³)/hr.

Surficial geology and stratigraphy

Mining cuts in 2022 and 2023 revealed virgin Sulphur Creek gravel in contact with an undulating bedrock surface, overlain by dredge sand, and capped by tailings slurry (a mixture of small cobbles and fine silt). Large quartz boulders were sporadically noted in the gravel unit. The in-situ Sulphur Creek gravel exposed in 2022 consisted of a clast-supported gravel containing 60% cobbles and 40% pebbles with up to 30% matrix of fine to medium sand. The clasts were predominantly quartz. A well-defined mixing zone was present and was defined by a concentration of bedrock fragments reworked into the lowermost part of the gravel. Gold was noted in the uppermost 0.15 m (0.5 ft) of bedrock. All the gravel and up to 1.5 m (5 ft) of bedrock was sluiced. The thickness of material sluiced varied and was controlled by the relief of the undulating bedrock surface.



P. Wright of Yukon Alpine Heliski Ltd. at his 2022 cut, exposing the in-situ Sulphur Creek gravel.

Bedrock geology

Bedrock is weathered micaceous schist. Undulations in the bedrock surface are pervasive, and have a relief of up to 0.8 m (2.6 ft).

Gold characteristics

Gold is predominately fine grained; however, some coarser gold was recovered from the virgin Sulphur Creek gravel. The fineness is 820.

Sulphur Creek, a tributary of Dominion Creek

115O/10 2022: 63°39'52"N, 138°41'06"W

Favron Enterprises Ltd., 2018–2023

Water license: PM17-069 (active 01/2028)

Active producer (2021–2023) **Operation no. 61**

Location

Sulphur Creek, approximately 1.7 km upstream from its confluence with Dominion Creek.

Work history and mining cuts

In 2021, Favron Enterprises Ltd. mined two different dredge deposits on Sulphur Creek. The first cut they mined was a continuation of the previous year's work, and targeted virgin Sulphur Creek gravel under dredge tailings. A sonic drill program completed in the spring of 2022 led to the discovery of an additional location where 1.2 m (4 ft) of virgin gravel was intercepted below the dredge tailings. Favron Enterprises Ltd. mined a second site on the left limit of Sulphur Creek, outside of the dredged area. Despite lower Sulphur Creek having undergone significant dredge activity in the past, economic placer deposits continue to be discovered. With a crew of eight employees, they sluiced 137 620 m³ (180 000 yd³) of material. Exploration within the dredge limits continued throughout the 2022 season. They sluiced a cut measuring 37 161 m² (400 000 ft²) and stripped an additional 46 452 m² (500 000 ft²) of virgin Sulphur Creek gravel on the left limit, in preparation for sluicing over the next several seasons. A fourth dredge tailings cut was completed in 2023, measuring approximately 32 516 m² (350 000 ft²). In recent years, significant reclamation has occurred on the property over an area of 120 774 m² (1 300 000 ft²), including recontouring and capping with organics that



A 2021 drone image of lower Sulphur Creek at Favron Enterprises Ltd.'s property. The cut locations are labeled by year they were initiated.



Aerial view in 2022 of Favron Enterprises Ltd.'s wash plant on their lowermost claims on Sulphur Creek. The 2022 cut is delineated with a white dashed line.

was completed in 2022. They also obtained a timber harvest permit and harvested approximately 400 cords of wood to support the fuel wood demand in Dawson City. In 2023, they targeted Sulphur Creek side pay and completed a cut on the left limit of Sulphur Creek, outside of the dredge limits.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 850 excavator
- John Deere excavator
- Caterpillar 988 loader
- four Komatsu HM-400 rock trucks
- two John Deere 460E rock trucks
- two Komatsu 375 bulldozers
- Caterpillar 9N bulldozer
- Caterpillar 10N bulldozer
- Komatsu 155 bulldozer

A screen deck was used to process pay, and the water was 100% recirculated.

Surficial geology and stratigraphy

While mining the right-limit side pay in 2020, Favron Enterprises Ltd. exposed the edge of a dredge cut. During this process, virgin gravel was discovered beneath the dredge slickens, prompting the decision to open up a cut measuring 11 613 m^2 (125 000 ft^2) that was well within the dredge limit. Stripping the dredge tailings proved more challenging than anticipated due to the presence of permafrost in the tailings. In various



Jeff Bond, formerly of Yukon Geological Survey, documenting the virgin, in-situ Sulphur Creek gravel exposed at Favron Enterprises Ltd.'s 2021 cut.

locations beneath the tailings, approximately 0.9 to 1.5 m (3–5 ft) of in-situ gravel remained on the bedrock surface. This area has been the target for the operator for the past four seasons. This in-situ virgin gravel, known as the 'Ross gravel' (see definition in Froese et al., 2001), is a light grey, matrix-supported gravel containing an abundance of quartz clasts. Ross gravel is an incised valley-fill gravel and despite its similarity to White Channel gravel, is significantly younger (Froese et al., 2001). All of the Ross gravel encountered was sluiced.

Bedrock geology

The bedrock is mapped as quartzite, quartz-muscovite-chlorite schist, gneiss and amphibolite (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Sulphur Creek, a tributary of Dominion Creek

115O/10 2021: 63°39'35"N, 138°40'16"W

T.D. Oilfield Services Ltd., 2019–2022
Tatra Ventures Ltd., 2010–2014, 2017

Water license: PM21-036 (active 04/2032)
Water license: PM11-017-1 (expired 09/2021)

Active producer (2021) **Operation no. 62**

Location

Sulphur Creek, approximately 0.8 km upstream from its confluence with Dominion Creek.

Work history and mining cuts

In 2020, a lease agreement was established between Gatenby Enterprises Ltd. and T.D. Oilfield Services Ltd. for claims on lower Sulphur Creek at its confluence with Dominion Creek. They mined lower Sulphur Creek in 2020 and 2021. In 2021, a left-limit cut, measuring 59 by 366 m (192 × 1200 ft), and a cut on the far, right limit was also completed. In 2022, reclamation occurred on the property; no mining took place in 2023.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 345 excavator
- John Deere 450 excavator
- Hitachi 450 excavator
- two Volvo 40-ton rock trucks
- Caterpillar D10T bulldozer

A Macon SD-400 wash plant with 1.2 by 3.0 m (4 × 10 ft) double screens was able to process material at a rate of up to 84 m³ (110 yd³)/hr. The primary run was 2.4 m (8 ft) in length, configured with Hungarian riffles, followed by a 3.7 m (12 ft)-long secondary run with a boil box, hydraulic riffles and expanded metal. Two secondary runs on either side of the plant were used. An 8" pump supplied water to the plant, which was recirculated in a series of three ponds. Clean-ups were conducted using a jig, a wheel and a reverse trommel.

Surficial geology and stratigraphy

Lower Sulphur Creek stratigraphy remains fairly consistent, and consists of three units. A section



Aerial view of a cut on lower Sulphur Creek. The cut was completed by T.D. Oilfield Services Ltd. in 2021 and was situated on the far, right limit of the drainage.



Drone image of T.D. Oilfield Services Ltd.'s operation on lower Sulphur Creek in 2021. The view is looking upstream, toward the northwest. Two cut locations are outlined by white dashed lines.

measuring 7.6 m (25 ft) in total thickness exposed a deposit of Ross gravel overlain by the modern Sulphur Creek fluvial gravel. Unit 1, from 0 to 1.5 m (0–5 ft), is Ross gravel which consists of a clast-supported gravel with 30% matrix of medium sand and minor lenses of granules. Clasts are predominantly composed of quartz and consist of 60% pebbles and 40% cobbles. The Ross gravel, an incised valley-fill gravel, hosts the majority of gold on lower Sulphur Creek. Unit 2, from 1.5 to 4.6 m (5–15 ft) is the modern Sulphur Creek fluvial gravel which is brown in colour and contains a higher percentage of clasts compared to the underlying Ross gravel. The uppermost 2.4 m (8 ft) of the Sulphur Creek gravel fines upward into silt and fine-grained sand. Unit 3, from 4.6 to 7.62 m (15–25 ft) is overburden. Stripping has disturbed the top of the section, but where it is intact, the overburden consists of loess and organics.

Bedrock geology

Bedrock is highly decomposed quartz-muscovite-chlorite schist.

Gold characteristics

Gold is predominately fine grained and has a fineness of 840.



Photo of a 2021 exposure, consisting of Ross gravel overlain by the modern Sulphur Creek gravel. The total thickness of the section is 7.6 m (25 ft).

Dominion Creek, a tributary of Indian River

115O/15 2022: 63°52'09"N, 138°55'38"W

Gwilliam, W. and B., 2020–2023

Water license: PM20-027-2 (active 09/2030)

Active producer (2021–2023) **Operation no. 63**

Location

Dominion Creek, headwaters of drainage.

Work history and mining cuts

The uppermost claims in the headwaters of Dominion Creek were transferred from P. Phillips to W. and B. Gwilliam in September 2020. A two-person crew began sluicing on the property in 2021 by processing a total of 1147 m³ (1500 yd³) of material. They also tested the bottom end of their claims along with two forks in the drainage. In 2022 and 2023, they focused efforts on the upper right fork, excavating into the far, left limit of the drainage. With nearly three decades of mining experience in British Columbia and more recently in the Mayo area, they approached the project with efficiency, undertaking systematic overburden removal and storage.

Equipment and water treatment

The following equipment was used on site:

- Komatsu PC 400 LC excavator
- John Deere 992 excavator
- Caterpillar 9G bulldozer

The wash plant consisted of a 1.4 m (4.5 ft)-diameter trommel with a 1 1/8" screen, and an initial hopper measuring 0.74 m² (8 ft²). The plant was able to process material at a rate of up to 15 m³ (20 yd³)/hr. An initial catchment tray was located under the trommel, measuring 0.3 m (1 ft) wide by 3.7 m (12 ft) long with a 3/4" screen. Sluice runs were 1.2 by 3.7 m (4 × 12 ft) with 0.3 m (1 ft) of hydraulic riffles, 0.15 m (0.5 ft) of screen, and 3.2 m (10.5 ft) of angle iron. The runs were



Drone image from 2023 of the W. and B. Gwilliam's operation at the headwaters of Dominion Creek.

lined with unbacked miner's moss. A 6" pump supplied water to the plant, and water was recycled in a series of three ponds. Concentrate was then processed with a jig, a magnetic separator, and finished with a Gemini table.

Surficial geology and stratigraphy

Old timer workings were uncovered in a 2022 cut, indicating that previous mining efforts have occurred in the headwaters of Dominion Creek. During a 2022 property visit by the author, the overburden was in the process of being removed. At that time, 10 m (35 ft) of colluvium was noted. The colluvium predominantly consisted of loess but contained interbeds of coarse sediment composed of angular, frost-shattered clasts of bedrock. A contact between the colluvium and an underlying gravel unit was exposed. The gravel unit consists of a moderately sorted, clast-supported cobble-pebble gravel with a sandy matrix. A left-limit gutter was discovered at the headwaters of the drainage (W. Gwilliam, pers. comm., 2022)



Trommel used to process material at the Gwilliam operation.

Bedrock geology

Bedrock is weathered muscovite schist.

Gold characteristics

Gold particles are primarily 0.6 mm (30 mesh) in size, and have a fineness of 770.

Dominion Creek, a tributary of Indian River

115O/15	2023: 63°49'20"N, 138°40'55"W
115O/15	2023: 63°48'48"N, 138°39'20"W
115O/15	2022: 63°48'11"N, 138°36'53"W

Ace Placer Mining Ltd., 1971–2023

Water license: PM14-064 (active 03/2025)
Water license: PM16-067 (active 04/2027)

Active producer (2021–2023) **Operation no. 64**

Location

Dominion Creek, at the mouth of Lemare Gulch.

Work history and mining cuts

Ace Placer Mining Ltd. is a third-generation placer operation that has been active in the Dominion Creek drainage since 1971. They have systematically mined the drainage, opening cuts in various locations each season. Their mining activity has been guided by their previous work history, combined with historic data and dredge information. In 2021, they mined a left-limit, low-level bench immediately below the mouth of Lemare Gulch. Mining in 2021 revealed the continuous nature of the bench deposit, which extended to the upper part of the claim block. In 2022, a five-person crew operated a daily 12-hour shift upstream from the mouth of Nevada Creek. Mining at this location was along the contact between the dredge limit and side pay. Ace Placer Mining Ltd. was active in two locations during the 2023 season. The majority of the season was spent mining at the mouth of Lemare Gulch, on the left limit of Dominion Creek. A second location on the right limit of Dominion Creek, approximately 800 m upstream from the mouth of Portland Creek, was stripped in preparation for sluicing during the 2024 season. Although this area has been extensively dredged in the past, the inconsistent method of steam thawing used at that time resulted in the preservation of remnant pillars of virgin, in-situ Dominion Creek gravel. This is one of the placer settings that Ace Placer Mining Ltd. has been actively targeting. Additionally, they will be evaluating the economic potential of technogenic deposits derived from dredging (or other disturbances) as they systematically sluice each unit.



Aerial view of Ace Placer Mining Ltd.'s operation in 2023, upstream from the mouth of Portland Creek. The photo shows active stripping of a former dredge cut and is delineated with a white dashed line. The view is looking upstream on Dominion Creek or to the northwest.



Aerial view of Ace Placer Mining Ltd.'s operation in 2023 at the mouth of Lemare Gulch. They mined on the left limit of the drainage (delineated with a white dashed line), targeting the preserved bench deposits. The view is looking downstream or to the southeast.

Equipment and water treatment

The following equipment was used on site:

- three Caterpillar 235 excavators
- Caterpillar 225 excavator
- Caterpillar 345 excavator
- Caterpillar D10 bulldozer
- two Caterpillar D9 bulldozers
- four Caterpillar 980 wheel loaders
- International 350 Payhauler truck

The wash plant consisted of a 1.5 by 4.3 m (5 × 14 ft) El Russ double screen deck, a hopper with a capacity of 12 m³ (16 yd³), and a feeding conveyor measuring 9 m (30 ft). The plant was able to process material at a rate of up to 92 m³ (120 loose yd³)/hr. Four sluice runs, each 0.8 by 3.0 m (2.5 × 10 ft), were lined entirely with expanded metal. Water was supplied to the plant via a 10" Dayton-Dowd pump and was 100% recycled. Clean-ups were conducted using a jig and wheel.

Surficial geology and stratigraphy

Ace Placer Mining Ltd. has identified four Pleistocene terraces (benches) on the left limit of Dominion Creek, indicating periodic base-level change and downcutting. The most continuous bench is approximately 10 m (33 ft) above the modern creek level. The continuous nature of this deposit suggests an extended period where the depositional environment was stable. The bench deposit consists of two units. Unit 1 is up to 1.5 m (5 ft) thick and is composed of a poorly to moderately sorted cobble-pebble gravel. This unit exhibits a distinctive coarse-fine-coarse texture, indicative of varying energy conditions during deposition. Unit 1 is overlain by up to 3.7 m (12 ft) of fine-grained overbank deposits and aeolian material (loess). This fine-grained unit indicates a shift to more stable depositional conditions, possibly during periods of floodplain development and wind-blown sediment accumulation.

A 2023 cut at the mouth of Lemare Gulch, exposed a high-energy gravel deposit incised into a low-level Dominion Creek bench. Numerous well-defined channels were preserved within this section, that cut into bedrock to a depth of up to 0.9 m (3 ft). The bedrock is highly weathered (extensively oxidized and fractured), making it susceptible to erosion and channel incision.

Bedrock geology

Bedrock is a highly weathered, variably oxidized micaceous schist. Undulations in the bedrock surface have reliefs of up to 0.8 m (2.6 ft).

Gold characteristics

Gold particles are mostly fine grained, and have a fineness of 800.

Dominion Creek, a tributary of Indian River

115O/15 2022: 63°45'26"N, 138°31'31"W

Hollis Mining & Exploration Ltd., 2001–2023

Water license: PM15-026 (active 07/2025)
Water license: PM13-010-1 (expired 04/2023)

Active producer (2021–2023) **Operation no. 65**

Location

Dominion Creek, near the mouth of Kentucky Creek.

Work history and mining cuts

Hollis Mining & Exploration Ltd. has been mining in the Dominion Creek drainage since 2021. Over the past few seasons, a two-person crew completed a large cut on the left limit. In 2022 and 2023, a right-limit cut across from the mouth of Kentucky Creek was completed, and measured 65 by 587 m (213 x 1 925 ft). A total of 20 640 m³ (27 000 yd³) of material was sluiced from the cut.

The economics of mining in Dominion Creek are enhanced by the use of excavator-mounted conveyor systems, fabricated by A. Hollis. A single conveyor, along with the excavator feeding it, can transport material over a distance of 50 m (160 ft) at a cost of $0.30 per cubic yard. The conveyors have a capacity of moving upwards of 1000 cubic yards per hour, providing a cost saving that is five times less expensive than using a D10 bulldozer. At the mine site, up to three conveyors may be working at any one time.

Equipment and water treatment

The following equipment was used on site:

- John Deere 892E LC excavator
- John Deere 450 excavator
- 110 ft-long excavator-mounted conveyor
- 130 ft-long excavator-mounted conveyor
- John Deere 370 excavator
- Komatsu PC300 excavator

Pay gravel was processed using a 1.5 by 3.3 m (5 × 11 ft) oscillating screen deck with a 1/2" screen and a 12 m (40 ft) tailings stacker. The sluice runs were 2.4 m (8 ft) wide and consisted of 0.6 m (2 ft) of expanded metal, a boil box, 0.6 m (2 ft) of hydraulic riffles, and a



Drone image from 2022 of Hollis Mining & Exploration Ltd.'s cut on the right limit of Dominion Creek. The excavator-mounted conveyor can be seen in the centre of the image. The view is looking downstream or to the southeast.

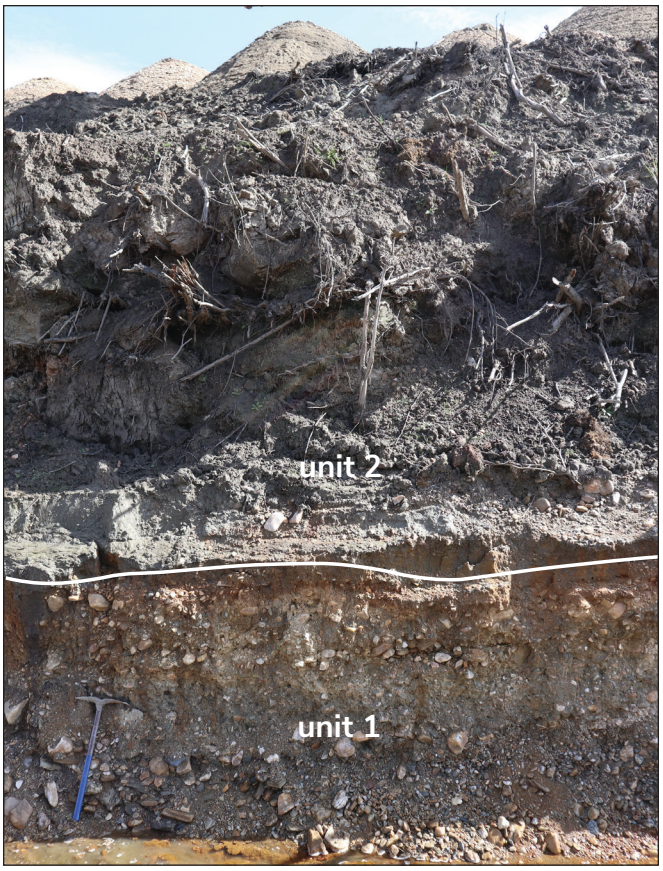
final 0.6 m (2 ft) of expanded metal at a steeper grade; the entire sluice runs were lined with unbacked Nomad matting. The plant processed material at a rate of 61 m³ (80 yd³)/hr. Water was acquired from Dominion Creek and supplied to the plant using a 5" by 5" Cornell pump. Pumps used to dewater cuts were powered by an automatic rotating solar panel. Effluent was settled in a series of ponds and filtered through dredge tailings, allowing for 100% recycling. Clean-ups were completed using a wheel.

Surficial geology and stratigraphy

A cut in 2022 on the right limit of Dominion Creek exposed two units. Unit 1 is 1.2 m (4 ft) thick and represents the modern Dominion Creek gravel. It is a poorly sorted, matrix-supported, pebble-cobble gravel containing weakly stratified fine-grained sand and silt in the upper 0.3 m (1 ft) of the unit. The gravel consists of 50% clasts (60% pebbles and 40% cobbles) and 50% matrix composed of medium to coarse sand. Unit 2 is up to 2.4 m (8 ft) thick, and composed of a mixture of loess, organics and fine-grained sand. An abundance of woody debris is noted throughout. This unit is likely a mix of overbank deposits and colluvium derived from the hillside due to its location in the valley.

Bedrock geology

Bedrock is composed of a highly fractured and decomposed muscovite schist.



Section exposed at Hollis Mining & Exploration Ltd.'s 2022 cut. The cut was located on the right-limit of Dominion Creek. A pick for scale measures 0.6 m (2 ft).

Gold characteristics

Gold particles are primarily fine grained and have a fineness of 850.

Dominion Creek, a tributary of Indian River

115O/10 2023: 63°42'58"N, 138°32'21"W
115O/10 2022: 63°43'04"N, 138°32'34"W

Little Flake Mine ULC, 2023
Dominion Gold Resources Ltd., 2013–2022

Water license: PM19-031 (active 05/2030)
Water license: PM12-054-3 (expired 03/2023)

Active producer (2021–2023) **Operation no. 66**

Location

Dominion Creek, approximately 0.8 km upstream from the mouth of Bullfrog Creek.

Work history and mining cuts

Dominion Gold Resources Ltd. mined in the Dominion Creek valley throughout 2021 and 2022. Mining on

Dominion Creek, they began at the mouth of Eagle Creek, and progressively mined upstream. In 2021, they operated with a crew of 19 people working 24/7 and completed three large cuts. One of the cuts at the mouth of Washington Creek measured 9290 m² (100 000 ft²). An extensive drill program was completed in the spring of 2021 on the right limit of Dominion Creek and up to the mouth of Washington Creek. It consisted of 120 reverse circulation (RC) drill holes. In 2022, a large cut was completed at the mouth of Washington Creek, which extended eastward into the Dominion Creek valley. The cut measured 94 by 168 m (310 × 550 ft).

Little Flake Mine ULC purchased Dominion Gold Resources Ltd.'s property in 2023 and began relocating in early spring of that same year. They began the 2023 season with exploration by completing an extensive sonic drill program to establish a multi-year mine plan at the new location. The drill program was followed up with mining where the crew focused their efforts on the middle to right limit of Dominion Creek. Furthermore, they stripped an additional four claims in preparation for the 2024 season.



Drone image from 2022, when Dominion Gold Resources Ltd. was active at the mouth of Washington Creek. The view is looking west up Washington Creek from Dominion Creek valley.



Drone image of Little Flake Mine ULC's property near the mouth of Washington Creek in 2023. The view is looking upstream to the northeast.

Equipment and water treatment

In 2021, the following equipment was used on site:

- Caterpillar 245 excavator
- two Caterpillar 349 excavators
- Hitachi 450 excavator
- John Deere 350 excavator
- two Caterpillar D8 bulldozers
- two Caterpillar D10T bulldozers
- two 120 ft-long track-mounted conveyors
- nine 40-ton rock trucks
- two Caterpillar 980 wheel loaders
- Caterpillar 988 wheel loader
- Caterpillar 992 wheel loader
- Caterpillar D9 bulldozers
- Caterpillar D11 bulldozers

An automatic 12 m^3 (16 yd^3) hopper with a conveyor fed the 6 by 8 m (20 × 26 ft) double screen deck, and classified material to 2" on the upper deck and 5/8" on the lower deck. Four upper sluice runs, each measuring 1.2 m (4 ft) wide by 6.1 m (20 ft) long, and two lower sluice runs, each 1.5 m (5 ft) wide by 6.1 m (20 ft) long, were configured with expanded metal on 3M™ unbacked Nomad matting, and angle iron riffles at the head and tail of the sluice runs. Water was supplied to the plant using two 18" pumps. The plant processed material at a rate of over 230 m^3 (300 yd^3)/hr. Effluent was settled in a series of two large ponds, and water was 100% recycled. Clean-ups were completed using a custom-built power auger system into a Ray Lozzette live bottom concentrator. The magnetic material was removed from the final concentration, which was ground in a Clarkson rod mill. Difficult material was treated on an RP-4 gold recovery shaker table or Miller table.

Surficial geology and stratigraphy

The Dominion Creek valley is a broad, mature valley and the stratigraphy remains fairly consistent throughout the drainage. Typically, the stratigraphy consists of a lowermost unit at the bedrock contact, which is a mixing zone of weathered bedrock and gravel. This is overlain by Ross gravel and then capped by the uppermost unit

of modern Dominion Creek fluvial gravel. The thickness of each gravel unit varies significantly across the valley. Ross gravel ranges from 0.5 to 4.0 m (1.6–13.1 ft) in thickness, whereas Dominion Creek gravel ranges from 2 to 5 m (6.6–16.4 ft). The presence and extent of the mixing zone is controlled by the nature of the underlying bedrock. That is, where the bedrock is highly weathered, an extensive mixing zone exists, and where the bedrock is more competent and resistant, a mixing zone may be altogether absent.

At the 2021 cut immediately downstream from the mouth of Washington Creek, a noticeable decrease in the thickness of Ross gravel was observed. Throughout the cut, the average thickness of Ross gravel was 0.4 to 0.9 m (1.5–3.0 ft), which is down from 1.9 to 3.0 m (6.5–10.0 ft) in previous cuts.

In 2022, the cut located near the mouth of Washington Creek exposed three units. Unit 1, from 0 to 0.8 m (0–2.7 ft), is Ross gravel and has a wavy upper contact. Unit 2, from 0.8 to 1.6 m (2.7–5.1 ft), is Dominion Creek gravel, which is brown in colour and has less fines than the underlying Ross gravel. Unit 3, from 1.6 to 9.8 m (5.1–32 ft), is loess including peat and organic debris (e.g., wood). The bedrock surface in this cut had completely weathered to sand.

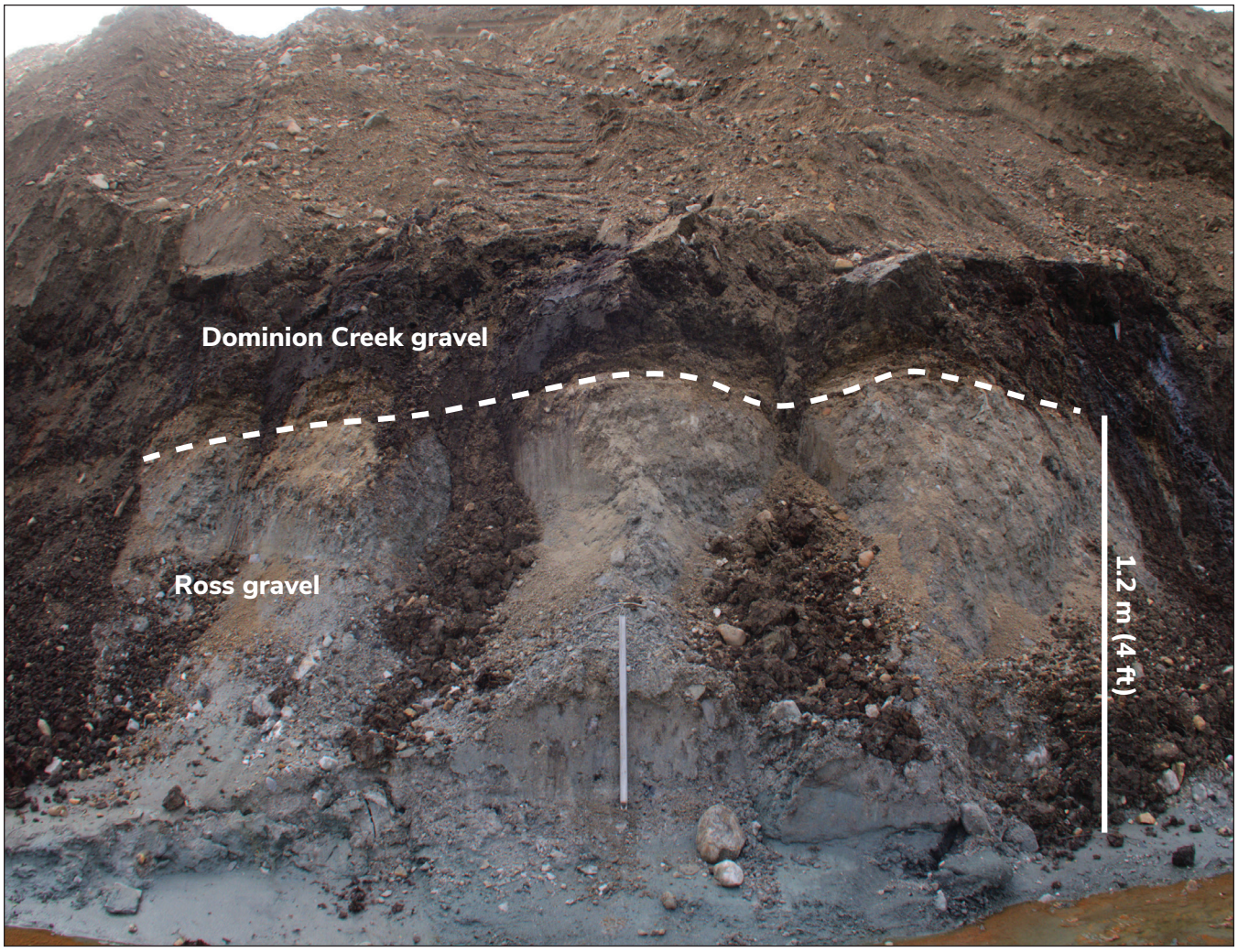
The cut in 2023 at the mouth of Washington Creek exposed 1.7 m (6 ft) of Ross gravel overlain by 2.0 m (7 ft) of modern Dominion Creek gravel.

Bedrock geology

Bedrock is psammite interbedded with quartz-mica schist. Psammite is highly weathered and commonly broken down to sand.

Gold characteristics

Gold particles are mostly fine grained and have a fineness between 830 and 834. Assay reports were showing a decrease in fineness as the operator progressed upstream.



Exposure at Little Flake Mine ULC's 2023 cut at the mouth of Washington Creek. Dominion Creek gravel is poorly exposed.

Whitman Gulch, a tributary of Gold Run Creek

115O/15 2023: 63°42'57"N, 138°38'20"W

536784 Yukon Inc., 2018–2023

Water license: PM19-073 (active 05/2030)

Active producer (2021–2023) **Operation no. 67**

Location

Whitman Gulch, 0.4 km upstream from its confluence with Gold Run Creek.

Work history and mining cuts

536784 Yukon Inc. has been monitoring and sluicing on Whitman Gulch since 2018. The majority of their seasons are spent monitoring the frozen black muck to thaw and liberate the underlying pay gravel. In 2021, a two-person crew sluiced 3058 m^3 (4000 loose yd^3) of material from the narrow drainage. Numerous old-timer workings such as ladders and shafts were discovered, as well as an abundance of Ice Age mammal fossils. Mining activity progressed upstream throughout the 2022 and 2023 seasons.

Equipment and water treatment

The following equipment was used on site:

- Hitachi EX270LC excavator
- monitors

A T.D. Oilfield Services Ltd. wash plant was used to sluice stockpiled pay material.

Surficial geology and stratigraphy

Whitman Gulch is a narrow left-limit tributary to Gold Run Creek, and has a maximum width of 47 m (154 ft) in its lower reaches. Monitoring occurred from limit to limit to thaw and remove the thick section of frozen black muck in order to release the underlying pay gravel. The pay gravel is situated on bedrock and varies in thickness from 0.3 to 1.5 m (1–5 ft). The gravel is a high-energy deposit that is poorly sorted and consists of subrounded to subangular clasts. It is moderately to pervasively oxidized. It is clast-supported and consists of 70% pebbles and 30% cobbles; minor clasts are up to 0.5 m (1.6 ft) in diameter. The matrix ranges from 10–15% and consists of mostly silt and mud with fine grained sand. The entire gravel unit, from limit to limit, and up to 0.9 m (3 ft) of bedrock, was sluiced.

Bedrock geology

Bedrock is oxidized quartz-mica schist.

Gold characteristics

Gold particles are coarse and angular, often iron stained, and contain an abundance of quartz inclusions. The largest nugget recovered weighed 3/4 oz. Fineness is 880.



Monitoring on Whitman Gulch in 2023.

Laskey Creek, a tributary of Gold Run Creek

115O/10 2023: 63°43'25"N, 138°41'16"W

L&M Mining Ltd., 2023

Water license: PM19-051 (active 05/2030)

Active producer (2023) **Operation no. 68**

Location

Lower Laskey Creek.

Work history and mining cuts

L&M Mining Ltd. tested their ground on lower Laskey Creek in 2023. It was the first time in several years that the property was active.

Equipment and water treatment

The following equipment was used on site:

- Hitachi EX75UR excavator
- trommel
- John Deere excavator

Surficial geology and stratigraphy

A discontinuous low-level bench deposit is situated on the right limit of Gold Run Creek and was exposed at the mouth of Laskey Creek in 2023. The deposit consists of a low-energy gravel deposit, which is characterized by a framework consisting of small clasts within a high percentage of matrix. The clasts are rounded, and there is no apparent imbrication. The gravel is moderately sorted, weakly stratified, and consists of 65% pebbles and 35% cobbles. Discontinuous sand lenses occur in the upper portion of the gravel unit.

Bedrock geology

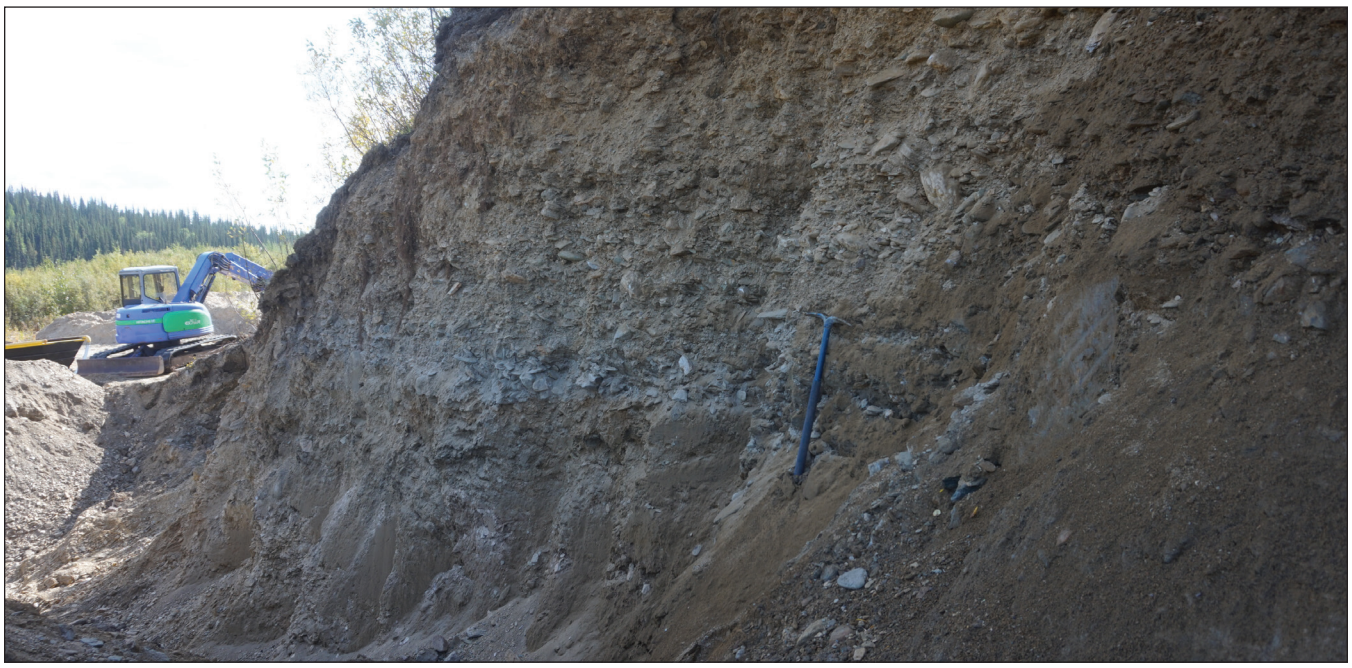
Bedrock is mapped as quartzite and quartz-muscovite-chlorite schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.



Drone image from 2023 taken from the Gold Run Creek valley and looking upstream on Laskey Creek. View is to the west.



Exposure on lower Laskey Creek in 2023, exposing the Gold Run Creek bench deposit situated on the right limit of the drainage. A pick for scale measures 0.6 m (3 ft).

Gold Run Creek, a tributary of Dominion Creek

115O/10 2023: 63°43'04"N, 138°39'35"W
115O/10 2023: 63°43'19"N, 138°41'4.2"W

T.D. Oilfields Services Ltd., 2010–2023

Water license: PM18-028-1 (active 12/2028)

Active producer (2021–2023) **Operation no. 69**

Location

Gold Run Creek and 34 Pup, a left-limit tributary of Gold Run Creek.

Work history and mining cuts

T.D. Oilfield Services Ltd. has spent the past three seasons mining on Gold Run Creek and on 34 Pup, which is a left-limit tributary of Gold Run Creek. In 2022 and 2023 they targeted an extensive, low-level bench deposit on the left limit of Gold Run Creek. In 2022 T.D. Oilfields initiated a cut at the mouth of 34 Pup, and mining activity progressed up the drainage through to 2023. A second location was mined in 2023, immediately downstream from the mouth of Laskey Creek on the left limit of Gold Run Creek. T.D. Oilfields operated with a crew of up to 10 people each season.

Equipment and water treatment

The following equipment was used on site:

- two John Deere 450D excavators
- Caterpillar 345 excavator
- Caterpillar 330 excavator
- Volvo 220 E wheel loader
- Caterpillar 982 wheel loader
- Caterpillar D8L bulldozer
- Caterpillar D10N bulldozer
- Caterpillar D10T bulldozer
- two 30-tonne Volvo rock trucks
- two 35-tonne Volvo rock trucks
- two 40-tonne Volvo rock trucks

A 1.5 by 4.9 m (5 × 16 ft) shaker deck with an automatic seven-yard hopper was used to process material at a rate of up to 92 m³ (140 yd³)/hr. A 14" Cornell pump, powered by a Caterpillar 3608 industrial diesel engine, supplied water to the plant. Effluent was settled in one pond and water was 100% recycled. Clean-ups were completed using a jig, wheel, and a small reverse trommel.

Surficial geology and stratigraphy

The pay unit on the Gold Run Creek bench (at the confluence of 34 Pup and Gold Run Creek) consists of a pervasively oxidized cobble-pebble gravel containing discontinuous lenses of silty-sand. It is clast-supported and contains 20–30% matrix. The gravel exhibits weak imbrication that indicates a paleocurrent direction



Aerial view of the cut mined by T.D. Oilfield Services Ltd. from 2021 to 2023. The view is looking upstream on 34 Pup or to the northeast.



Gold recovered from 34 Pup, a left-limit tributary of Gold Run Creek.

that aligns with modern Gold Run Creek. Weathered clasts are present throughout the unit. The gravel fines upward and becomes increasingly better sorted toward the upper contact. The overall thickness of the gravel varies between 0.2 m and 2.7 m (0.7 and 8.9 ft). The gravel exhibits a variable degree of oxidation, ranging from highly oxidized to moderately oxidized, as the operator progresses upstream. Highly oxidized zones are characterized by pervasive iron staining, producing distinct red to orange hues. A unit of black muck, up to 6.1 m (20 ft) thick and containing massive ice, overlies the pay unit.

Bedrock geology

Bedrock is interbedded quartzite and highly weathered quartz-mica schist.

Gold characteristics

Gold particles from 34 Pup are coarse grained and have a fineness of 865.

Dominion Creek, a tributary of Indian River

115O/10 2021: 63°39'46"N, 138°37'46"W

NBC Contracting, 2020–2021
Gimlex Enterprises Ltd., 1994–2017

Water license: PM15-009 (active 05/2025)

Active producer (2021) **Operation no. 70**

Location

Dominion Creek, 3.5 km downstream from the mouth of Gold Run Creek.

Work history and mining cuts

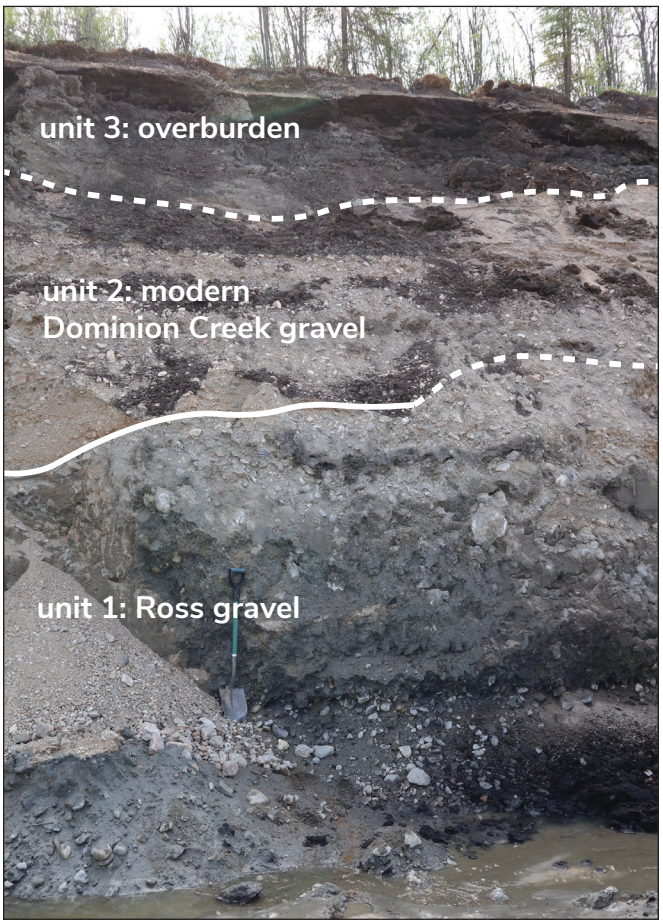
NBC Contracting leased claims from Gimlex Enterprises Ltd. in 2020 and spent the 2021 season on lower Dominion Creek. The target in 2021 was a left-limit cut, approximately 200 m east of the 2021 cut which was situated on the left limit of the Dominion Creek valley, 3.5 km downstream from the mouth of Gold Run Creek. A total of 152 910 m³ (200 000 yd³) of material was sluiced in 2020 and 2021. A Yukon Mineral Exploration Program grant in 2021 resulted in the delineation of a cut that was mined in that same season. Later in 2021, the company explored for potential deposits of in-situ virgin gravel preserved beneath dredge tailings and had encouraging results. As their exploration continued, the far limits of the valley proved economic, prompting expansion laterally into the valley sides. In 2022, the operator relocated to a drainage in the South Klondike region.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 390 excavator
- Caterpillar 336F excavator
- Caterpillar D10T2 bulldozer
- Caterpillar D11 bulldozer
- Caterpillar 982M wheel loader
- wheel loader with 7-yd bucket
- Volvo A40F rock truck
- two 45-tonne rock trucks

Pay was processed using a Macon Industries Super Sluice 800 screen deck with a 1/2" screen. The plant was able to process material at a rate of 111 m³ (145 yd³)/hr. The sluice runs consisted of 3 m (10 ft) of Hungarian riffles and another lower run of expanded metal. Water was supplied to the plant using a 10" inlet to an 8" outlet, and effluent was settled in a series of two settling ponds. A daily clean-up on the upper mats was completed using a shaker table and reciprocating jig.



Exposure at NBC Contracting's 2021 cut on the left limit of lower Dominion Creek. A shovel for scale measures 1 m (3.3 ft).

Surficial geology and stratigraphy

The stratigraphy on lower Dominion Creek consists of three units. Unit 1, from 0 to 2.5 m (0–8.2 ft), is Ross gravel. It is easily recognized by its high percentage of quartz clasts and its grey colour (Froese et al., 2001). The percentage of matrix decreases from 30% at the bedrock contact, to 20% toward the upper part of the unit. Rare, large quartz boulders, measuring up to 0.9 m (3 ft) in diameter, are concentrated at the bedrock contact. Unit 2, from 2.5 to 4.2 m (8.2–13.7 ft), is a deposit of modern Dominion Creek gravel, which is brown in colour. The contact between units 1 and 2 is sharp and denoted primarily by an abrupt change in colour. Dominion Creek gravel is a cobble-pebble gravel with 15% matrix consisting of silt and fine-grained sand. Unit 3 consists of black muck, up to 6.1 m (20 ft) thick. Up to 3.6 m (12 ft) of the gravel units and the uppermost 0.3 m (1 ft) of bedrock were processed as pay.

Bedrock geology

Bedrock is graphitic schist.

Gold characteristics

Gold particles vary in colour from bright yellow to manganese stained. The fineness is 860.

Lee Pup, a tributary of Dominion Creek

115O/10 2023: 63°40'36"N, 138°35'21"W

McGuffie, J., 2020–2023

Water license: PM20-014 (active 06/2030)

Active producer (2021–2023) **Operation no. 71**

Location

Lee Pup, approximately 800 m upstream from its confluence with Dominion Creek.

Work history and mining cuts

J. McGuffie's first year of mining on Lee Pup was in 2020. Every year since then, he has been active in the narrow drainage, primarily operating solo. In 2023, he focused his mining efforts on excavating a cut on the left limit of Lee Pup.

Equipment and water treatment

The following equipment was used on site:

- CanDig Mini excavator
- Hopto H550 excavator (used in 2022)



An example of gold recovered from lower Dominion Creek.



J. McGuffie at his operation on Lee Pup in July 2023.

A 1.7 m (5.5 ft)-long trommel with a diameter of 0.3 m (1 ft) and a 3/4" screen was used to process pay. A 3" pump supplied water to the plant, enabling the trommel to process material at a rate of 1.9 m³ (2.5 yd³)/hr. A single sluice run was 2.4 m (8 ft) long, consisting of expanded metal with unbacked miner's mat. A 1/8" screen plant was used for clean-ups and was completed on a wheel.

Surficial geology and stratigraphy

Lee Pup dissects a low-level Dominion Creek bench as it flows into the main Dominion Creek valley. An erosive contact was noted where Lee Pup encounters this landform, indicating high-energy flow conditions in the tributary. For incision to occur, the water velocity would need to be high enough to rework the bench surface. A cut in 2023 at Lee Pup revealed a stratigraphy consisting of up to 0.9 m (3 ft) of cobble gravel overlain by 2.1 m (7 ft) of overburden.

Bedrock geology

Bedrock is mapped as quartzite and quartz-muscovite-chlorite schist (Yukon Geological Survey, 2022a).

Gold characteristics

Gold particles are mostly fine grained, and have a fineness of 870 to 890. The gold is described as chunky, angular, and dull in colour.

Veronica Bench, left limit of Dominion Creek

115O/10 2023: 63°40'46"N, 138°34'28"W

Gimlex Enterprises Ltd., 2015–2023

Water license: PM15-009 (active 05/2025)

Active producer (2021–2023) **Operation no. 72**

Location

Veronica Bench, a left-limit bench on Dominion Creek, downstream from Rob Roy Creek.

Work history and mining cuts

Gimlex Enterprises Ltd. has been prospecting a bench deposit of White Channel gravel on the left-limit of



Long tom at a test pit on Veronica Bench in 2023, where J. Christie of Gimlex Enterprises Ltd. conducted test pitting.

Dominion Creek for several seasons. The bench deposit extends from the mouth of Rob Roy Creek to the mouth of Veronica Creek. In 2022 and 2023, J. Christie of Gimlex Enterprises Ltd. received a YMEP grant to conduct exploration on the bench. Exploration was focused along the edge of the bench where the White Channel gravel deposits are thinnest and can be easily prospected using excavator test pitting.

Equipment and water treatment

The following equipment was used on site:

- Komatsu PC60 excavator
- long tom

Surficial geology and stratigraphy

The White Channel gravel is highly weathered, likely due to soil processes that result in a high clay content. The gravel has been further modified by minor gravitational slope processes, leading to colluviation of the fluvial gravel. The texture of the gravel consists of a mixture of boulders (30%), cobbles (30%) and pebbles (40%). The boulders are subrounded, up to 0.5 m (1.6 ft) in diameter, and mostly concentrated near the bedrock contact. The gravel is highly oxidized and has an orange colour. The unit is 1.25 m (4.1 ft) thick where exposed at the rim of the bench. The rim is the distinct edge of the landform, marking the transition from the bench (elevated landform) to the floodplain. Clast imbrication was poorly preserved due to colluviation, making it impossible to determine a paleocurrent direction for the gravel. However, the gravel is suspected to originate from Rob Roy Creek given its coarse nature.

Bedrock geology

Bedrock is chloritic schist.

Gold characteristics

Gold is very fine grained.

Dominion Creek, a tributary of Indian River

115O/10 2021: 63°38'26"N, 138°40'12"W

Gatenby Enterprises Ltd., 1998–2016, 2019–2022

Water license: PM14-046 (active 05/2025)

Active producer (2021–2022) **Operation no. 73**

Location

Dominion Creek, approximately 1 km downstream from the mouth of Sulphur Creek.

Work history and mining cuts

Gatenby Enterprises Ltd. has owned claims on lower Dominion Creek since the 1970s. In recent years, L. Gatenby of Gatenby Enterprises Ltd. has leased claims to Alluvium Gold Mining Inc. and M. Fuerstner. In 2021, Fuerstner mined on claims P 07001, P 06332 and P 06333. The cut he established in 2021 was extended throughout the 2022 season. Additionally, a test pit measuring 3 by 6 m (10 × 20 ft) was completed in 2022 by Alluvium Gold Mining Inc. No activity occurred in 2023.

Equipment and water treatment

The following equipment was used on site:

- two Hitachi Zaxis 450 excavators
- Caterpillar D10 bulldozer

A screen deck with a 5/16" screen was used to process pay at a rate of up to 76 m³ (100 yd³)/hr. Three sluice runs were used to catch the placer gold. Water was settled in a series of historic cuts and 100% recirculated.

Surficial geology and stratigraphy

An exposure of undisturbed sediment on lower Dominion Creek measured 4.3 m (14 ft) in thickness and consisted of two main units. Unit 1, from 0 to 3.3 m (0–11 ft), comprises a fining-upward sequence of cobble-dominant gravel transitioning to a sandy pebble gravel. There is increased sorting and a higher concentration of quartz clasts as you move up through the unit. Unit 2, from 3.3 to 4.3 m (11–14 ft), consists of organic-rich silt and is interpreted as overbank floodplain deposits. Bedrock is composed of dark grey, decomposed schist. The bedrock surface has undulations with a relief of up to 50 cm (1.5 ft). Up to 1 m (3 ft) of bedrock and 1.5 m (5 ft) of gravel were processed for pay.

Bedrock geology

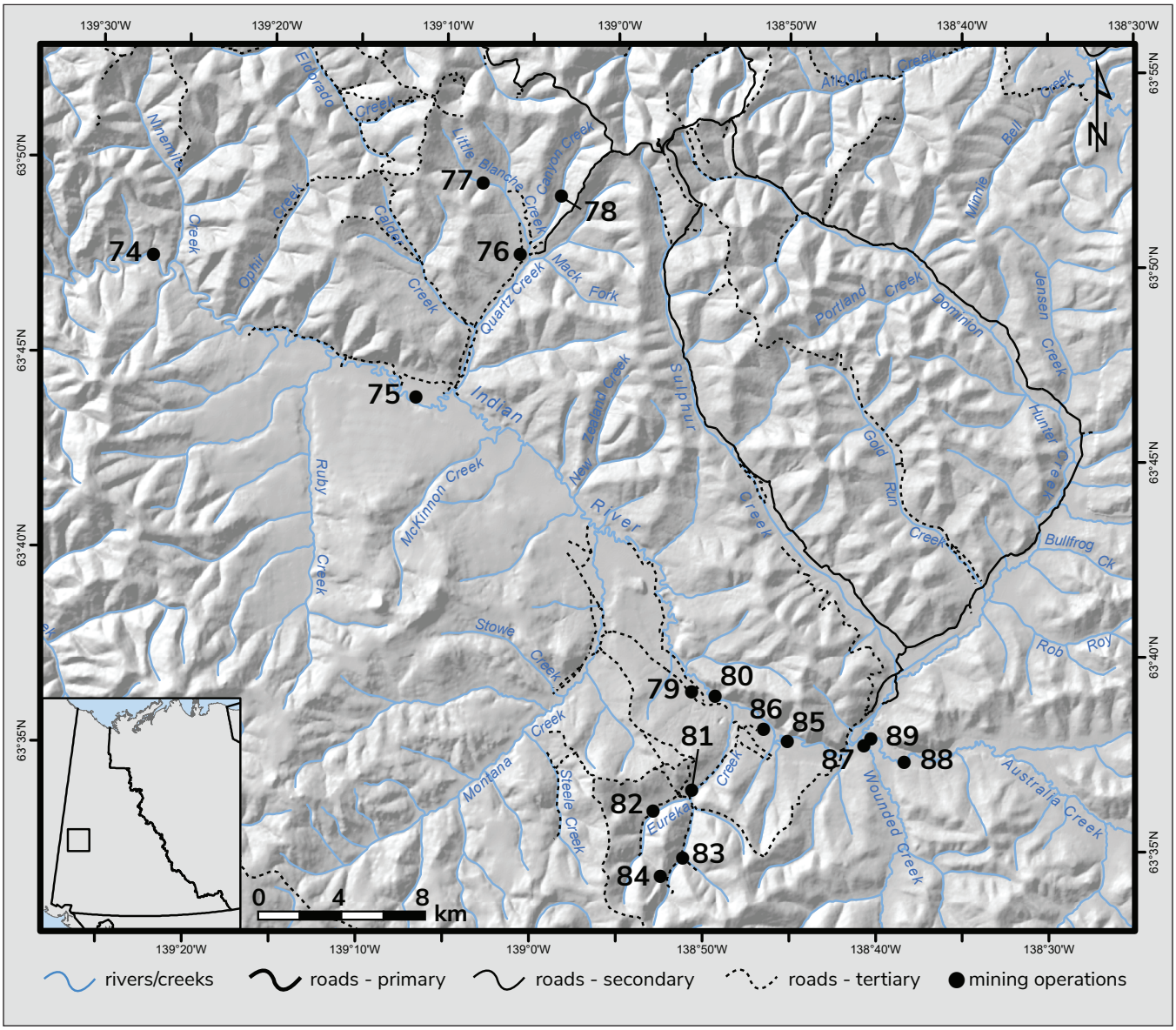
Bedrock is mapped as quartzite, quartz-muscovite-chlorite schist, gneiss and amphibolite (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Indian River
placer mining area

Sites 74–89



Legend

74. Slate River Mining
75. Northern Exposures Inc.
76. Schmidt Mining Corp.
77. Sight Unseen Mining Company
78. 0869809 B.C. Ltd.
79. 5582 Yukon Ltd.
80. 535901 Yukon Inc.
81. Fine Gold Resources Ltd.
82. Treadstone Gold
83. Radford, A. and A. Durr
84. Them R Gold Ltd.
85. Alluvium Gold Mining Inc.
86. Little Flake Mine ULC
87. Lonesome Dove Mining ULC
88. Little Flake Mine ULC
89. M. Tatlow and Sons Ltd.

Indian River, a tributary of Yukon River

115O/14 2023: 63°47'47"N, 139°25'51"W
115O/14 2023: 63°47'36"N, 139°25'02"W

Slate River Mining, 1994–2023

Water license: PM14-047 (active 06/2025)

Active producer (2021–2023) **Operation no. 74**

Location

Indian River, 2.5 km downstream from the mouth of Ninemile Creek.

Work history and mining cuts

Slate River Mining has been active on Indian River since 1994. In 2021, they were recognized for their exceptional reclamation work and received the Robert E. Leckie Award—an award that acknowledges miners for socially responsible practices, environmental stewardship and leadership in innovation. A three-person operation used excavator-mounted conveyors, which reduced fuel consumption, and their efficient mining techniques allowed them to effectively process and reclaim a substantial amount of ground. Mining activities continued in 2022. In 2023, a four-person crew focused on three distinct placer settings in the drainage: a high-level bench; an intermediate-level, right-limit terrace; and a left-limit floodplain deposit. This was the first evaluation of placer potential in the high-level bench on the lower reach of the Indian River. Two cuts were successfully completed as part of this exploration effort. The high-level bench project was undertaken as a test-mining initiative aimed at better understanding the placer potential at this location.

Equipment and water treatment

The following equipment was used on site:

- Hitachi ZX200 excavator
- Hitachi EX200-3 excavator
- Hitachi EX200-1 excavator
- Hitachi 450 excavator
- John Deere 400 rock truck
- John Deere excavator
- Caterpillar D9G bulldozer
- 30 m (100 ft)-conveyor with a 0.9 m (3 ft)-wide belt mounted on a 20-ton excavator
- 40 m (130 ft)-conveyor mounted on a 450 excavator

The wash plant consisted of a 2.4 by 2.4 m (8 × 8 ft) wet hopper that fed a New Zealand-style trommel measuring 1.5 by 6.1 m (5 × 20 ft) and included a mobile, self-



Slate River Mining active on lower Indian River in 2023. (Photo credit: Pascal McBurney of Slate River Mining.)



Active reclamation at Slate River Mining's property on lower Indian River. (Photo credit: Pascal McBurney of Slate River Mining.)

powered, 12.2 m (40 ft) tailings conveyor. The trommel classified material to 3/8" and the plant was mounted on 20-ton excavator tracks. Two sluice runs were mounted on either side of the trommel and consisted of two sections. The upper section was 0.6 m (2 ft) wide and 1.8 m (6 ft) long and contained angle iron riffles. The sluice runs flared to a 1.8 by 1.8 m (6 × 6 ft) lower section containing hydraulic riffles. Water was obtained from the Indian River using a Cornell pump with an 8" by 6" intake and powered by an Isuzu engine. The plant processed material at a rate of 76 m³ (100 loose yd³)/hr, and effluent was settled out-of-stream. Clean-ups were completed using a long tom and gold wheel. Exploration was conducted using an 8" Nodwell auger.

Surficial geology and stratigraphy

The 2023 high-level bench project was an exploratory initiative to better understand the viability of the deposit. Two cuts into the bench were made: one crosscutting paleocurrent flow direction, and one semi-parallel to flow direction. The crosscut revealed a thin deposit of glacial outwash gravel near the middle of the valley, transitioning into a deeper White Channel gravel deposit near the hillside. The White Channel gravel is 2 m (6.6 ft) thick and consists of 10% boulders, 30% cobbles and 60% pebbles; it is overlain by colluviated silt (slopewash) that thickens toward the hillside.

The intermediate-level bench on the right limit consists of 1 m (3.3 ft) of modern Indian River gravel overlain by an apron of colluviated silt. Multiple terraces are preserved in the Indian River valley.

Bedrock geology

Bedrock varies from soft and decomposed schist to hard and blocky quartzite.

Gold characteristics

Gold particles are mostly fine grained, flaky and flat. The fineness is 810.

Indian River, a tributary of Yukon River

115O/11	2023: 63°44'51"N, 139°09'42"W
115O/11	2022: 63°45'02"N, 139°10'50"W
115O/11	2021: 63°45'12"N, 139°11'51"W

Northern Exposures Inc., 2009–2023

Water license: PM15-062 (active 06/2026)

Active producer (2021–2023) **Operation no. 75**

Location

Indian River, 1.3 km downstream from the mouth of Quartz Creek.

Work history and mining cuts

Northern Exposures Inc. has been mining in the Indian River valley since 2009. The company has been working several claims on the Indian River that extend from the mouth of New Zealand Creek, continue downstream to the confluence with Ruby Creek, and carry on upstream

on Ruby Creek. In 2021 and 2022, the company had a crew of up to 15 employees that operated 24/7 over two shifts. They sluiced approximately 2000 hours each season. All mining activity occurred on the mid to right limit of Indian River and between 2.3 and 3.1 km downstream from the mouth of Quartz Creek. Up to five cuts were completed during the 2022 season, along with an extensive amount of reclamation. In 2023, mining was focused near the middle of the valley and on the left limit of the Indian River.

Equipment and water treatment

The following equipment was used on site:

- John Deere 870 excavator
- Komatsu PC750LC excavator
- Komatsu PC490LC excavator
- Hyundai excavator
- two Caterpillar D9L bulldozers
- two Caterpillar rock trucks

A 15 yd³ Elrus feeder supplied material to the screen deck, which processed material at a rate of up to 115 m³ (150 yd³)/hr. Water was supplied to the plant by a 10" pump, and effluent was settled in a series of four ponds.

Surficial geology and stratigraphy

Mining cuts on Northern Exposures Inc.'s property exposed two units. Unit 1, situated on bedrock, is a high-energy, coarse gravel. The clasts are subangular to subrounded and consist of 60% cobbles, 35% pebbles and 5% boulders. Unit 2 is a pebble-cobble gravel that fines upward into medium sand. The sedimentary structures within the gravel, including cross bedding and imbrication, indicate a high-energy fluvial environment. The gravel varies in coarseness throughout the cuts, suggesting multiple, high-energy channels reworking the floodplain. The combined thickness of both units varies between 0.6 and 3 m (2 and 10 ft). Both gravel units were sluiced, including to the uppermost 0.3 m (1 ft) of bedrock.



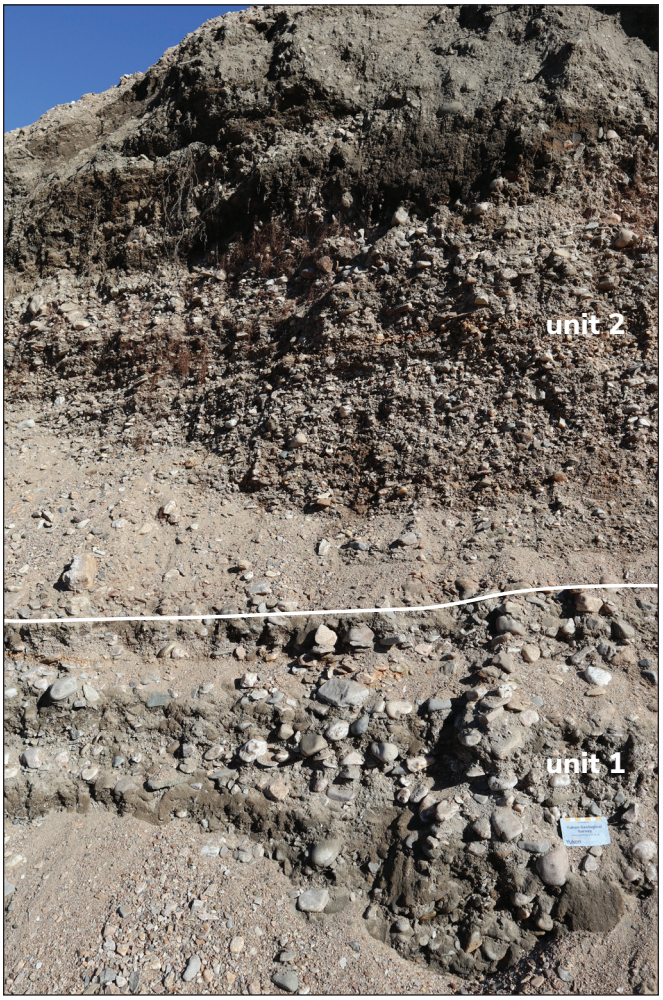
Northern Exposures Inc.'s 2022 mining cut on the left limit of the Indian River.

Bedrock geology

Bedrock varies from quartz-pebble conglomerate, and dark grey to black carbonaceous metasedimentary rocks.

Gold characteristics

Three distinct groups of gold grains were recovered based on their texture and/or colour: crystalline, flat and well traveled, and oxidized.



Typical stratigraphy on the Indian River, which consists of two units. The lowermost gravel unit is coarser than the overlying gravel, which fines upward into a pebble gravel. Scale card in bottom right corner measures 9 cm.

Quartz Creek, a tributary of Indian River

115O/14 2023: 63°48'47"N, 139°04'30"W

Schmidt Mining Corp., 2009–2023

Water license: PM13-029 (active 04/2024)

Active producer (2021–2023) **Operation no. 76**

Location

Quartz Creek, upper, and lower Little Blanche Creek and Canyon creeks.

Work history and mining cuts

In 2021, Schmidt Mining Corp. focused solely on stripping activities on their Quartz Creek property. A crew of six stripped a cut 1370 m (4500 ft) long, that varied in width from 76 m (250 ft) at the south end, to 152 m (500 ft) at the north end. In 2022, production resumed when the main wash plant was moved onto Quartz Creek from Big Creek in the Clear Creek placer area. Beginning in 2021 and continuing up to 2023, 68 748 m^3 (740 000 ft^3) of material was stripped down to pay. In mid-August 2022, Schmidt Mining Corp. began sluicing a pay streak 91 m (300 ft) wide and processed 24 155 m^3 (260 000 ft^3) of material. In 2023, they continued to sluice a right-limit bench. Mining continued throughout the 2023 season, and sluicing of the right-limit bench was completed.

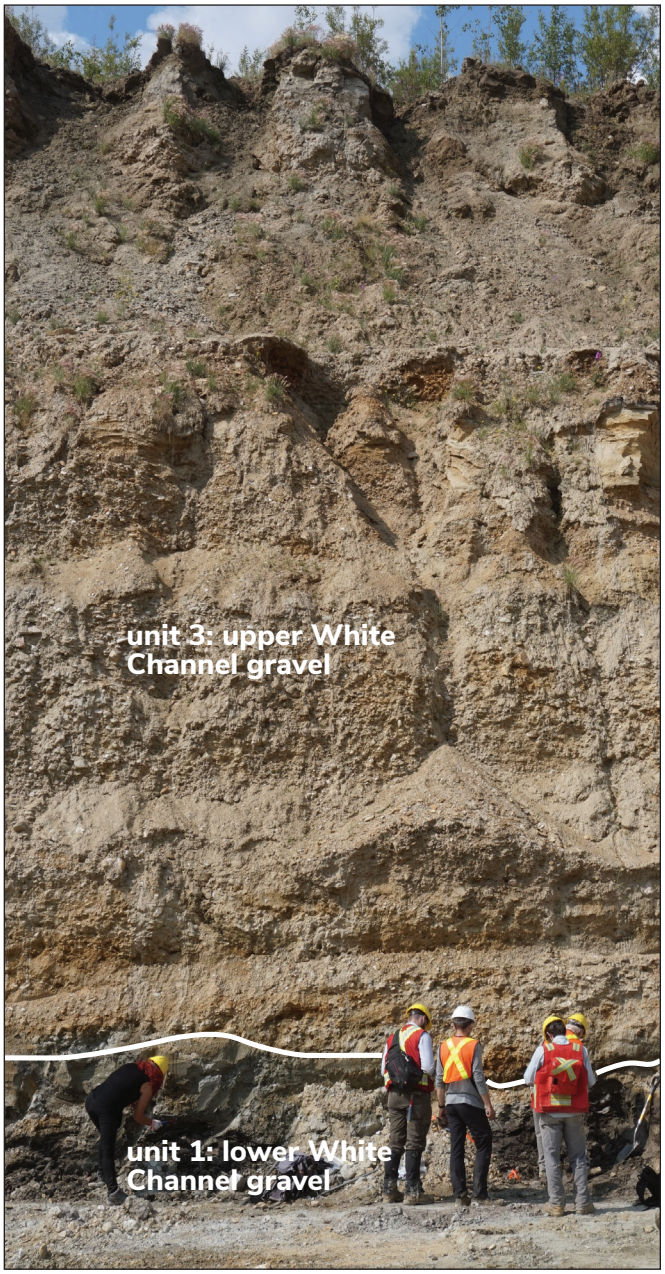


Aerial view of Schmidt Mining Corp.'s property on Quartz Creek in 2021. The view is looking upstream toward the confluence with Little Blanche Creek. Their multi-year bench cut is evident on the right limit of the drainage.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 374D excavator
- Hitachi EX700 excavator
- two 40-ton Caterpillar articulating rock trucks
- Caterpillar D11T crawler tractor
- Caterpillar D9L crawler tractor
- two 1.5 by 45 m (5 × 150 ft) conveyors



Exposed section on the right-limit bench of Quartz Creek in 2021. Unit 2 is not exposed at this location. The total thickness is 24 m (79 ft).

A conveyor 1.2 m (4 ft) wide by 30.5 m (100 ft) long was used for sluicing in conjunction with a portable sluice plant. The plant featured a 2.4 m (8 ft)-diameter trommel with a 1.1 m (3.5 ft)-wide conveyor for removal of tailings. Three 1.2 m (4 ft)-wide sluice runs, totaling 7.3 m (24 ft) in length, were located on either side of the conveyor. The wash plant processed material at a rate of up to 153 m³ (200 loose yd³)/hr.

Surficial geology and stratigraphy

The White Channel bench deposit on the right limit of Quartz Creek contains three units. Unit 1, from 0 to 3 m (0–10 ft), is a poorly exposed unit, which was heavily drifted by old timers. It is interpreted as lower White Channel gravel. Unit 2, from 3.0 to 3.8 m (10.0–12.5 ft), consists of overbank silt, organics and woody material. This unit exhibits some evidence of cryoturbation, indicating periods of subaerial exposure and freeze-thaw activity. Unit 3, from 3.8 to 24 m (12.5–79 ft), is upper White Channel gravel. It is characterized by its moderately sorted and stratified nature, its brown colour, and its texture of cobble to pebble-sized clasts, all of which reflects a more stable fluvial environment. The lowermost 3.0 m (9.8 ft) of the bench deposit was processed as pay.

Bedrock geology

Bedrock varies between gneiss, quartzite and muscovite-calcite schist.

Gold characteristics

Gold fineness in the Quartz Creek bench averages 750.

Little Blanche Creek, a tributary of Quartz Creek

115O/14 2022: 63°50'31"N, 139°07'06"W
115O/14 2021: 63°50'11"N, 139°05'38"W

Sight Unseen Mining Company, 2008–2023

Water license: PM19-008 (active 06/2029)

Active producer (2021–2023) **Operation no. 77**

Location

Little Blanche Creek, left fork, 1.2 km upstream from the confluence of the forks.

Work history and mining cuts

Sight Unseen Mining Company has focused on the left fork of Little Blanche Creek for the past three seasons (2021–2023). In 2021, they initiated a cut 0.3 km downstream from the confluence of the forks on the right limit of Little Blanche Creek. This cut was completed in 2022. In 2023, the company primarily operated with a one to two-person crew and progressively mined up the right fork of Little Blanche Creek past an unnamed right-limit tributary. Monitoring was a key focus in the drainage, as thick deposits of frozen overburden containing massive ice lenses presented significant challenges to accessing the pay dirt. M. Carlson, of Sight Unseen Mining Company, typically spends the first two to three months of the season thawing the overburden to liberate the pay; he follows up with sluicing by early August. In 2023, a cut measuring 275 m (902 ft) in length was mined at the mouth of an unnamed, right-limit tributary to the left fork of Little Blanche Creek. Later in that same season, the operation was transferred to a new operator.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 270 excavator
- Caterpillar IT28G wheel loader
- two Henby monitors with a 6" pipe
- Caterpillar D8K bulldozer
- two Koehring rock trucks

The wash plant consisted of an automatic 12-yard hopper that fed into a 1.2 by 3.7 m (4 × 12 ft) trommel,



Aerial view of an active cut at Sight Unseen Mining Company's property in 2022. In 2022 and 2023, the company mined upstream toward the mouth of the unnamed right-limit tributary on the left fork of Little Blanche Creek. The view is looking downstream or to the southeast.

which screened material to 5/8". The sluice runs featured a nugget trap followed by two 0.9 by 2.4 m (3 × 8 ft) runs lined with expanded metal and unbacked miner's moss. The trommel processed material at a rate of 30.6 m³ (40 yd³)/hr and used a 6" pump to supply water to the plant. Effluent was settled in a series of two ponds, and water was 100% recycled. Clean-ups were completed using a long tom and gold pans, and the final concentrate was tabled in town.

Surficial geology and stratigraphy

The stratigraphy on the left fork of Little Blanche Creek varies greatly depending on the presence of bedrock reefs and undulations on the bedrock surface. On the right limit, bedrock highs, high-energy stream hydraulics, and varied topography influence deposition. As a result, gravel thickness varies from 0 to 1.8 m (6 ft). A cut in 2022 exposed a section with a total thickness of 11 m (36 ft). In 2023, an exposure at the mouth of the unnamed right-limit tributary, revealed an abundance of woody debris and organics, suggesting sediment inputs from the tributary gulch, and/or possible landslide contributions near the tributary's mouth. A bedrock high was noted at the mouth of the tributary, and coarse, quartz-rich cobble-sized clasts were abundant in the overlying gravel. Unit 1, from 0 to 1.5 m (0–4.8 ft) is a high-energy cobble gravel. Unit 2, from 1.5 to 9.8 m (4.8–32 ft) is loess containing massive ice. All of unit 1 gravel and up to 0.6 m (2 ft) of the bedrock surface was sluiced.

Bedrock geology

Bedrock varies between blocky competent quartzite, and highly fractured muscovite schist.

Gold characteristics

The gold recovered has a bimodal distribution whereby half is coarse grained and the other half is fine grained. The gold contains 33% silver and has a fineness of 650.



M. Carlson of Sight Unseen Mining monitoring at his operation on the left fork of Little Blanche Creek in 2022.

Canyon Creek, a tributary of Little Blanche Creek

115O/14 2022: 63°50'22"N, 139°02'28"W

0869809 B.C. Ltd., 2021–2022
Canyon Creek Mining, 2015–2019

Water license: PM17-088-1 (active 05/2028)

Active producer (2021–2022) **Operation no. 78**

Location

Canyon Creek, upper reach, 2.8 km from its confluence with Little Blanche Creek.

Work history and mining cuts

In 2021, ownership of the property was transferred from Canyon Creek Mining to 0869809 B.C. Ltd. who took over the license. In their first year of mining, the company operated with a crew of up to four people, completing site preparation and reporting a total of 103 hours of sluicing. In 2022, the operator extended the cut in the main valley of Canyon Creek, which was last mined by L. Cale in 2019. A two-person operation sluiced a total of 25 hours, which was reported in June and July of 2022. The property was not active in 2023.

Equipment and water treatment

The following equipment was used on site:

- John Deere 450 excavator
- John Deere 350D excavator
- John Deere 644J loader
- Terex TA30 haul truck
- Caterpillar D9N bulldozer

A combination of a grizzly and a conveyor feeder supplied material to a double screen deck. The upper deck classified material to 1¼" (punch plate) and fed a large boil box. The bottom deck classified material to 3/8" and fed two sets of two oscillating sluices on either side of the plant, which contained hydraulic riffles. The plant required a water flow rate of 7571 LPM (2000 GPM) and was supplied by a 10" by 8" Morris pressure pump.



Aerial view of stripping on the right limit of Canyon Creek that occurred in 2022 by 0869809 B.C. Ltd. The operators sluiced material from both limits of the drainage throughout the season. The view is looking downstream or to the south.



Close-up of the lowermost gravel unit in the Canyon Creek drainage. A pick for scale measures 0.6 m (2 ft).

Surficial geology and stratigraphy

The stratigraphy of Canyon Creek consists of three general units. Unit 1, from 0 to 1.5 m (0–5 ft), is situated on bedrock and varies in thickness due to bedrock undulations. The unit is a poorly sorted, cobble-pebble gravel containing a matrix composed of silty, coarse sand to granules. Clasts are angular to subangular and consist of fragments of local bedrock composed of schist and quartz. The pay is identified by an increase in silt content. The operator noted an increase in pay thickness when encountering a bedrock gutter. Unit 2, from 1.5 to 2.4 m (5–8 ft) is a cobble-pebble gravel that is moderately sorted and fines upward into a pebble gravel. Unit 3 is overburden consisting of 2.4 to 7.9 m (8–26 ft) of muck and discontinuous layers of colluviated weathered bedrock. The lowermost 1.5 m (5 ft) of the gravel units were processed as pay.

Bedrock geology

Bedrock is chlorite schist containing quartz veins.

Gold characteristics

Fineness is 750 to 770.

Indian River, a tributary of Yukon River

115O/10 2023: 63°38'00"N, 138°51'59"W

5582 Yukon Ltd., 2023

Water license: PM18-011 (active 03/2027)

Active producer (2023) **Operation no. 79**

Location

Indian River, 2.6 km downstream from the confluence with Eureka Creek.

Work history and mining cuts

No activity occurred under PM18-011 in 2021 or 2022; however, operations resumed in 2023. Little Flake Mine ULC, operating under 5582 Yukon Ltd., stripped and partially completed an 85 by 219 m (280 × 720 ft) cut on the far, left limit of the Indian River.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

Not reported.



Aerial view of Little Flake Mine ULC's operation on the Indian River in 2023. The view is looking upstream or to the southeast.

Bedrock geology

Bedrock is mapped as quartz-muscovite-chlorite schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Indian River, a tributary of Yukon River

115O/10 2023: 63°37'58"N, 138°50'35"W

535901 Yukon Inc., 2023
Tamarack Inc., 2009–2018

Class 3: LP01464 (active 09/2026)
Water license: PM20-071 (active 08/2032)
Water license: PM16-038-1 (active 12/2026)
Water license: PM18-066 (application phase)

Active producer (2023) **Operation no. 80**

Location

Indian River, right limit, approximately 1.5 km downstream from the mouth of Eureka Creek.

Work history and mining cuts

The property, which was previously owned by Tamarack Inc., has been inactive since 2018. In 2023, 535901 Yukon Inc. was active on the far, right limit of the Indian River valley, and operated under a Class 3 authorization to strip and sluice. Water was 100% recycled. In addition to this property, 535901 Yukon Inc. also acquired Scribner Creek claims from F. Ireland in September 2020. No sluicing occurred under PM 16-038-1 from 2021 to 2023.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as quartz-muscovite-chlorite schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.



Aerial view of 535901 Yukon Inc.'s property on the right limit of the Indian River valley in 2023. View is looking to the northwest.

Eureka Creek, a tributary of Indian River

115O/10 2023: 63°35'29"N, 138°51'25"W

Fine Gold Resources Ltd., 2008–2023

Water license: PM17-017 (active 06/2027)
Water license: PM15-067 (active 02/2026)

Active producer (2021–2023) **Operation no. 81**

Location

Eureka Creek, three locations: the mouth of Eureka Creek; a left-limit bench approximately 4 km upstream from the mouth of Eureka Creek; an upper left fork near Eureka Dome.

Work history and mining cuts

In 2022, Fine Gold Resources Ltd. sold their claims to LaPrairie Group; however, LaPrairie Group continues to operate under the name of Fine Gold Resources Ltd. In 2022, they completed a left-limit bench cut measuring 91 by 91 m (300 × 300 ft) and averaging 20 m (65 ft) in thickness. A total of 19 114 m^3 (25 000 yd^3) of material was sluiced. Additionally, six claims on the right limit were worked. In 2023, the company continued mining the deep, left-limit bench and right-limit side pay on Eureka Creek. Four locations were mined in 2023: the deep, left-limit bench; the right limit of the main valley; the left limit at the mouth of Eureka Creek, and the left limit of Indian River. The deep, left-limit bench cut measured 71 by 151 m (233 × 495 ft), the mid-valley Eureka Creek cut measured 90 by 502 m (295 × 1647 ft), and the left-limit cut at the mouth of Eureka Creek measured 54 by 712 m (177 × 2336 ft). The mine employs up to 50 personnel.

Equipment and water treatment

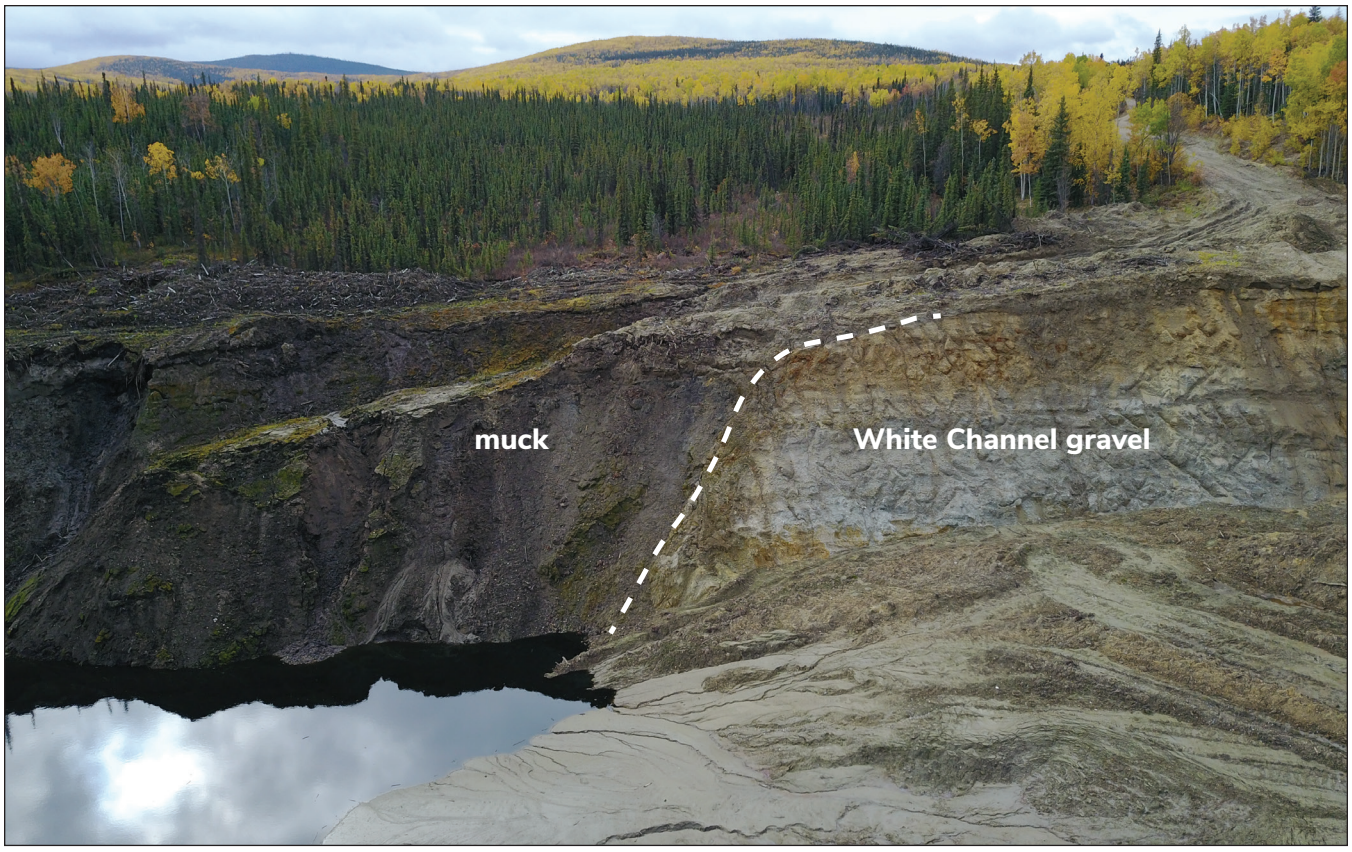
Not reported.

Surficial geology and stratigraphy

In the fall of 2021, Fine Gold Resources Ltd. made a significant geologic discovery on a left-limit bench of the Indian River. As the operator mined laterally into the limits of the valley, a White Channel gravel terrace was encountered. The Indian River and its local tributaries have eroded into the White Channel terrace and reworked gold from the deposit. The thickness of the terrace deposit is 14 m (45 ft) and possibly increases



Active cut on the right limit of Eureka Creek in 2022. During that same season, ownership transitioned from Fine Gold Resources Ltd. to LaPrairie Group.



A 2021 excavation of a White Channel gravel terrace on the left limit of the Indian River.

farther into the hillside. The volume of the White Channel gravel paystreak within the terrace remains unknown; however, strong production in recent years adjacent to the terrace suggests some of the deposit has been reworked.

Mining on a left-limit Pliocene bench deposit in Eureka Creek focused on shallower ground near the edge of the bench. The left-limit bench deposit on Eureka Creek extends over 5 km and has an approximate width of 200 m (656 ft). Typical gravel thicknesses on the bench are 16 m (52 ft) and are overlain by 9 m (30 ft) of colluviated loess and/or tributary gravel deposits. The bench gravel deposits are dominated by subangular, cobble-size clasts. The deposit is crudely stratified and ranges from poorly to moderately sorted. Approximately 1.5 to 2 m (5–6.5 ft) of the bedrock surface and 2 m (6.5 ft) of gravel were processed for placer gold. The gravel deposit yielded low-grade placer gold concentrations. A thrust fault in bedrock and the overlying gravel unit near the bench rim resulted in a vertical displacement of 2 m (6.5 ft). The bedrock surface tends to be more undulatory or weathered in the upper reaches compared to the middle or lower reaches of Eureka Creek.

A large cut in the main valley of Eureka Creek toward the right limit targeted Eureka Creek side pay gravel that is overlain by colluviated silt and organics (muck). The cut was stripped in 2022 but was not processed due to wet weather late in the 2022 season. Processing of material took place in early 2023.

At the mouth of Eureka Creek on the left limit, Fine Gold Resources Ltd. mined a shallow, modern side-pay gravel unit overlain by muck. Thrust faulting within the bedrock offsets the deposit at the upstream end of the cut.

In the Indian River valley, mining was focused on the left-limit benches, which are close to the elevation of the White Channel gravel terraces. At these locations, pay consists of a mixture of Indian River gravel and White Channel gravel deposits.

Bedrock geology

Bedrock is decomposed to blocky quartz-muscovite schist.

Gold characteristics

Fineness ranges from 780 at the mouth of Eureka Creek, to 740 in the mid-valley deposits, and 700 on the upstream forks. Gold grains are reported as coarse to dendritic, to leaf-shaped on the upper left fork below Eureka Dome.

Eureka Creek, a tributary of Indian River

115O/10 2023: 63°34'51"N, 138°53'31"W

Treadstone Gold, 2019–2023

Water license: PM15-067-1 (active 02/2026)

Active producer (2021–2023) **Operation no. 82**

Location

Upper Eureka Creek.

Work history and mining cuts

Treadstone Gold established a lease agreement with Fine Gold Resources Ltd. in 2019. In 2021, a 12-person crew mined the right fork of Eureka Creek. While mining, they encountered old-timer shafting, marking the first instance of mechanized mining in the area. Additionally, a cut that was initiated in 2020 on a left-limit Pliocene bench deposit was extended throughout the 2021 season. Mining operations continued throughout the 2022 season and were predominantly focused on the right fork of Eureka Creek, at the mouth of a small unnamed tributary. On June 21 of that same year, the crew unearthed a mummified calf of a woolly mammoth. The mammoth was later named by the Tr'ondëk Hwëch'in as Nun cho ga, meaning ‘big animal baby'. Treadstone Gold is recognized for their significant contribution to the Government of Yukon's paleontological program and the Tr'ondëk Hwëch'in Heritage Department. In 2023, Treadstone Gold mined four cuts on the right fork of Eureka Creek: a deep cut measuring 64 by 76 m (210 × 249 ft); a middle and upper right fork Eureka Creek cut measuring 101 by 304 m (331 × 997 ft); a third cut measuring 16 by 52 m (52 × 171 ft); and a fourth cut measuring 71 by 166 m (233 × 545 ft).

Equipment and water treatment

The following equipment was used on site:

- Kobelco 470 excavator
- Kobelco 480 excavator
- JCB excavator
- two 30-ton Terrex trucks
- John Deere rock truck

Surficial geology and stratigraphy

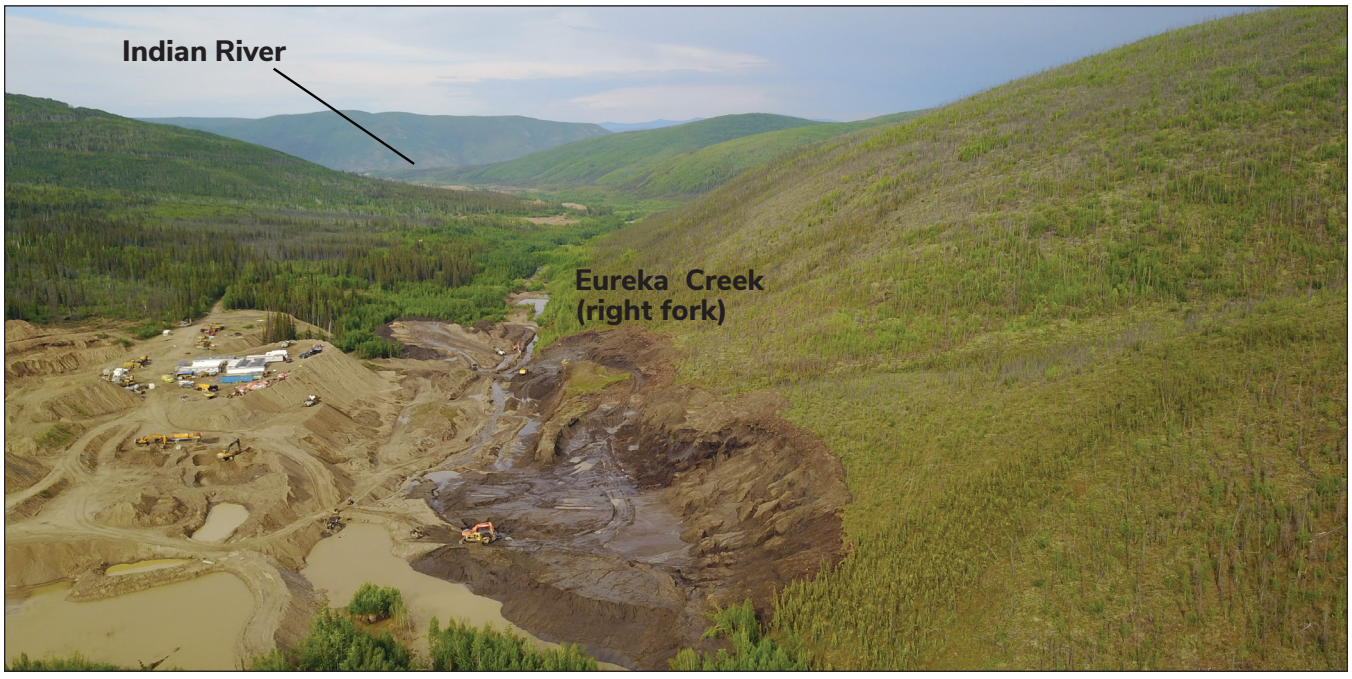
Fluvial deposits on the upper right fork of Eureka Creek consist of coarse, muddy gravel overlain by a thick section of loess containing massive ice. Mining in 2022 at the mouth of a small tributary, exposed a paleo Eureka Creek gravel buried under an alluvial fan sequence derived from the small tributary. This paleo gravel unit was targeted as pay.

Bedrock geology

Bedrock is decomposed quartz-muscovite schist and blocky quartzite.

Gold characteristics

Not reported.



Treadstone Gold's cut in 2022 on the right fork of Eureka Creek. They focused mining efforts on the right limit of the drainage.

Eureka Creek, a tributary of Indian River

115O/10 2023: 63°33'43"N, 138°51'31"W

Radford, A. and A. Durr, 2021–2023
Fine Gold Resources Ltd., 2017–2020

Water license: PM17-017 (active 06/2027)

Active producer (2021–2023) **Operation no. 83**

Location

Eureka Creek, left fork.

Work history and mining cuts

Fine Gold Resources Ltd. was active on their claims on the left fork of Eureka Creek until 2021, when A. Radford and A. Durr moved into the drainage. Mining under Fine Gold Resources Ltd.'s claims and water license, Radford and Durr operated from 2021 to 2023. In 2023, they completed a cut on 13 Pup, a right-limit tributary of the upper left fork of Eureka Creek.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as quartz-mica schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.



Aerial view of an active cut in 2023 on 13 Pup. At that time, the property was being mined by A. Radford and A. Durr. The view is looking upstream or to the south.



Trommel processing material on the left fork of Eureka Creek in 2023.

Eureka Creek, a tributary of Indian River

115O/10 2023: 63°33'11"N, 138°52'42"W

Them R Gold Ltd., 2022–2023

Water license: PM21-045 (active 07/2033)
Water license: PM16-077 (active 07/2033)
Water license: PM11-068 (expired 05/2022)

Active producer (2022–2023) **Operation no. 84**

Location

Eureka Creek, left fork.

Work history and mining cuts

Them R Gold Ltd. was not active in 2021, but activity resumed in 2022. No specific work history is known for 2022 or 2023; however, minor activity was reported on an unnamed tributary of the left fork of Eureka Creek.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as quartz-mica schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.



Aerial view of Them R Gold Ltd. excavating a cut in 2023 on an unnamed tributary of the left fork of Eureka Creek.

Indian River, a tributary of Yukon River

115O/10 2022: 63°36'58"N, 138°46'09"W

Alluvium Gold Mining Inc., 2020–2022
Little Flake Mine ULC, 2020
Rical Mining Ltd., 2017–2019

Water license: PM10-031-2 (expired 02/2023)

Active producer (2021–2022) **Operation no. 85**

Location

Indian River, 2.8 km upstream from the mouth of Eureka Creek.

Work history and mining cuts

Alluvium Gold Mining Inc. continued operations in 2021 and 2022. They mined under a lease agreement with Little Flake Mine ULC. A two-person crew sluiced a cut situated on the left limit of the Indian River. The property was not active in 2023.

Equipment and water treatment

The following equipment was used on site:

- Hitachi EX450LC excavator
- Hitachi EX200 excavator
- Kawasaki 95ZIII wheel loader
- TOL-TS80 track stacker (24 m [80 ft] long)

The sluice plant consisted of a screen deck with a 5/8" punch plate, capable of processing material at a rate of 31 to 38 m³ (40–50 yd³)/hr. The sluice run measured



Alluvium Gold Mining Inc.'s cut in 2022 in the Indian River drainage. The cut was located on the north side of the valley.

2.4 m (8 ft) in length by 0.8 m (2.6 ft) in width and consisted of expanded metal and Hungarian riffles. Clean-ups were carried out using a Devin gold vortex drop riffle sluice system, a gold grinder or rod mill, and an RP-4 gold table. Concentrates were screened from 12 mesh to 100 mesh (from 1.68 mm to 0.149 mm) before grinding and tabling.

Surficial geology and stratigraphy

The stratigraphy in the Indian River valley is characterized by floodplain deposits, composed of cobble-pebble gravel containing finer-grained lenses of pebbles, granules and silt, overlain by muck. In 2022, a cut exposed a section consisting of two units. Unit 1, from 0 to 1.7 m (0–5.5 ft), consists of a loose, clast-supported pebble gravel containing 20% matrix composed of fine to medium sand. The texture of the gravel is predominantly 80% pebbles and 20% cobbles and contains minor boulders; the largest clast measured was up to 0.3 m (1 ft) in diameter. Within this unit, two continuous beds of organic-rich silt were noted. Unit 2, from 1.7 to 2.5 m (5.5–8.2 ft), consists of interbedded fine sand and silt and contains a significant concentration of organic-rich material (e.g., wood debris and root structures). Unit 2 is overlain by a moss mat. The sluiced material included up to 1.7 m (5.5 ft) of gravel and up to 0.9 m (3 ft) of the bedrock surface.

Bedrock geology

Bedrock is blocky, competent quartzite and micaceous garnet schist that contains garnet mineral crystals several millimetres in size.

Gold characteristics

Gold is primarily fine grained. The largest particle recovered weighed 0.4 g. Fineness is 840.

Indian River, a tributary of Yukon River

115O/10 — 2022: 63°37'14"N, 138°47'35"W

Little Flake Mine ULC., 2013–2022

Water license: PM10-031-2 (expired 02/2023)

Active producer (2021–2022) — **Operation no. 86**

Location

Indian River, between 1 and 2 km upstream from the mouth of Eureka Creek.

Work history and mining cuts

Little Flake Mine ULC processed 107 604 m^3 (3.8 million ft^3) of material from the Indian River valley in 2022. A 30-person crew used two sluice plants and operated 24/7. Together, the two sluice plants processed material at a rate of 306 m^3 (400 yd^3)/hr. The operator targeted a deposit that was situated in the middle of the Indian River valley and consisted of a cobble-pebble gravel up to 3 m (10 ft) thick. A 200 acre (809 371 m^2)-area in the Indian River valley bottom was reclaimed by contouring and top coating the overburden. The Robert E. Leckie Award for excellence in environmental stewardship was awarded to Little Flake Mine ULC in 2022, in recognition of their progressive reclamation efforts. The operation was inactive in 2023.

Equipment and water treatment

The following equipment was used on site:

- four Volvo 460 excavators
- two Volvo 700 excavators
- three Volvo L250 wheel loaders
- Volvo L220 wheel loader
- Volvo EC20C mini excavator
- four Volvo 840 haul trucks
- two Caterpillar 10N bulldozers
- Caterpillar 10T bulldozer
- Volvo 6960B grader

A 76 m (250 ft) conveyor delivered pay to an automatic hopper, which fed a Macon Industries SD-600 screen deck. The screen deck was a 1.8 by 4.2 m (6 × 14 ft) vibrating deck, capable of processing material at a rate of up to 153 m^3 (200 yd^3)/hr. Sluice runs were configured with a series of hydraulic riffles, Hungarian riffles, expanded metal, and a boil box. The plant also had a tailings stacker 15 m (50 ft) long. The second plant had a similar screen deck, but had a maximum sluicing capacity of 115 m^3 (150 yd^3)/hr. Both wash plants were supplied with water using 10 × 10" pumps. Effluent was settled in a series of four ponds, and the water was fully recirculated. A table was used for clean-ups.

Surficial geology and stratigraphy

Gravel deposits in the Indian River valley have a relatively uniform thickness, which is about 4 m (13 ft). The gravel deposit is stratified and moderately sorted. The texture is relatively coarse at the base and becomes finer toward the middle of the section before coarsening again near the top. The bedrock at this location is fractured mafic schist. Additionally, the bedrock surface is highly irregular, having undulations up to 1 m (3 ft) in amplitude. The irregular surface and fractured nature of the bedrock may have positively influenced the gold grade.



Reclamation completed by Little Flake Mine ULC on the Indian River in 2022.

Bedrock geology

Bedrock in the Indian River valley downstream of the mouth of Eureka Creek is gneiss and weathered sericite schist. Mafic schist is mapped upstream from the mouth of Eureka Creek.

Gold characteristics

Gold is mostly fine grained and the fineness ranges from 820 to 840.

Wounded Moose Creek, a tributary of Indian River

115O/10 2022: 63°37'03"N, 138°41'42"W
115O/10 2021: 63°37'01"N, 138°41'46"W

Lonesome Dove Mining ULC, 2019–2022
Wounded Moose Mining Co. Inc., 2003, 2009–2018

Water license: PM14-036-2 (active 02/2025)

Active producer (2021–2022) **Operation no. 87**

Location

Wounded Moose Creek, 0.5 km upstream from its confluence with the Indian River.

Work history and mining cuts

In 2021, Lonesome Dove Mining ULC was active on the lower reaches of the drainage. An access road was established early in the 2021 season to connect to PM16-007 (owned by Metallic Minerals Corp.). Stripping occurred on claims P 48654, P 508440 and P 508441. Previous cuts on P 50899, P 58653 and P 515001 were reclaimed by filling, contouring, and capping with organics, which covered an area of approximately 300 by 300 m (984 × 984 ft). Four cuts were mined throughout the 2021 season. One cut, approximately 120 by 180 m (394 × 591 ft) and 10 m (33 ft) deep, was located on the left limit, approximately 1.1 km upstream from its confluence with the Indian River. A second cut, 60 by 90 m (197 × 295 ft) and 5 m (16 ft) deep, was completed on the right limit of Wounded Moose Creek, 0.8 km upstream from its confluence with the Indian River. A third cut, 60 by 76 m (197 × 249 ft) and 5 m (16 ft) deep, was completed on the right limit, on claim P 508999. The last cut, situated on a right-limit bench, measured 183 by 244 m (600 × 800 ft) and 5 m (16 ft) deep. D. Law of Lonesome Dove Mining ULC began operating under the license in April 2022. He mined with a six-person crew and worked a daily double shift stockpiling pay from the previous years' cuts. A cut from 2021 on the lower reach of Wounded Moose Creek and situated on the left limit was expanded in 2022. The status of the operation in 2023 was unknown.

Equipment and water treatment

In 2021, the following equipment was used on site:

- Caterpillar 385 excavator
- John Deere 850 excavator
- Caterpillar 345 excavator

- Caterpillar 988 wheel loader
- Caterpillar D10 bulldozer
- three John Deere 460 dump trucks
- John Deere 400 truck

The wash plant was a Macon Industries SD300 plant that screened to 1/2" and used 8707 LPM (2300 GPM) of water. Effluent was settled out-of-stream and recirculated to the plant. A jig was used for clean-ups.

Surficial geology and stratigraphy

Previous work on the left limit of Wounded Moose Creek revealed three units. Unit 1, from 0 to 1.6 m (0–5.2 ft), is a coarse, poorly to moderately sorted, pebble-cobble gravel, having crude imbrication. There is a higher concentration of silt near the bedrock contact in the lowermost 0.75 m (2.5 ft) of the unit. Small quartz boulders were noted, as well as interbeds of openwork gravel, suggesting a high-energy depositional environment. Unit 2, from 1.6 to 2.6 m (5.2–8.5 ft), is a sandy, pebble gravel. It is well sorted and cross-bedded and contains scattered organics (woody debris and logs). Unit 3, from 2.6 to 4 m (8.5–13 ft), is overburden consisting of silt and organics.

Bedrock geology

Bedrock varies between blocky quartzite and moderately decomposed schist.

Gold characteristics

Two different gold grain textures were recovered from Wounded Moose Creek: smooth and angular. The fineness is 840.

Australia Creek, a tributary of Dominion Creek

115O/10 2023: 63°36'45"N, 138°39'17"W

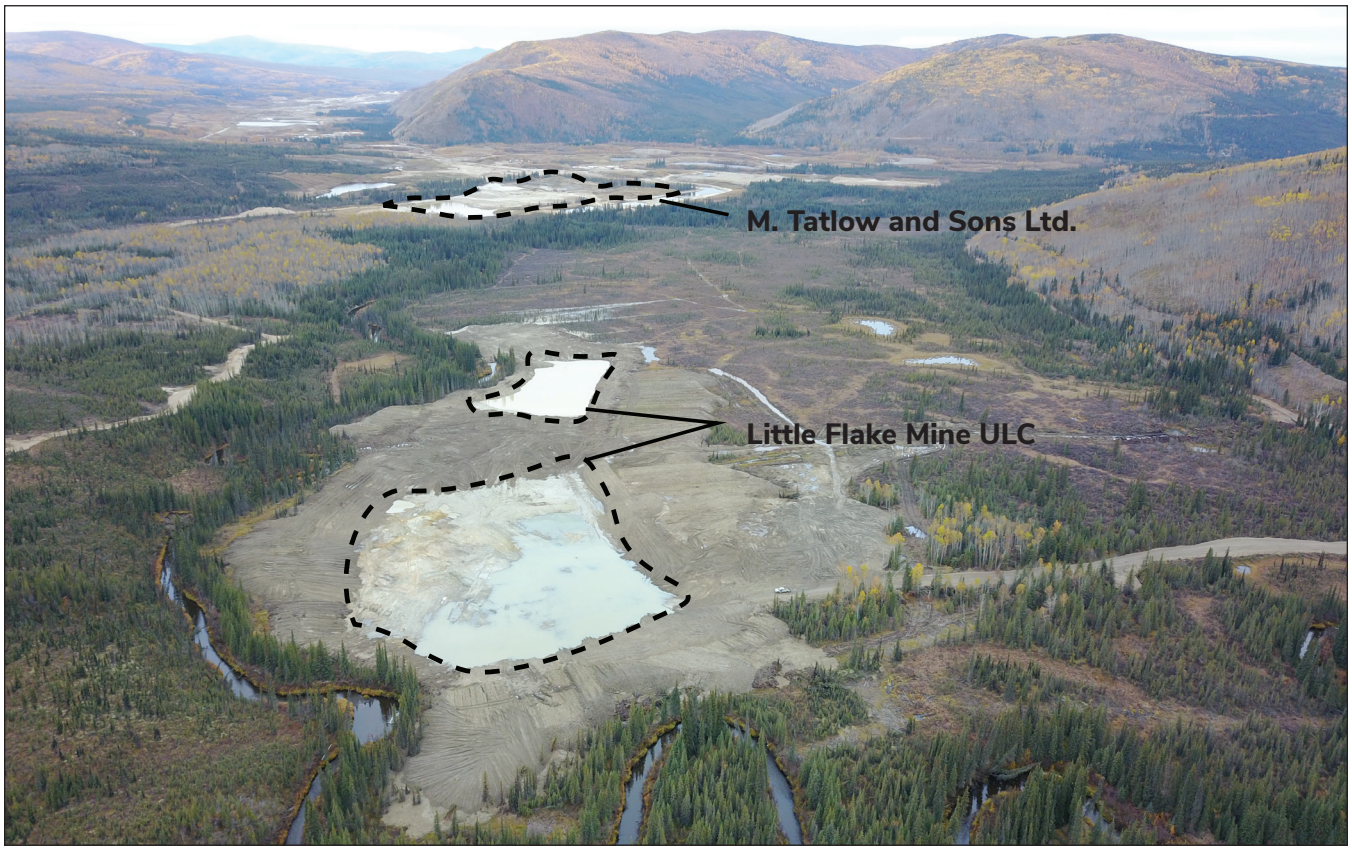
Little Flake Mine ULC, 2023
Metallic Minerals Corp., 2021

Water license: PM16-007-2 (active 05/2026)

Active producer (2023) **Operation no. 88**

Location

Australia Creek, approximately 2.5 km from its confluence with Dominion Creek.



Aerial view of Little Flake Mine ULC's 2023 cuts on the right limit of lower Australia Creek. M. Tatlow and Sons Ltd.'s mining operation can be seen further downstream. The cuts from both operations are outlined by a dashed white line. The view is to the northwest.

Work history and mining cuts

Metallic Minerals Corp. conducted a sonic drill program on their claims in 2021. No activity occurred on the property in 2022. In 2023, Metallic Minerals Corp. leased out their Australia Creek claims to Little Flake Mine ULC. This marked the first time gold production has been reported from this drainage. A 46 451 m^2 (500 000 ft^2) cut was completed.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

The drill program in 2021 at the headwaters of Australia Creek, targeted the modern valley bottom. Drilling results revealed deposits of reworked Pliocene White Channel gravel. In 2023, the company worked on a section on lower Australia Creek, which had a total thickness of 4.6 m (15 ft). The lowermost 0.6 m (2 ft) of gravel and up to 0.6 m (2 ft) of the bedrock surface was sluiced.

Bedrock geology

Bedrock is mapped as quartzite, quartz-muscovite-chlorite schist, gneiss and amphibolite (Yukon Geological Survey, 2022a).

Gold characteristics

Gold is medium to coarse grained and has a fineness of 880.

Australia Creek, a tributary of Dominion Creek

115O/10 2023: 63°37'16"N, 138°41'21"W

M. Tatlow and Sons Ltd., 2019–2023

Water license: PM14-035-4 (active 02/2025)

Active producer (2021–2023) **Operation no. 89**

Location

Australia Creek, 0.4 km upstream from its confluence with Dominion Creek.



M. Tatlow and Sons Ltd. processing pay on lower Australia Creek in 2022.

Work history and mining cuts

M. Tatlow and Sons Ltd. have been actively mining the headwaters of the Indian River drainage since 2019. In 2022, a two-person crew mined an area measuring 26 022 m² (34 000 yd²). Progressive reclamation has been ongoing since the operation's inception through the prompt backfilling of mined-out cuts and recontouring. M. Tatlow and Sons Ltd. completed their mining efforts on the property in 2023.

Equipment and water treatment

The following equipment was used on site:

- excavator
- wheel loader
- bulldozer

A screen deck was used to process material at a rate of up to 122 m^3 (160 yd^3)/hr.

Surficial geology and stratigraphy

Depth to bedrock on the property is relatively shallow. Gravel deposits are 3 to 4.6 m (10–15 ft) thick and consist of cobble-pebble gravel with 20% matrix composed of sand and minor silt.

Bedrock geology

Bedrock is mapped as quartzite, quartz-muscovite-chlorite schist, gneiss and amphibolite (Yukon Geological Survey, 2022a).

Gold characteristics

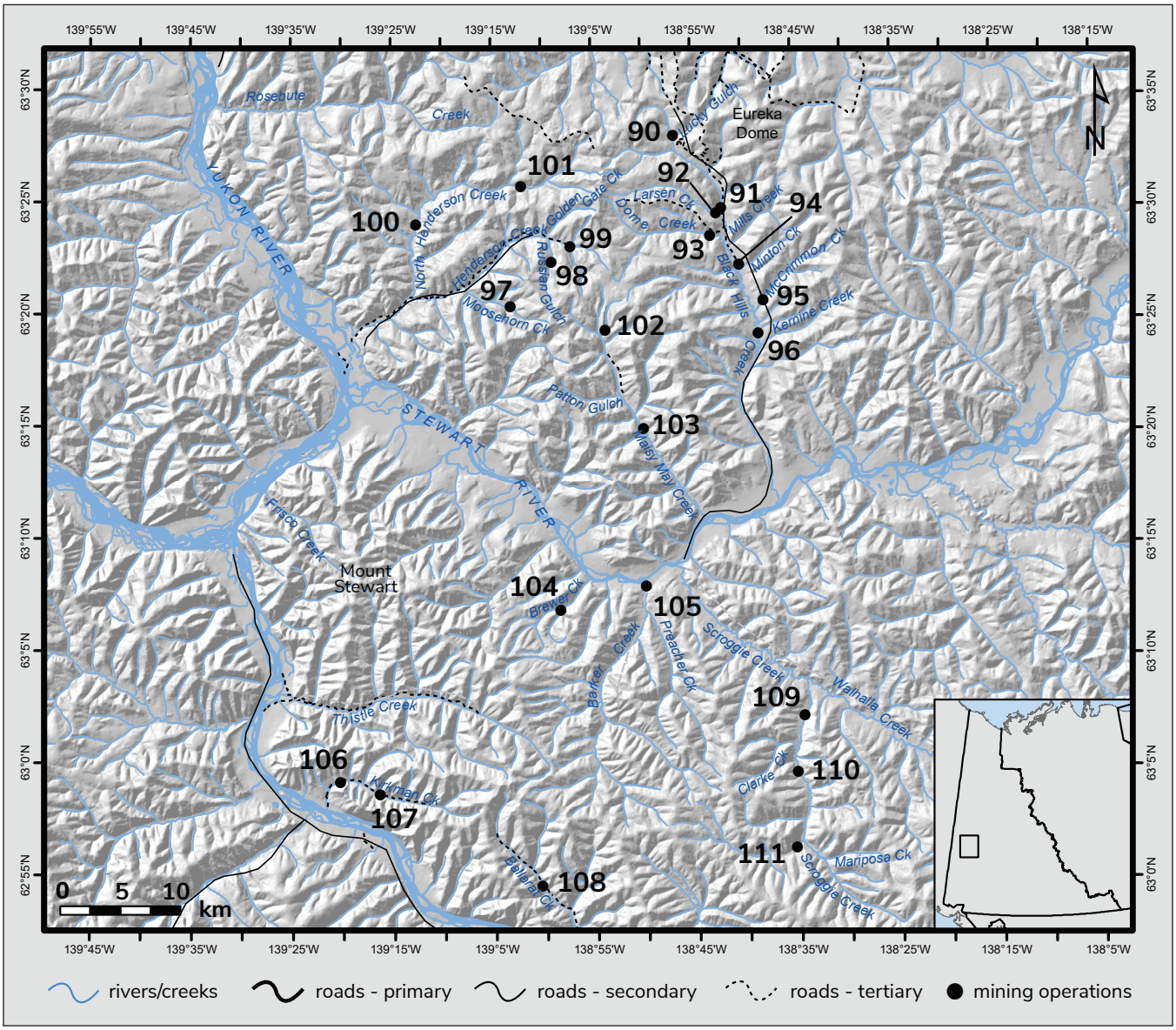
The majority of the gold grains are 20 mesh (0.84 mm) and 10% are greater than 10 mesh (2 mm).



Drone image of M. Tatlow and Sons Ltd.'s operation in 2022 at the confluence of Australia and Dominion creeks. View is to the northwest.

South Klondike
placer mining area

Sites 90–111



Legend

90. R. Smith Placer Mining
91. Paydirt Holdings (1982) Ltd.
92. Weatherly, D.
93. 2074098 Alberta Ltd.
94. Dillman, K. and S.
95. Hughes, S.
96. Stuart Placers Ltd.
97. Vincent, M. and S. Larose
98. Northern Gold Resources LLC
99. NBC Contracting
100. H.C. Mining Ltd.
101. Fellhawk Enterprises Ltd.
102. Adams, N.
103. Bedrock Mining Company Inc.
104. Sager, C.
105. Schmidt Mining Corp.
106. Sager, M. and R.
107. Fellhawk Enterprises Ltd.
108. Weber, B.
109. True North Gold Ltd.
110. Bidrman, Z.
111. Aquila Mining and Exploration Ltd.

Black Hills Creek, a tributary of Stewart River

115O/10 2023: 63°31'03"N, 138°55'44"W

R. Smith Placer Mining, 1996–2023

Water license: PM16-020 (active 06/2026)

Active producer (2021–2023) **Operation no. 90**

Location

Black Hills Creek, headwaters.

Work history and mining cuts

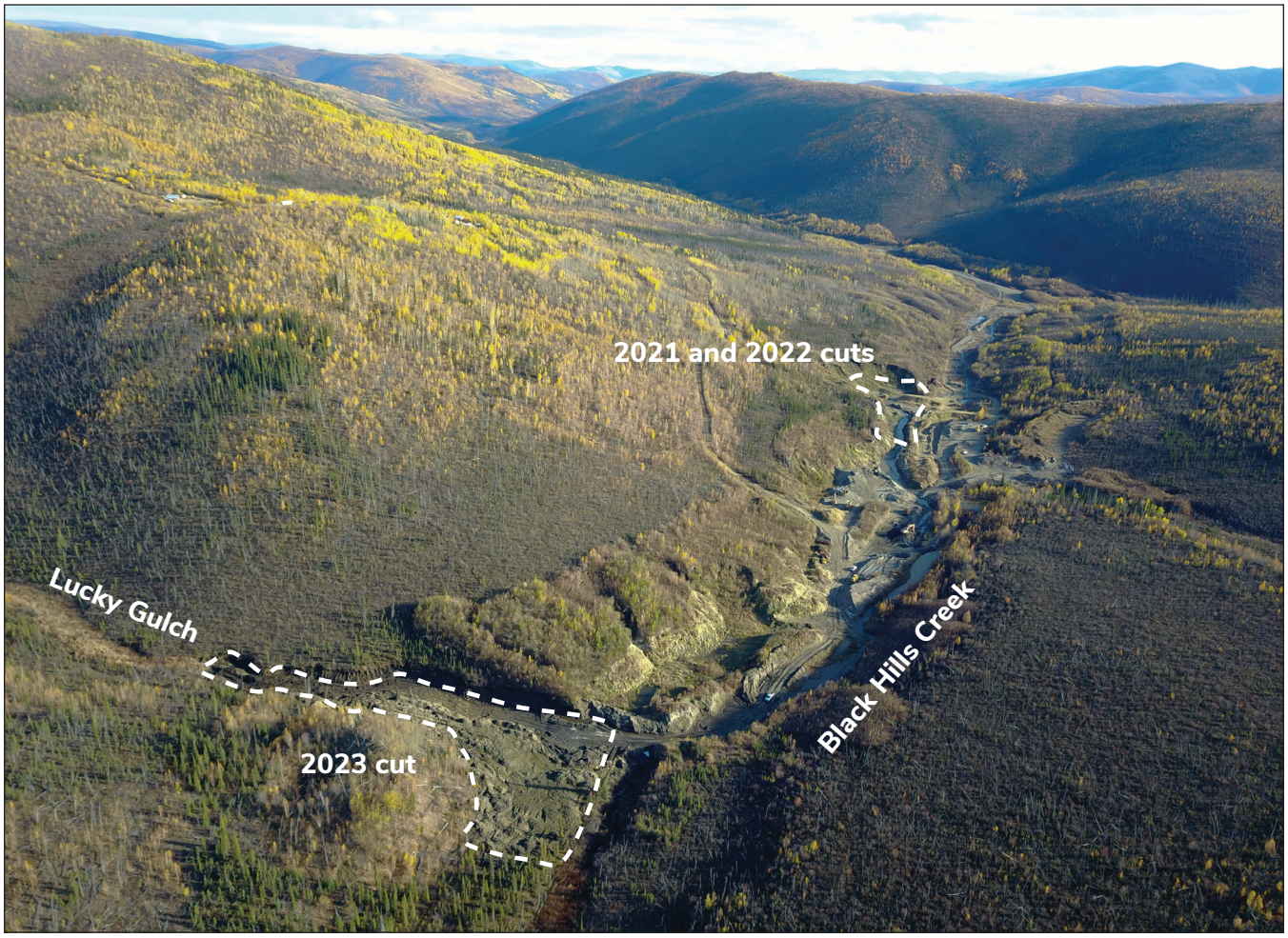
R. Smith has been mining in the drainage for nearly three decades, and all activity has been concentrated in the headwaters of the drainage. Primarily active as a one-person operation, Smith focused on monitoring a section of the left-limit bank in 2021 and 2022 to recover material from a buried left-limit bench. However, in 2023, Smith moved away from the bench deposit and processed a cut in an unnamed left-limit tributary, known locally as 'Lucky Gulch', situated 2.6 km downstream from the headwaters of the drainage. A one to two-person crew worked throughout the season to complete a cut measuring 18 by 177 m (60 × 580 ft) at the mouth of Lucky Gulch. An additional cut measuring 45 by 145 m (150 × 475 ft) was prepared for the 2024 season. Smith remained on the creek until mid-October to finalize processing of the thawed gravel.

Equipment and water treatment

The following equipment was used on site:

- two Caterpillar 345B excavators
- Caterpillar D9 bulldozer
- Caterpillar 966C wheel loader
- Hitachi 330LC excavator
- Michigan wheel loader
- Caterpillar D300E haul truck

The wash plant was a 1.2 by 7.6 m (4 × 25 ft) trommel that classified into three individual sluice runs, each



Drone image taken in September 2023 of R. Smith's operation. The view is to the south looking downstream on Black Hills Creek. Cuts completed in 2021 and 2022, as well as 2023 are delineated by white dashed lines.

measuring 1.2 by 3.6 m (4 × 12 ft) and consisting of angle iron, hydraulic riffles and expanded metal. Water was supplied to the plant by a 6" pump powered by a Ford industrial diesel engine, which enabled the wash plant to process material at a rate of up to 46 m^3 (60 yd^3)/hr. Effluent was settled in a series of two ponds. Clean-ups were completed using a long tom, gold wheel and pan. The final stages were completed on a table in town.

Surficial geology and stratigraphy

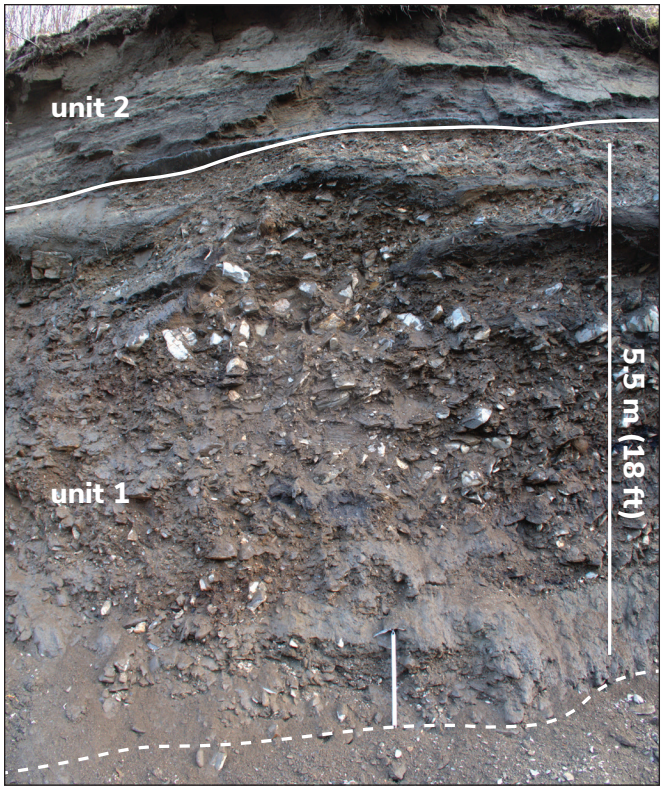
Lucky Gulch is a left-limit tributary to Black Hills Creek that drains Eureka Dome. A section at the confluence of Lucky Gulch and Black Hills Creek exposed two units: a poorly sorted, high-energy gravel deposit (unit 1), overlain by reworked colluvium consisting of sand and black muck (unit 2). Unit 1 has incised into a Black Hills Creek bench. All gravel, which was up to 5.5 m (18 ft) thick, and up to 0.6 m (2 ft) of the underlying bedrock, was sluiced for pay.

Bedrock geology

Bedrock varies from blocky, competent gneiss to highly weathered schist.

Gold characteristics

Gold particles are oxidized and have a rusty appearance. Gold grain texture varies from well rounded to flat.



A cut in 2023 in Lucky Gulch exposed two units. All of unit 1 was processed as pay.

Black Hills Creek, a tributary of Stewart River

115O/07 2022: 63°28'03"N, 138°50'12"W

Paydirt Holdings (1982) Ltd., 1983–2016, 2022–2023

Water license: PM14-072 (active 06/2025)

Active producer (2022–2023) **Operation no. 91**

Location

Black Hills Creek, 400 m upstream from the mouth of Larsen Creek.

Work history and mining cuts

In 2005, T. Nixdorf of Paydirt Holdings (1982) Ltd. acquired the lowermost claims of his operation, while the mid and uppermost claims have been held by Nixdorf for several decades. Additionally, he holds claims on Rosebute Creek (to the west) and mines between the two properties. In 2021, no activity occurred in Black Hills Creek under placer land use permit PM14-072. In 2022, the property was leased by D. Weatherly. With a crew of up to two employees, they mined on Black Hills Creek, just upstream from the mouth of Larsen Creek, and continued into the 2023 season. Late in the 2023 season, a cut on a low-level bench of Black Hills Creek,



Aerial view of D. Weatherly's 2022 operation on Black Hills Creek, upstream of Larsen Creek. This property was under lease from Paydirt Holdings (1982) Ltd.

across from the mouth of Larsen Creek, was stripped. Two cuts were worked at the beginning and end of the season and measured 30 by 91 m (100 × 300 ft) and 24 by 122 m (80 × 400 ft), respectively.

Equipment and water treatment

In 2022, the following equipment was used on site:

- Caterpillar 345B excavator
- Caterpillar D8H bulldozer
- Caterpillar 235 excavator
- Komatsu D455A bulldozer

An oscillating screen deck was used to process pay. Depending on the coarseness of the material, it was able to process between 61 to 92 m³ (80–120 yd³)/hr. Water was supplied to the plant by an 8" pump, and water was not recycled.

Surficial geology and stratigraphy

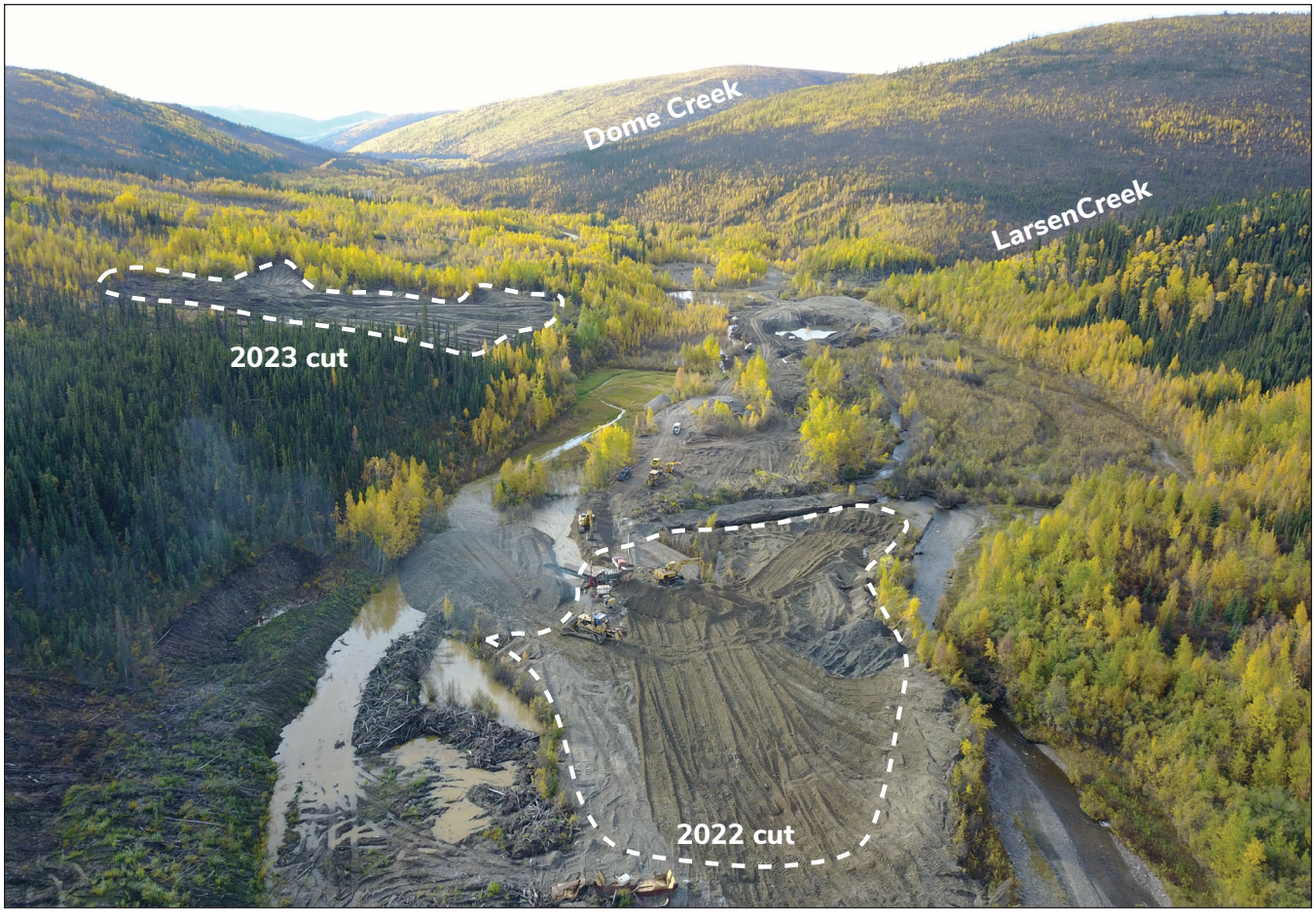
The entire 2022 season and part of the 2023 season focused on re-processing tailings from previous operations. The lessee, D. Weatherly, focused his mining efforts on tailings left behind by Territorial Gold Placers Ltd., a company that was active in the Klondike area from 1974 to 1981. Records from 1976 indicate that they operated immediately upstream of Larsen Creek, confirming the age of the tailings excavated in 2022 and 2023 (Yukon Geological Survey, 2010). The tailings were produced from cat mining, whereby Territorial Gold Placers Ltd. used Caterpillar D8 bulldozers to push material into Ross boxes. Cat mining operations tend to have inconsistent feed rates, material surges, and crude processing techniques, resulting in tailings that can be economical at current gold prices. Furthermore, these deposits are at surface and unfrozen and require far less preparation prior to sluicing.

Bedrock geology

Bedrock is highly fractured quartzite and gneiss.

Gold characteristics

Gold particles are fine grained.



Aerial view of Paydirt Holdings (1982) Ltd.'s property in 2022 showing the sluiced tailings, which were completed by D. Weatherly. Cut locations in 2022 and 2023, which targeted historic tailings, are delineated with white dashed lines. The view is looking downstream (south) in the Black Hills Creek valley, toward the right-limit tributaries of Larsen and Dome creeks.

Larsen Creek, a tributary of Black Hills Creek

115O/07 2022: 63°27'48"N, 138°50'40"W

Weatherly, D., 2021–2022

Water license: PM24-005 (active 04/2034)

Active producer (2022) **Operation no. 92**

Location

Larsen Creek, at its confluence with Black Hills Creek.

Work history and mining cuts

Larsen Creek, a right-limit tributary of Black Hills Creek, is a newly reported creek for placer production and has not been previously worked. D. Weatherly staked Larsen Creek in the fall of 2021, and began stripping in the spring of 2022. A three-person crew spent a month sluicing material from a 30 by 165 m (100 × 540 ft) cut at the mouth of the drainage.

Equipment and water treatment

A Derocker was used to process material from Larsen Creek.



Aerial view of D. Weatherly's operation on Larsen Creek in 2022. The view is looking upstream or to the northwest.

Surficial geology and stratigraphy

The 2022 cut on Larsen Creek exposed a partially covered deposit composed of a high-energy gravel. It is a poorly sorted, boulder-cobble gravel containing reworked angular fragments of local bedrock throughout; all other clasts are predominantly subangular. The gravel is matrix-supported with a silty sand matrix. The gravel is up to 0.6 m (2 ft) thick and is processed as pay, along with up to 0.3 m (1 ft) of bedrock.

Bedrock geology

The bedrock surface is undulating. Bedrock is composed of quartz-mica schist.

Gold characteristics

Not reported.

Dome Creek, a tributary of Black Hills Creek

115O/07 2022: 63°26'47"N, 138°51'03"W

2074098 Alberta Ltd., 2016–2022

Water license: PM23-050 (application)
Water license: PM16-014-1 (cancelled 02/2024)

Active producer (2021–2023) **Operation no. 93**

Location

Dome Creek, 1.2 km upstream from its confluence with Black Hills Creek.

Work history and mining cuts

Activity on Dome Creek has fluctuated, and the operator mined in several different locations in 2022 and 2023. No sluicing occurred in 2021 or 2023, and the main activities focused on stripping and ground preparation.

Equipment and water treatment

The following equipment was used on site:

- John Deere 790 excavator
- Caterpillar 235 excavator
- Caterpillar D8H bulldozer
- Komatsu D455A bulldozer

An oscillating screen deck classified material to 3/8" and had two sluice runs, each measuring 2.1 m (7 ft) in width by 2.4 m (8 ft) in length. The sluice runs were lined with Nomad matting, under a configuration of expanded metal, a boil box, hydraulic riffles and a final section of expanded metal. The plant could process material at a rate of 76 m³ (100 yd³)/hr. An 8" pump powered by a

Caterpillar D315 engine supplied water to the plant, and effluent was settled in a series of three ponds.

Surficial geology and stratigraphy

Activity on Dome Creek began in 2016 at a narrow section where bedrock constricts the drainage, locally known as the inflection point. Upstream from this point, the valley widens, and the gradient in slope is gentler. All mining has taken place upstream from the inflection point on the left limit of the drainage.

Bedrock geology

Bedrock is highly fractured quartzite and gneiss.

Gold characteristics

Gold is primarily coarse grained, and the fine fraction is described as angular to subangular. The fineness is 760.

Black Hills Creek, a tributary of Stewart River

115O/07 2023: 63°25'36"N, 138°47'51"W

Dillman, K. and S., 2022–2023

Water license: Class 1 (P2024_0026)

Active producer (2022–2023) **Operation no. 94**

Location

Black Hills Creek, 500 m upstream from the mouth of Minton Creek.

Work history and mining cuts

In spring 2022, the Dillmans staked three placer claims on Black Hills Creek immediately upstream from Minton Creek. In their first season, they mobilized equipment to the site, conducted exploration and sluiced 92 m^3



Ken and Sylvia Dillman's Class 1 operation on Black Hills Creek in 2023. The 6 m (20 ft)-wide cut in the background is outlined by a white dashed line.

(120 yd³) of material. In 2023, a two-person crew excavated a 6 m (20 ft) wide cut on a low-level bench on Black Hills Creek, and processed a total of 46 m³ (60 yd³).

Equipment and water treatment

The following equipment was used on site:

- JCB 214 loader backhoe

The wash plant consisted of a 0.4 by 3.6 m (1.5 × 12 ft) trommel with a 3/8" screen, capable of processing material at a rate of 12 m³ (16 yd³)/hr. A single 12 ft (3.6 m) sluice run was lined with expanded metal, featuring half vortex matting and half unbacked miner's mat. Water was supplied to the plant with a 3" pump and necked down to 1/2" on the spray bar. Clean-ups were completed using a long tom, and the final concentrate was tabled in town.

Surficial geology and stratigraphy

The three main targets in Black Hills Creek were modern valley deposits, low-level benches and high-level benches. A section exposed on a left-limit, low-level bench in 2023 had a total thickness of 4.6 m (15 ft) and consisted of three units. Unit 1 was in contact with bedrock and was 1.2 m (4 ft) thick. It is a massive, poorly sorted gravel including angular bedrock fragments in the lower half of the unit. The matrix is composed of silt and total matrix content increases in the upper part of the unit toward the contact with unit 2. Unit 2, from 1.2 to 3.6 m (4–12 ft), is an oxidized cobble gravel that is moderately sorted. Unit 3, from 3.6 to 4.6 m (12–15 ft), is a pebble gravel that fines upward to the top of the section. Units 1 and 2 were processed as pay.

Bedrock geology

Bedrock is variably weathered quartz-mica schist.

Gold characteristics

Gold is mostly fine grained.

McCrimmon Creek, a tributary of Black Hills Creek

115O/07 2023: 63°24'08"N, 138°45'03"W

Hughes, S., 2008–2019, 2021, 2023

Water license: PM18-003 (active 09/2028)

Active producer (2021, 2023) **Operation no. 95**

Location

McCrimmon Creek, 1.3 km upstream from its confluence with Black Hills Creek.

Work history and mining cuts

S. Hughes, mined solo at his operation, and sluiced in 2021 and 2023, but was not active in 2022. In 2021, Hughes processed a large cut in the middle of the McCrimmon Creek valley. In 2023, all activity was focused on the left limit and a total of 58 hours of sluicing was completed.

Equipment and water treatment

The following equipment was used on site:

- Hitachi EX270 LC excavator
- Hitachi 300 excavator
- Hitachi EX60 excavator
- Caterpillar D8K bulldozer

The wash plant consisted of a trommel 7.6 m (25 ft) long and 0.8 m (2.6 ft) in diameter with a 3/4" screen. The sluice run measured 0.6 by 2.4 m (2 × 8 ft) and contained expanded metal. A 3" gasoline-powered Honda pump supplied enough water to process material at a rate of up to 15 m³ (20 yd³)/hr. Water was sourced from McCrimmon Creek and was settled in one large pond before being discharged back into the creek. Clean-ups were completed with a long tom.



Drone image in 2023 looking up McCrimmon Creek (northeast) at S. Hughes' operation. All mining activity was focused on the left limit.

Surficial geology and stratigraphy

The stratigraphy of McCrimmon Creek consist of 1.8 to 2.7 m (6–9 ft) of cobble gravel overlain by 3.6 to 4.6 m (12–15 ft) of frozen black muck that is rich in organics. The gravel is poorly sorted, contains lenses of silt and organics, and is oxidized near its upper contact with the black muck. The chaotic nature of the gravel, and the high concentration of organic material suggests potential contributions of reworked colluvial deposits (overbank) or shallow landslides into the drainage.

Mining in 2023 occurred where McCrimmon Creek intersects a buried paleochannel on the left limit of Black Hills Creek. An incised bedrock surface associated with the paleochannel has likely allowed for increased deposition of gravel and sediment in this area. Hughes also indicated that he was recovering 'old-looking' gold from this location, which decreased in quantity as he moved upstream on McCrimmon Creek, suggesting the re-working of paleo Black Hills Creek gold into McCrimmon Creek. The lowermost 0.6 m (2 ft) of gravel and the uppermost 0.3 m (1 ft) of bedrock were processed as pay.



Left-limit cut exposure in McCrimmon Creek in 2023.

Bedrock geology

Bedrock on the left limit of Black Hills Creek is predominately phyllite interbedded with minor blocky quartzite.

Gold characteristics

Two gold grain textures were recovered: rounded and well traveled, and angular and locally derived. Cinnabar was also recovered. The fineness is 880.

Black Hills Creek, a tributary of Stewart River

115O/07	2023: 63°22'38"N, 138°45'13"W
115O/07	2022: 63°23'51"N, 138°46'20"W

Stuart Placers Ltd., 2009–2023

Water license: PM20-048 (active 05/2031)

Active producer (2021–2023) **Operation no. 96**

Location

Black Hills Creek, two locations: at the mouth of McCrimmon Creek in the middle of the valley, and a right-limit bench across from the mouth of Kernine Creek.

Work history and mining cuts

Over the past three seasons, Stuart Placers Ltd. has been mining on the middle reaches of Black Hills Creek, progressively moving upstream from the confluence



Drone image in 2023 of Stuart Placers Ltd. excavating the downstream end of their main cut. The perimeter of the cut is outlined with a white dashed line.

with Kernine Creek to the confluence with McCrimmon Creek. In 2022, they mined upstream from Kernine Creek, sluicing a total of 76 455 m³ (100 000 yd³) of material and completing a cut measuring 168 by 258 m (550 × 845 ft). A crew of six people worked a single 12-hour shift. Over the past two seasons, the company has focused on exploration by processing bulk samples from a low-level, a right-limit bench near McCrimmon Creek, as well as samples from an upstream mid-level bench near Mills Creek. Several cuts were completed in 2023. The most significant of these cuts was on the left limit, 1.1 km upstream from the confluence with Kernine Creek, and measured 46 by 132 m (150 × 435 ft).

Equipment and water treatment

The following equipment was used on site:

- two Hitatchi Zaxis 450 excavators
- Hitachi 470 excavator
- Hitachi EX300 excavator
- John Deere 450 excavator
- two Caterpillar 985 wheel loaders
- Caterpillar D10R bulldozer
- Caterpillar D9N bulldozer
- two Caterpillar 9H bulldozers
- Bell 40 ton articulating haul truck
- two International Payhauler 350C haul trucks

Two wash plants were used to process pay. The first plant was a 1.5 by 6.1 m (5 × 20 ft) trommel with a 1.8 by 3.0 m (6 × 10 ft) sluice run, lined with Nomad matting and 2" hydraulic riffles. This plant was capable of processing material at a rate of up to 57 m³ (75 yd³)/hr. The second plant, a Derocker, had a processing capacity of up to 76 m³ (100 yd³)/hr. Water was sourced from Black Hills Creek, and effluent was settled in out-of-stream ponds. There was no discharge back into the creek. Daily clean-ups of the top mats were completed using a jig.

Surficial geology and stratigraphy

Black Hills Creek hosts two placer settings: one in the modern valley bottom and another on low to mid-level benches on both sides of the drainage. Side pay is present at the furthest extents of both limits, as well as on low-level benches slightly elevated from the modern valley floor, which can be difficult to identify due to minor variations in bedrock elevation. The surficial geology mainly consists of deposits of coarse alluvial gravel derived from modern Black Hills Creek, interrupted by alluvial fan deposits derived from tributary streams. Stuart Placers Ltd. has primarily focused on mining the modern Black Hills Creek gravel across the entire width of the valley bottom, and processing the lowermost 1.8 m (6 ft) of gravel and up to 0.9 m (3 ft) of bedrock.

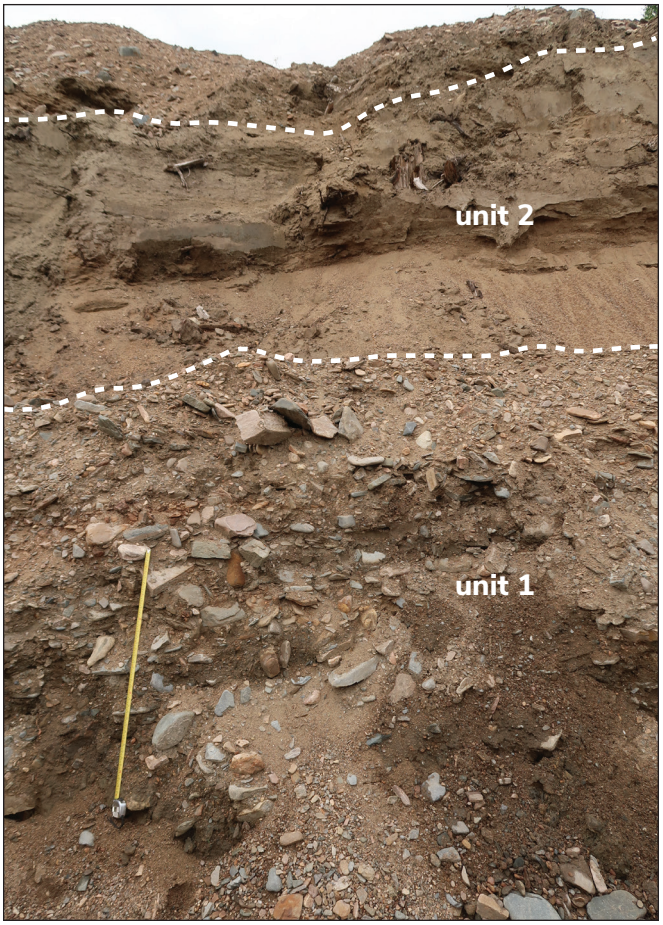
Downstream from the mouth of Kernine Creek, a section was exposed in the modern valley bottom. The total thickness of the section was 3.7 m (12 ft). The lowermost 1.8 m (6 ft) of gravel (unit 1) is a high-energy gravel that is poorly sorted, containing angular clasts of approximately 70% cobbles, 30% pebbles and trace boulders. This unit is part of a fining-upward sequence that is cobble dominated in the lower 1.2 m (4 ft), and fines into a pebble gravel in the upper 0.6 m (2 ft). Unit 2, from 1.8 to 3.7 m (6–12 ft), is interbedded sand, silt and granules.

Bedrock geology

Bedrock is highly fractured and varies between a green-coloured schist and a pervasively oxidized schist. Quartz veins are common. Several faults crosscut the valley resulting in zones of clay-rich fault gouge in bedrock.

Gold characteristics

Gold grains range from flat and flaky to round and nuggety. Fineness is between 790 and 830.



Exposure in 2023 on the right limit of Black Hills Creek. Yellow tape measure in photo is 1.2 m (4 ft).

Moosehorn Creek, a tributary of Henderson Creek

115O/06 2023: 63°22'39"N, 139°10'11"W

Vincent, M. and S. Larose, 2008–2020, 2023

Water license: PM19-018 (active 10/2029)

Active producer (2023) **Operation no. 97**

Location

Moosehorn Creek, 4.3 km upstream from its confluence with Henderson Creek.

Work history and mining cuts

The property was inactive in 2021 and 2022 after several years of completing exploration and sluicing from 2008 to 2020. In 2023, M. Vincent and S. Larose stripped and sluiced an 85 m (279 ft)-long cut at the confluence of the upper forks on Moosehorn Creek. They continued to mine up the left fork approximately 500 m to the mouth of a second-order unnamed stream. Approximately five hours per day of sluicing occurred between July 20th and August 14th. The upstream part of the 2023 cut was prepared for sluicing in 2024.



The 2023 mining location at the confluence of the upper forks on Moosehorn Creek. The cut sluiced in 2023 is delineated by a white dashed line.

Equipment and water treatment

The following equipment was used on site:

- Hitachi Zaxis 330 LC excavator
- Bantam excavator

A vibrating screen deck with a 3/4" screen was used to process material at a rate between 23 and 31 m³ (30 and 40 yd³)/hr. The plant had a single side run measuring 0.6 m (2 ft) in width by 3.7 m (12 ft) in length, configured with 2.4 m (8 ft) of expanded metal and 1.2 m (4 ft) of angle iron. A 3" pump supplied water to the plant, and an additional 2" pump delivered water directly to the hopper. Water was 100% recycled through a series of two ponds. Clean-ups were completed using a shaker table.

Surficial geology and stratigraphy

The upper left fork of Moosehorn Creek is a narrow drainage with a maximum width of 15 m (49 ft). The stratigraphy immediately upstream on the left fork consists of 1.2 to 1.5 m (4–5 ft) of poorly sorted, high-energy gulch gravel. Clasts are predominantly angular to subangular and include fragments of locally derived bedrock. The gravel is coarse having up to 5% boulders. There is abundant woody debris throughout the unit. In the uppermost part of the unit, discontinuous lenses of mud, silt and organic-rich material are present. No imbrication is observed, indicating a high-energy stream deposit. This is consistent with a narrow gulch environment, which is susceptible to flooding events during high water resulting in chaotic deposits.

Bedrock geology

Bedrock is weathered granitic rock (metagranodiorite or metadiorite) that is biotite-rich resulting in pervasive iron and magnesium oxidation.

Gold characteristics

Gold grains are flat and have a fineness of 780.

Russian Gulch, a tributary of Henderson Creek

115O/06 2023: 63°24'51"N, 139°06'36"W

Northern Gold Resources LLC, 2016–2023

Water license: PM22-010 (active 09/2032)
Water license: PM12-025-2 (expired 08/2022)

Active producer (2021–2023) **Operation no. 98**

Location

Russian Gulch, a locally named tributary of Henderson Creek, 2 km upstream from its confluence with Henderson Creek.

Work history and mining cuts

Northern Gold Resources LLC has progressively mined upstream on Russian Gulch for the past three seasons, reclaiming their cuts prior to advancing further. In 2021, 184 hours of sluicing was completed; in 2022, a total of 245 hours; and in 2023, a total of 104 hours. In 2023, a 470 m (1541 ft)-long cut was prepared. The cut was located upstream from a prominent pingo on the left limit. Pingos are dome-shaped mounds of soil containing ice cores that can form where groundwater encounters a permafrost environment (Huscroft et al., 2017). The valley becomes broader toward the headwaters of Russian Gulch, allowing the operator more room for earthmoving activities. The first 1.5 km downstream of the pingo required significant mine planning to effectively and efficiently move, store and reclaim material.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 235 excavator
- Hitachi Zaxis 330 LC excavator
- Hitachi 450 excavator
- Caterpillar D9 bulldozer
- Caterpillar 988 wheel loader



Aerial view of the 2023 mining cut at Northern Gold Resources LLC's operation on Russian Gulch. The view is looking downstream (north) toward the pingo, which is delineated by a white dashed line.

A double screen deck measuring 1.5 by 3.0 m (5 × 10 ft) including a 14.6 m (48 ft) tailings conveyor was capable of processing material at a rate of up to 76 m³ (100 yd³)/hr. The top end of the sluice system measured 0.9 by 1.8 m (3 × 6 ft) and then split into three runs, each measuring 1.2 by 2.4 m (4 × 8 ft). Water was supplied to the plant by a 10" pump. A reservoir pond was established upstream on Russian Gulch to ensure a consistent water supply. Effluent was settled in a series of settling ponds before being discharged into Henderson Creek. Clean-ups were achieved using a long tom, and final concentrate processing was completed on a table in town.

Surficial geology and stratigraphy

The stratigraphy in Russian Gulch consists of a coarse, high-energy gravel overlain by muck and colluvium, which is typical in these narrow gulch settings in unglaciated terrain. Additionally, low-level benches approximately 1.8 m (6 ft) above the modern valley bottom, are present but their preservation is discontinuous. In the process of accessing the bench deposits, overburden thickness dramatically increases as excavations move further into the valley side, where debris from a large rockslide was encountered beneath the muck. The cut in 2023 exposed two units. Unit 1 is a poorly sorted, coarse boulder gravel 2.4 m (8 ft) in thickness, and contains large boulders and slabs of local bedrock up to 1.1 m (3.6 ft) in length. Clasts are predominantly subangular. The matrix is a silty sand, and the percentage of matrix is variable throughout the unit, ranging from 15 to 25%. Wood debris is also found throughout the gravel unit. Unit 2 is overburden, consisting of muck and colluvium up to 4.9 m (16 ft) thick.



An example of the coarseness of gravel and bedrock slabs found in unit 1 on Russian Gulch.

Bedrock geology

Bedrock varies between blocky, competent, mafic orthogneiss and decomposed orthogneiss.

Gold characteristics

Gold particle texture is 50% coarse grained and 50% fine grained. The fineness is 750.

Henderson Creek, a tributary of Yukon River

115O/06 2023: 63°25'37"N, 139°04'50"W

NBC Contracting, 2022–2023

Water license: PM15-097 (active 06/2026)

Active producer (2021–2023) **Operation no. 99**

Location

Henderson Creek, upper reach, and an unnamed left-limit tributary 2 km upstream from the mouth of Russian Gulch.

Work history and mining cuts

In spring 2022, NBC Contracting began operations in the upper Henderson Creek drainage, working on H.C. Mining Ltd.'s claims. Activities were concentrated in the main valley of Henderson Creek, as well as on an unnamed left-limit tributary where they mined approximately 700 m (2296 ft) upstream from its mouth. In 2023, they extended the cut on the unnamed left-limit tributary an additional 550 m (1804 ft) upstream. Additionally, under a YMEP program in 2023, they completed a 19-hole sonic drill program on Golden Gate Creek, a right-limit tributary of upper Henderson Creek.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 390F excavator
- Caterpillar 323 excavator
- Caterpillar D10 bulldozer

Effluent was settled in a series of four ponds, prior to discharge back into Henderson Creek.

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as quartz-mica schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.



NBC Contracting's excavator at their 2023 cut on the unnamed left-limit tributary of Henderson Creek.

North Henderson Creek, a tributary of Yukon River

115O/06 2023: 63°25'51"N, 139°20'29"W

H.C. Mining Ltd., 2004–2023

Water license: PM18-067 (active 08/2029)

Active producer (2021–2023) **Operation no. 100**

Location

Lower Henderson Creek, as well as North Henderson Creek, 6.2 km from its confluence with Henderson Creek.

Work history and mining cuts

In 2021, H.C. Mining Ltd. completed two large cuts in the lower reaches of Henderson Creek drainage. The larger cut was located on the right limit and spanned a length of 1.5 km. Up to four wash plants were used simultaneously, enabling the operator to sluice material at a rate of up to 382 m³ (500 yd³)/hr. A second cut on the left limit of the drainage was located at the mouth of a small unnamed tributary. An extensive sonic drilling program to evaluate the lowermost 2 km of the drainage was completed in the spring of 2022. In 2022, H.C. Mining Ltd. sluiced 42 475 m^3 (1.5 million ft^3), predominantly from the valley bottom in the lower part of the drainage. Again, up to four wash plants were used and operated 24/7. A 30-person crew completed several large cuts throughout the season. In 2023, mining activities focused on North Henderson Creek, working from 4.5 to 6.6 km upstream from the mouth of the creek. Additional stripping was completed on a high-level, left-limit bench on Henderson Creek, immediately below its confluence with North Henderson Creek. In July 2023 the cut measured 102 by 114 m (335 × 375 ft). The goal was to sluice 4000 hours each season.

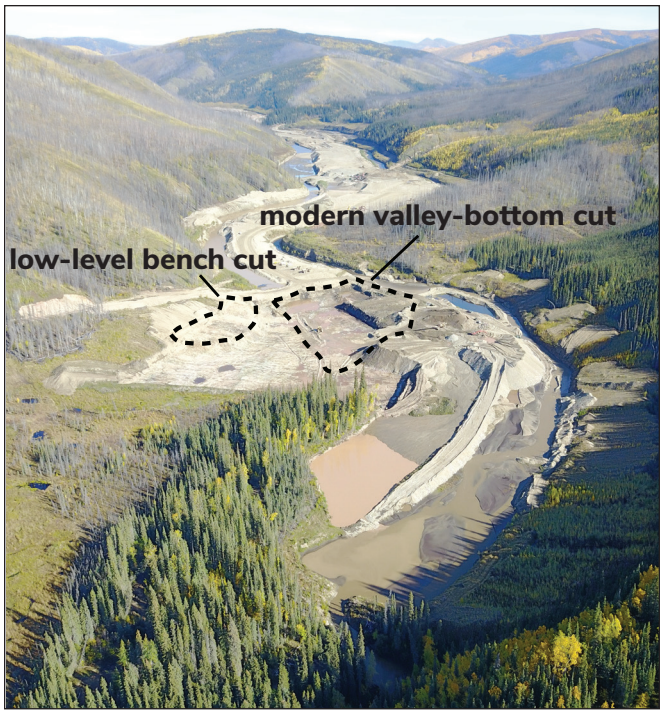
Equipment and water treatment

The following equipment was used on site:

- two Hitachi ZX350-3 excavators
- two Hitachi ZX470-5 excavators
- Caterpillar 336 excavator
- Caterpillar 374 excavator
- two Volvo A60H rock trucks
- two Caterpillar articulated trucks
- Caterpillar 160M2 grader
- Caterpillar 988K loader
- two Komatsu D475-5 bulldozers
- two Caterpillar D10T bulldozers
- Caterpillar D11 bulldozer
- Caterpillar 9T bulldozer
- Caterpillar 160M2 grader



H.C. Mining Ltd. used up to four sluice plants simultaneously. In 2022 only three were active and are shown in the image. Material was supplied to the three Macon plants by a Hitachi 470 excavator.



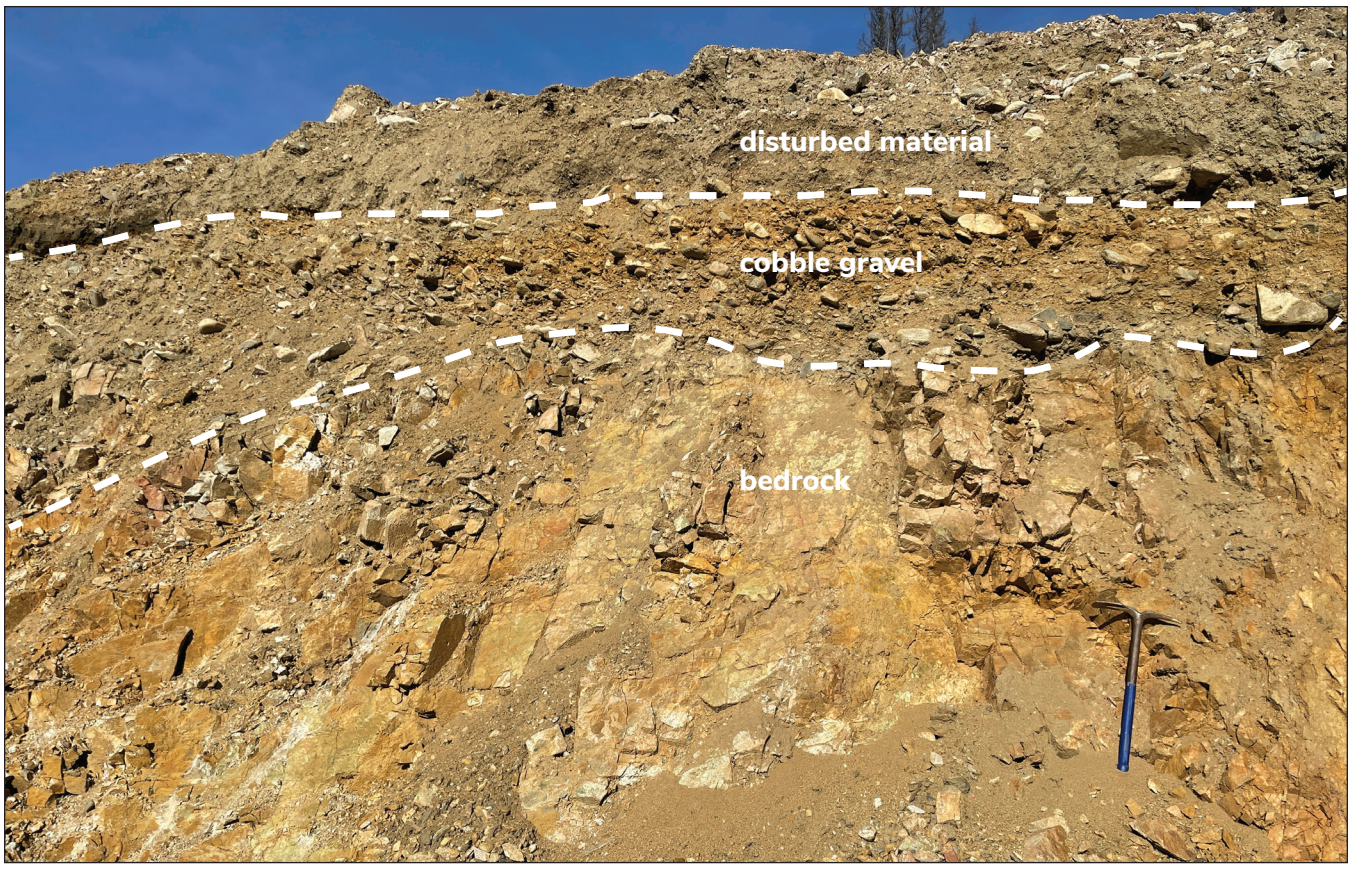
Mining on lower Henderson Creek in 2022 targeted two different placer settings: a low-level, right-limit bench, and the modern valley bottom. The cut locations are outlined with black dashed lines. The view is looking upstream, to the north-northeast.

A vibrating double screen deck measuring 1.5 by 4.3 m (5 × 14 ft) with a 3 by 3 m (10 × 10 ft) hopper was used to process pay. By late 2022, three Macon SD-600 vibrating screen decks were added to the operation. Four wash plants operated simultaneously, and were able to process material at a rate of over 306 m³ (500 yd³)/hr. Water was supplied to the plants using three 10" pumps, and effluent was settled in a series of two ponds. A jig and wheel were used for clean-ups.

Surficial geology and stratigraphy

H.C. Mining Ltd. continues to target the modern valley bottom on lower Henderson Creek, and the stratigraphy has proven to remain fairly consistent. In the modern valley, up to 1.2 m (4 ft) of gravel and 0.6 m (2 ft) of bedrock was sluiced.

In 2022, a low-level bench on lower Henderson Creek was also mined. Low-level bench deposits in the drainage are variably preserved. The bench consists of 1.7 m (5.6 ft) of cobble gravel that is poorly sorted, loose and weakly imbricated. It is a clast-supported gravel with subrounded clasts, and a boulder lag is present at the bedrock contact. The predominant clast size consists of small cobbles. The overburden, when exposed, was up to 0.9 m (3 ft) thick.



An exposure of a low-level bench on Henderson Creek in 2022. A pick for scale measures 0.6 m (2 ft).

Bedrock geology

Bedrock varies between orthogneiss and highly fractured, variably weathered mafic schist. The bedrock surface is undulating, and reliefs are up to 1.8 m (6.0 ft).

Gold characteristics

Gold is fine grained and flat. Fineness ranges from 800 to 810.

North Henderson Creek, a tributary of Henderson Creek

115O/06 2022: 63°28'04"N, 139°10'25"W

Fellhawk Enterprises Ltd., 2019–2023

Water license: PM15-088 (active 05/2026)

Active producer (2021–2023) **Operation no. 101**

Location

North Henderson Creek, approximately 14 km upstream from its confluence with Henderson Creek.

Work history and mining cuts

Fellhawk Enterprises Ltd. has leased claims from H.C. Mining Ltd. and has been sluicing since 2020 on North Henderson Creek. In 2021, the company concluded the season by sluicing material from a 49 by 271 m (160 × 890 ft) cut. In 2022, a YMEP-funded project was also completed on an unnamed left-limit tributary of upper Henderson Creek. At this location, Northern Sonic Drilling and Consulting was hired to complete 27 drill holes using a sonic drill 6" in diameter. Drill results revealed the presence of side pay and a thick section of economic gravel in the valley bottom. Sluicing continued throughout 2022 and 2023 in the modern valley bottom, and the crew progressively moved upstream in the drainage throughout both seasons.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 324 excavator
- John Deere 470 excavator
- Caterpillar 735 haul truck
- three Caterpillar D9L bulldozers

The wash plant consisted of a 1.5 by 4.9 m (5 × 16 ft) Elrus double shaker screen deck that processed material at a rate of up to 153 m^3 (200 yd^3)/hr. Two 0.9 m (3 ft) sluice runs were on either side of the screen deck and fed an additional four 0.9 by 6.1 m (3 x 20 ft) runs. A 10" pump supplied water to the plant, and was



View of Fellhawk Enterprises Ltd.'s cut in 2022 on North Henderson Creek when they were mining from rim to rim in the modern valley bottom. The view is looking upstream or to the east.

powered by a Caterpillar 3208 engine. A series of two ponds were used to settle effluent.

Surficial geology and stratigraphy

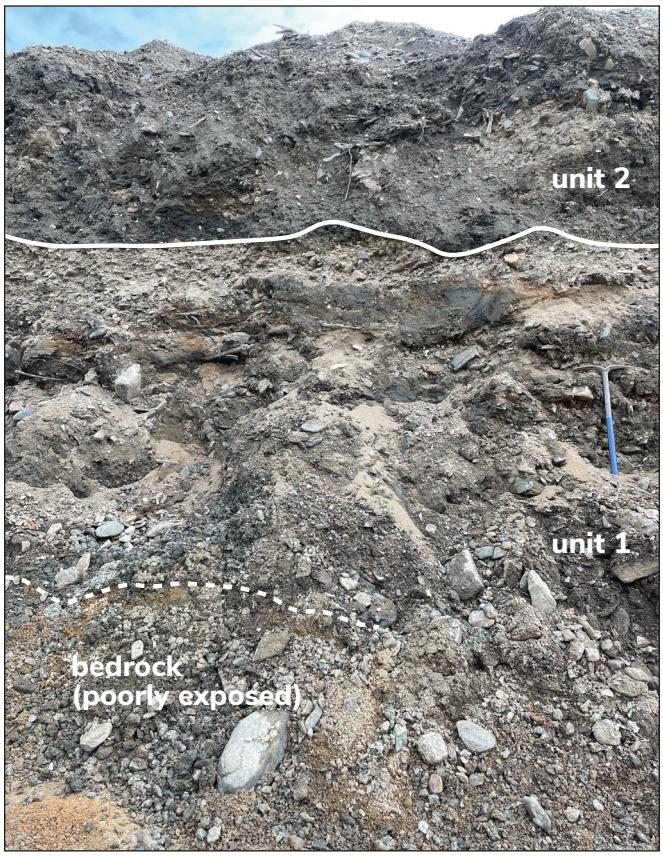
An exposure on the left limit of North Henderson Creek consisted of two units, that were underlain by bedrock of fault-gouged orthogneiss. Unit 1, from 0 to 1.2 m (0–4 ft), is a poorly sorted, matrix-supported, coarse gravel containing a boulder lag at the bedrock contact. The clasts are predominantly subrounded to rounded; some angular clasts are present indicating reworking of colluvium. The matrix (up to 30%) consists fine to medium sand and minor silt. There is a general fining upward to a pebble gravel in the uppermost 0.3 m (1 ft) of the unit. Unit 2, from 1.2 to 4.2 m (4–14 ft), consists of black muck, organics, sand, silt and pebbles. Up to 0.3 to 0.6 m (1–2 ft) of the lowermost gravel (unit 1) and 0.6 to 0.9 m (2–3 ft) of bedrock was sluiced.

Bedrock geology

Bedrock is fault-gouged orthogenesis.

Gold characteristics

Gold particles are fine grained and flat. The fineness is 770.



Left-limit cut on North Henderson Creek in 2022. A pick for scale measures 0.6 m (2 ft).

Maisy May Creek, a tributary of Stewart River

115O/06 2022: 63°22'03"N, 139°00'28"W

Adams, N., 2022
Christiansen, A., 1993–2020

Water license: PM22-031 (active 03/2033)
Water license: PM17-040-2 (cancelled)

Active producer (2022) **Operation no. 102**

Location

Unnamed left-limit tributary, 700 m upstream from its confluence with Maisy May Creek.

Work history and mining cuts

The claims on upper Maisy May Creek and its two uppermost left-limit tributaries were transferred in fall 2020 from A. Christiansen to N. Adams. No activity was noted in 2021. In 2022, mining was conducted on one of the uppermost left-limit tributaries, approximately 700 m upstream from its confluence with Maisy May Creek. No activity occurred in 2023.

Equipment and water treatment

Not reported.



Aerial view of N. Adams' property on upper Maisy May Creek in 2023. Although the property was inactive in 2023, evidence of mining activity in 2022 is evident in the photo.

Bedrock geology

Bedrock is mapped as quartz-mica schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Maisy May Creek, a tributary of Stewart River

115O/07 2023: 63°17'52"N, 138°55'38"W
115O/07 2023: 63°17'49"N, 138°55'43"W

Bedrock Mining Company Inc., 2013–2017, 2019–2023

Water license: PM23-004 (active 03/2034)
Water license: PM13-052 (expired 03/2024)

Active producer (2021–2023) **Operation no. 103**

Location

Maisy May Creek, lower reach, 3.3 km downstream from the mouth of Patton Gulch.



Reclamation completed in 2023 at Bedrock Mining Company Inc.'s lowermost claims on Maisy May Creek. The view is looking upstream or to the northwest.

Work history and mining cuts

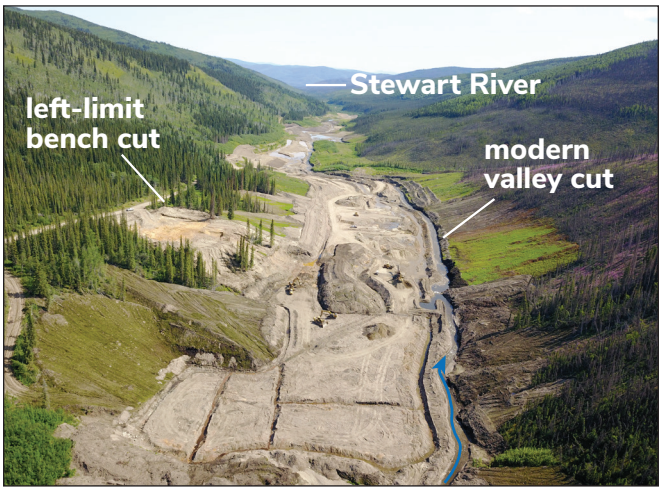
Bedrock Mining Company Inc. predominantly mined in the modern valley bottom from 2021 to 2023. A total of 1300 hours of sluicing was completed during the 2022 season. In 2023, the operator undertook a significant amount of reclamation on their lowermost claims. Three weeks of reclamation was completed on 11 claims in the valley bottom, which involved contouring overburden and top-coating the area. A crew of five people, operating a daily 12-hour shift, processed 87 924 m³ (115 000 yd³) of gravel. They mined two placer settings: the modern Maisy May Creek valley bottom, and a mid-level, left-limit bench that had undergone minimal activity until the 2023 season. A cut measuring 40 by 50 m (130 × 165 ft) was completed on the bench, which lead to further exploration on additional mid-level benches in the creek.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 345 excavator
- Caterpillar 330 excavator
- two Caterpillar D10 bulldozers
- Caterpillar D8 bulldozer
- Caterpillar 988 loader
- Volvo 250 wheel loader
- two Caterpillar 730 articulated dump trucks

A Macon T-600 plant with a 1.8 m (6 ft)-diameter trommel was used to process pay. A 10" by 8" pump supplied water to the plant, allowing the plant to process material at a rate of 138 to 153 m³ (180–200 yd³)/hr. Effluent was settled in a series of two ponds. A small trommel was used to process the concentrate.



Bedrock Mining Company Inc.'s cuts in 2023 on Maisy May Creek. The view is looking downstream (southeast) toward Stewart River.

Surficial geology and stratigraphy

Since discovery, mining activities on Maisy May Creek were predominantly focused on the modern valley-bottom deposits. More recently, mechanical mining has targeted fluvial terrace deposits that are sporadically preserved on both limits of the drainage.

An extensive left-limit bench deposit is preserved downstream from Bedrock Mining Company Ltd.'s camp. In 2023, an exposure on this bench consisted of two units. Unit 1, from 0 to 1.5 m (0–5 ft), consists of a moderately oxidized, cobble-pebble gravel containing well-rounded clasts. Unit 2, from 1.5 to 2.7 m (5–9 ft), consists of colluvium. All gravel and up to 15 cm (6") of bedrock were processed as pay.

In 2023, the modern channel deposits that were observed were up to 3.7 m (12 ft) thick and consisted of a moderately sorted, clast-supported cobble-gravel with subangular to subrounded clasts. All gravel was frozen.

Bedrock geology

Bedrock is decomposed quartz-feldspar gneiss.

Gold characteristics

Gold particles are well rounded suggesting a distal source. Fineness is 790.

Brewer Creek, a tributary of Stewart River

115O/03 2023: 63°09'22"N, 139°02'02"W

Sager, C., 2020–2023
No. 203 Dynamic Endeavours Inc., 2016–2020

Water license: PM15-073-3 (active 03/2026)

Active producer (2021–2023) **Operation no. 104**

Location

Brewer Creek, 3.6 km upstream from its confluence with Stewart River.

Work history and mining cuts

C. Sager moved into the Brewer Creek drainage in 2020, commencing operations 2.8 km upstream from the creek's confluence with the Stewart River. Sluicing was reported in 2021, 2022 and 2023; however, no additional information is known.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

Brewer Creek is in a narrow valley containing a deposit of high-energy, poorly sorted gravel overlain by a thick package of frozen, black muck (overburden). Overburden thickness ranges from 2.4 to 6.1 m (8–20 ft).

Bedrock geology

Bedrock is mapped as potassium feldspar-augen orthogneiss and quartzite, psammite and schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Barker Creek, a tributary of Stewart River

115O/02 2023: 63°10'50"N, 138°53'49"W

Schmidt Mining Corp., 2004–2023

Water license: PM15-076 (active 04/2026)

Active producer (2021–2023) **Operation no. 105**

Location

Barker Creek, 400 m upstream from its confluence with the Stewart River.

Work history and mining cuts

In 2021, Schmidt Mining Corp. moved their Barker Creek operation from the mid-reaches of the drainage to near its confluence with the Stewart River. A 41 806 m² (450 000 ft²) cut was completed, having a thickness ranging from 3.7 to 4.3 m (12–14 ft). The overburden at



An example of gold recovered from Barker Creek; note the range in grain sizes.

the new site is notably thinner compared to the previous site 12 km upstream, where the overburden reached up to 11 m (36 ft) thick. Mining activities continued on the lower end of Barker Creek through 2022 and 2023, extending to the mouth of Preacher Creek.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 700 excavator
- Caterpillar 345 excavator
- two Caterpillar D10N bulldozers

A 1.8 by 6.1 m (6 × 20 ft) El Russ screen deck having a total sluice run width of 6.1 m (20 ft) was capable of processing material at a rate of 191 m^3 (250 yd^3)/hr. Water was supplied to the plant using a 10" pump, and effluent was settled back into previously mined areas as they continued to mine upstream. Initial clean-ups were achieved using a long tom and the final clean-up was completed at Schmidt Mining Corp.'s main office at Quartz Creek.

Surficial geology and stratigraphy

Three placer settings are present in the Barker Creek drainage: modern alluvial channel deposits, low-level benches, and high-level benches. The benches or terraces are former alluvial plain surfaces that are preserved after incision due to base-level change over the last three million years.



Aerial view of Schmidt Mining Corp.'s property on lower Barker Creek in 2023. View is upstream or to the south.

Surficial material in the modern Barker Creek valley bottom varies in total thickness from 3.7 to 4.3 m (12–14 ft). Barker Creek gravel is a poorly sorted, matrix-supported, cobble-pebble gravel, comprising 35% cobbles and 65% pebbles. A large cobble to boulder lag occurs at the bedrock contact. The matrix makes up 35% of the unit and is composed of silt. Up to 0.9 m (3 ft) of gravel and 0.9 m (3 ft) of bedrock were sluiced for pay.

Bedrock geology

Bedrock is very blocky gneiss and orthogneiss.

Gold characteristics

Barker Creek gold ranges in size, and 50% of the grains are greater than 1.68 mm (12 mesh). Fineness ranges from 850 to 860.

Kirkman Creek, a tributary of Yukon River

115O/03 2021: 63°00'38"N, 139°21'57"W

Sager, M. and R., 1993–2023

Water license: PM19-074 (active 09/2030)

Active producer (2021–2023) **Operation no. 106**

Location

Kirkman Creek, 2.8 km upstream from its confluence with the Yukon River.

Work history and mining cuts

M. and R. Sager have called Kirkman Creek home for each mining season over the last three decades. They operate with four to six employees and mine both the lower part of their Kirkman Creek claims, and the upper part, 4.8 km upstream from the confluence with the Yukon River.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 350 excavator
- two Hitachi Zaxis 450 LC excavators
- Volvo 210 excavator
- two Volvo 35 ton rock trucks
- Dressta D135 bulldozer
- Fiat FD 40 bulldozer
- Fiat HD 31 bulldozer

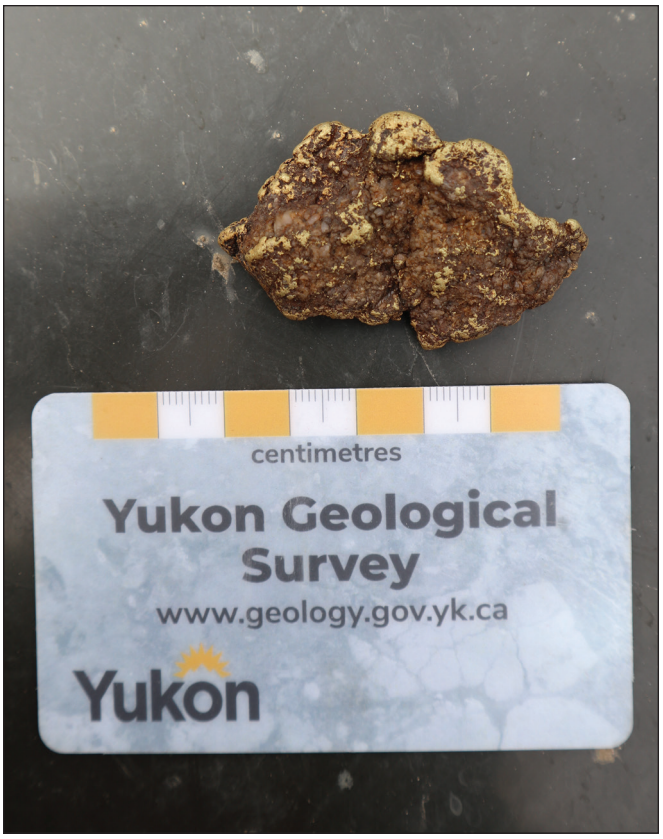
The wash plant consisted of a double vibrating screen deck with a hopper that classified to 1¼", and two sluice runs containing a nugget trap, angle iron riffles and expanded metal. The plant, having a 14 m (45 ft)-tailings stacker, was able to process material at a rate of 115 to 138 m³ (150–180 yd³)/hr. Water was 100% recycled.

Surficial geology and stratigraphy

A left-limit exposure observed in 2021, located approximately 0.9 km downstream from camp, consists of two units. Unit 1, having a thickness of 2.1 m (6.9 ft), consists of a coarse, high-energy cobble gravel that weakly fines upward in the top 0.3 to 0.6 m (1–2 ft) of the unit. The bedrock is highly weathered, resulting in a mixing zone between the soft bedrock and the high-energy stream gravel. The thickness of this mixing zone varies due to undulations in the bedrock surface, but ranges from a few centimetres to 0.15 m (0.5 ft). A boulder lag is concentrated in the mid to lower part of the unit. Unit 2, up to 1.5 m (5 ft) thick, consists of silt, sand and organics.

Bedrock geology

Bedrock is oxidized and weathered, and is composed of micaceous schist and quartzite.



Nugget recovered from Kirkman Creek by M. and R. Sager.



Exposure on the left-limit cut in 2021, 0.9 km downstream from camp.

Gold characteristics

The characteristics of the gold vary across the valley. On the right limit, the gold is coarse grained, typically 4 mesh (4.76 mm) in size, and nuggets are up to 28 g (1 oz). The fineness of the right-limit gold is 850. On the left limit, the gold is not as coarse grained, and the fineness is 840.

Kirkman Creek, a tributary of Yukon River

115O/03 2023: 63°00'15"N, 139°17'54"W

Fellhawk Enterprises Ltd., 1990–1992, 1998–1999, 2003–2010, 2013–2023

Water license: PM19-033 (active 12/2029)

Active producer (2021–2023) **Operation no. 107**

Location

Kirkman Creek, 6.5 km upstream from its confluence with the Yukon River.

Work history and mining cuts

Fellhawk Enterprises Ltd. has been mining at several different locations throughout this reporting period, including North Henderson Creek and Bonanza Creek. A significant amount of reclamation was completed on their claims, including contouring of tailings and cut exposures. The stripped fine material and organic mat was also used to cap the processed gravel to promote re-establishment of the vegetation. In 2022, sluicing and reclamation was completed under PM19-033. In 2023, sluicing occurred on claims P 24898 and P 24897, located on the lower part of their property.

Equipment and water treatment

The following equipment was used on site:

- John Deere 450D excavator
- Hitachi Zaxis 330 excavator
- Hitachi Zaxis 450 excavator
- John Deere 450D excavator
- Hitachi Zaxis 330 excavator
- Hitachi Zaxis 450 excavator

The wash plant consisted of a trailer-mounted screen deck with a 2.4 by 3.0 m (8 × 10 ft) hopper and a 9.1 m (30 ft) tailings stacker. The top end of the sluice run measured 1.2 by 1.8 m (4 × 6 ft) and consisted of expanded metal and angle iron. This fed into two additional sluice runs that measured 1.2 by 3.6 m (4 × 12 ft) each, and were composed of a mix of expanded metal and angle iron. All sluice runs were lined with Nomad matting and included a nugget trap at the bottom. Water was 100% recirculated. The clean-up process started with a jig, followed by a small trommel, then two centrifugal wheels, and concluded on a long tom. A rod mill was used to pulverize the brittle heavies and separate them from the fines.

Surficial geology and stratigraphy

The stratigraphy of Kirkman Creek typically consists of an average of 0.9 m (3 ft) of muck overlying up to 4.9 m (16 ft) of gravel. Sluiced sections include on average approximately 0.6 m (2 ft) of gravel and up to 0.6 to 1.2 m (2–4 ft) of bedrock.

Bedrock geology

Bedrock is moderately oxidized quartz-mica schist and blocky quartzite.

Gold characteristics

The gold is mostly coarse grained, and the largest nugget weighed 28 g (1 oz). Gold particles range from rounded to fresh and crystalline. Fineness is 865.

Ballarat Creek, a tributary of Yukon River

115J/14 2023: 62°56'59"N, 139°00'59"W

Weber, B., 2008–2023

Water license: PM22-004 (active 09/2032)
Water license: PM11-055 (expired 09/2022)

Active producer (2021–2023) **Operation no. 108**

Location

Ballarat Creek, approximately 8 km upstream from its confluence with the Yukon River.

Work history and mining cuts

B. Weber operated solo and was active in the drainage during the 2021, 2022 and 2023 seasons. In 2021, a cut located on claim P 46580 was completed, along with reclamation on that claim and immediately below the cut. In 2022, two cuts were completed. One of the cuts reported processing approximately 1651 m³ (2160 yd³) of material. The second cut, completed immediately upstream, was also sluiced; however, the volume was not reported. Stripping on the right limit, upstream from the 2022 mining location, was also completed. Sluicing resumed on May 24, 2023, and Weber processed approximately 6993 m³ (9150 yd³) of material from claim P 45926.

Equipment and water treatment

The following equipment was used on site:

- John Deere 330LC excavator
- Hitachi EX200LC excavator
- bulldozer
- rock truck

The wash plant consisted of an oscillating screen deck that was able to process material at a rate of 46 to 53 m³ (60–70 yd³)/hr. Water was acquired from an out-of-stream pond and mostly recirculated from settling ponds. Make-up water was received from Ballarat Creek.

Surficial geology and stratigraphy

The general stratigraphy of Ballarat Creek, as described in the Yukon Placer Database (Yukon Geological Survey, 2010), consists of three units: a lowermost unit of auriferous gravel 2 to 3 m (6–10 ft) thick, overlain by a non-auriferous gravel unit of the same thickness, and capped by a unit of black muck 3 m (10 ft) thick.

Bedrock geology

Bedrock is mapped as quartzite, psammite and schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Scroggie Creek, a tributary of Stewart River

115O/02 2023: 63°05'48"N, 138°36'50"W
115O/02 2022: 63°05'57"N, 138°36'41"W

True North Gold Ltd., 2015–2023

Water license: PM16-006 (active 08/2026)

Active producer (2021–2023) **Operation no. 109**

Location

Scroggie Creek, 3.1 km upstream from its confluence with Walhalla Creek.

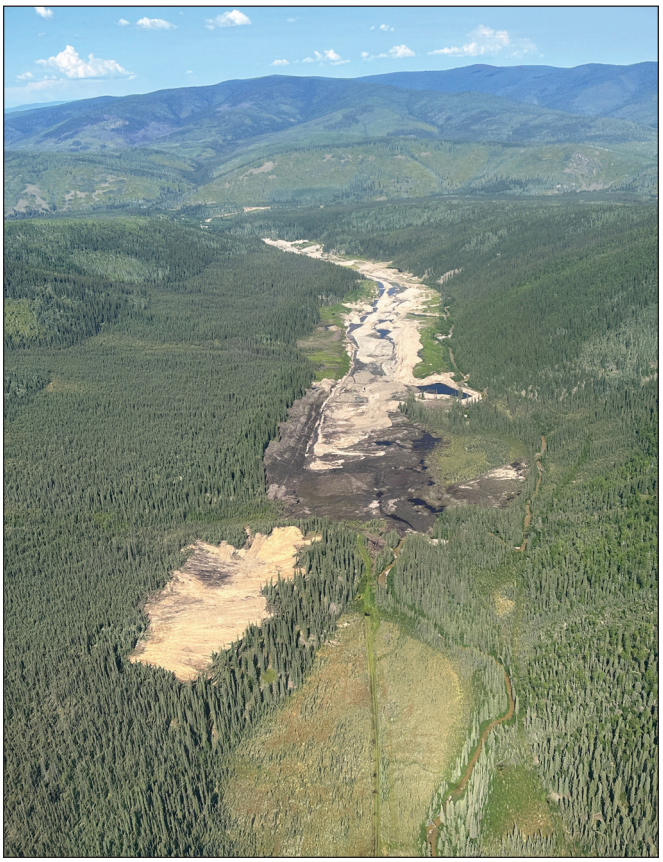
Work history and mining cuts

True North Gold Ltd. has been progressively mining upstream since initiating operations in 2015. They conducted progressive reclamation each season, refilling cuts not used as settling ponds, and contouring as they advanced upstream. In 2021, they sluiced a total of 150 hours and completed a cut measuring 91 by 110 m (300 × 360 ft). In 2022, a five-person crew completed a cut measuring 98 by 268 m (322 × 880 ft). A left-limit, mid-level bench was also stripped and prepared for sluicing for the following season. In 2023, a five-person crew worked three, eight-hour shifts, and completed a cut situated on the mid to left limit of the drainage. The cut measured 165 by 90 m (541 × 295 ft). Significant stripping occurred immediately upstream, preparing up to 575 m (1886 ft) of ground for the following season. A cut on the left-limit bench, measuring 110 by 190 m (361 × 623 ft), was also stripped. Reclamation was completed on claims downstream from the area of mining by pushing back the stripped organics and contouring toward the centre of the valley.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 330D excavator
- Kobelco SK250LC excavator
- Caterpillar 980G wheel loader
- Caterpillar D6 bulldozer
- Caterpillar 9L bulldozer
- Caterpillar D10 bulldozer



Aerial view of the upper end of True North Gold Ltd.'s operation in 2023. The view is looking downstream to the north on Scroggie Creek.

An oscillating double screen deck, receiving material from an automatic feeder, screened material to 1/2" and 1¼". It consisted of a 1.5 by 4.3 m (5 × 14 ft) Allis Chalmers screen deck with an initial 2 m (7 ft)-wide by 0.9 m (3 ft)-long sluice run. This top-end sluice run fed into four subsequent sluice runs, each configured with angle iron and measuring 0.3 m (1 ft) in width by 3.7 m (12 ft) in length. The wash plant was able to process material at a rate of up to 107 m³ (140 yd³)/hr. A jig was used for clean-ups.

Surficial geology and stratigraphy

Scroggie Creek is a flat-bottomed drainage with a shallow gradient. A bench deposit on the left limit of the creek extends from the mouth of Mariposa Creek, to the confluence of Scroggie Creek with the Stewart River. Mining efforts by True North Gold Ltd. predominantly focused on the modern valley bottom, but they also intermittently mined the extensive left-limit bench.

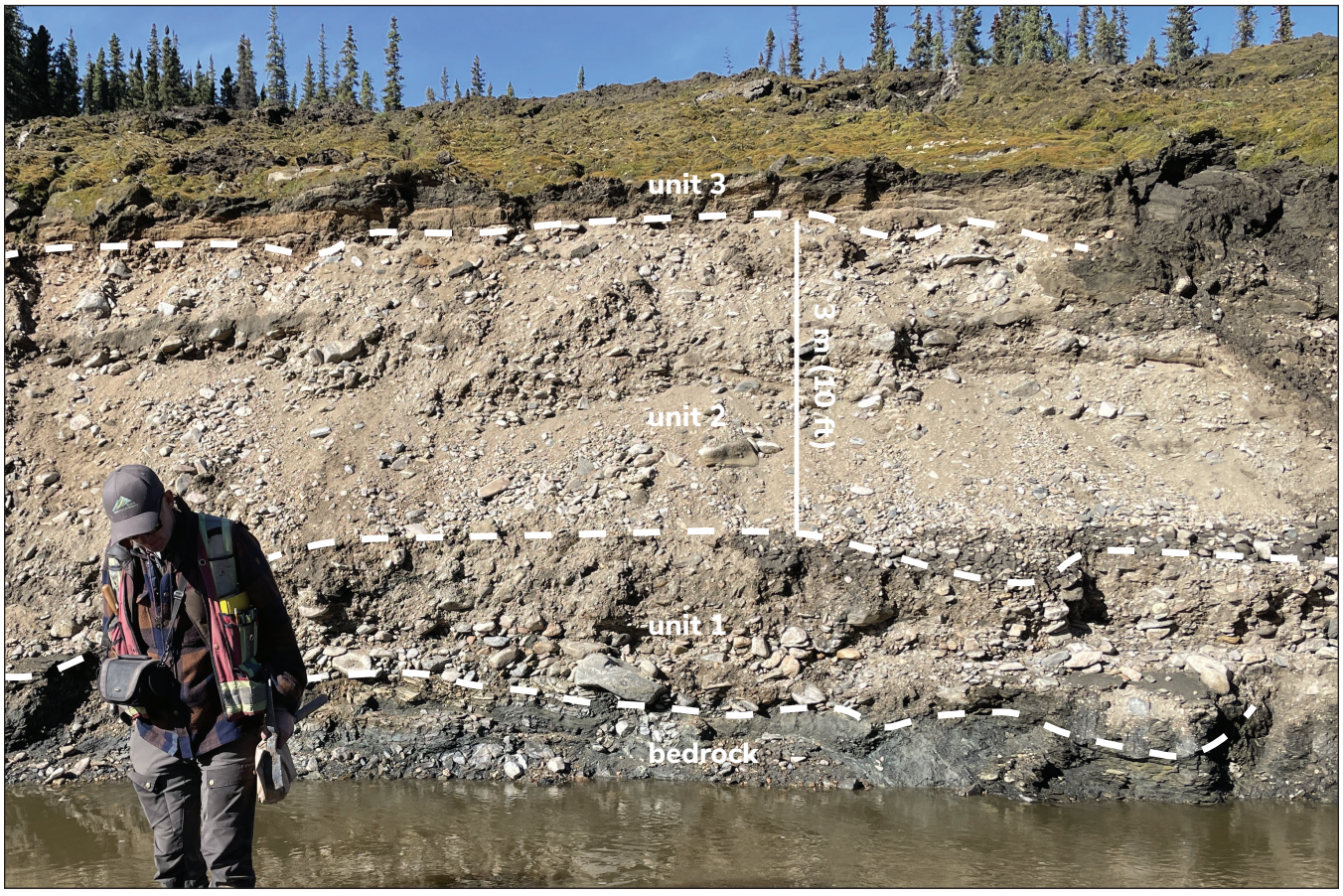
A cut completed in 2023 on the left limit of the valley exposed a section 4.3 m (14 ft) thick. Unit 1, from 0 to 0.6 m (0–2 ft) is a poorly sorted, cobble-pebble gravel, containing 60% clasts (50% cobbles, 50% pebbles, <1% boulders) and 40% matrix composed of silty-sand. It is crudely imbricated and contains woody debris throughout the unit. Unit 2, from 0.6 to 3.6 m (2–12 ft), is an imbricated (paleoflow direction parallel to modern flow), cobble-pebble gravel with 15% matrix composed of fine to medium-grained sand. Discontinuous lenses of organic-rich silt up to 0.2 m (0.7 ft) thick are present throughout the unit. Unit 3, from 3.6 to 4.3 m (12–14 ft), is a fining upward sequence from pebble gravel to sand. Unit 4, although not visible at the time of the visit as it was previously stripped, was documented as a loess deposit that varied in thickness from 1.5 to 3.7 m (5 to 12 ft). The lowermost 0.3 m (1 ft) of gravel was sluiced. The total amount of gravel sluiced varied and increased when undulations of high relief on the bedrock surface were encountered. Gold was noted to be mainly concentrated near the bedrock contact.

Bedrock geology

The bedrock is a coarse-grained pyroxenite. The bedrock surface has undulations with reliefs of up to 0.8 m (2.5 ft).

Gold characteristics

Coarse and fine-grained gold was recovered. All gold grains were described as having a smooth surface texture. The fineness is 900.



Exposure in 2022 on the left limit of Scroggie Creek.

Scroggie Creek, a tributary of Stewart River

115O/02 2023: 63°03'15"N, 138°36'57"W

Bidrman, Z., 1989–2023

Water license: PM14-038 (active 04/2025)

Active producer (2021–2023) **Operation no. 110**

Location

Scroggie Creek, 2.1 km upstream from the mouth of Clarke Creek (a left-limit tributary to Scroggie Creek).

Work history and mining cuts

Over the past three seasons, Z. Bidrman has focused his mining activity on Scroggie Creek, particularly on the lower part of his claim block. Reclamation occurred on three Scroggie Creek claims starting 1.4 km upstream from the mouth of Mariposa Creek in 2021. In 2023, a cut measuring 68 by 98 m (223 × 322 ft) was sluiced.

Equipment and water treatment

The following equipment was used on site:

- Komatsu 400 excavator
- John Deere 330LC excavator
- Komatsu WA500 wheel loader
- Komatsu 375A bulldozer
- Caterpillar bulldozer

The wash plant consisted of a single 1½" screen deck with 1" bars, and a 1.2 by 4.9 m (4 × 16 ft) sluice run with punch plate and hydraulic riffles. A 10" pump supplied water to the plant, which processed material at a rate of up to 191 m³ (250 yd³)/hr.

Surficial geology and stratigraphy

The stratigraphy on the lower part of Z. Bidrman's claims, where he has been active in recent years, remained consistent. The Scroggie Creek valley has a shallow gradient with a flat bottom. Where mining took place in 2023, the creek is approximately 250 m (820 ft) wide. The total thickness of surficial material upstream from the mouth of Clarke Creek is 15 m (49 ft) and consists of two units. Unit 1, from 0 to 1.8 m (0–6 ft), is a coarse cobble gravel containing minor boulders that fines upward into sand and pebbly sand near the upper contact. Unit 2, from 1.8 to 4.6 m (6–15 ft), consists of interbedded organics and fine grained sand. The lowermost 0.3 m (1 ft) of gravel, and up to 0.9 m (3 ft) of bedrock were sluiced.

Bedrock geology

Bedrock is mapped as granodiorite, monzogranite, quartz monzonite and quartz monzodiorite (Yukon Geological Survey, 2022a).

Gold Characteristics

Gold particles are mostly fine grained.



Overview of Z. Bidrman's operation on Scroggie Creek in 2023. The cut, delineated by the black dashed line, is in the centre of the flat-bottomed valley where mining activity was focused throughout the 2023 season.

Scroggie Creek, a tributary of Stewart River

115J/15 2023: 62°59'51"N, 138°36'19"W
115J/15 2022: 62°59'44"N, 138°31'46"W

Aquila Mining and Exploration Ltd., 2017–2023

Water license: PM14-038 (active 04/2025)

Active producer (2021–2023) **Operation no. 111**

Location

Unnamed left-limit tributary of Scroggie Creek, approximately 1 km upstream from its confluence with Scroggie Creek.

Work history and mining cuts

Aquila Mining and Exploration Ltd., along with Z. Bidrman, initiated a lease agreement in 2017. Since then, Aquila Mining and Exploration Ltd. has been active at several locations within the drainage. In 2022, a six-person crew focused on Mariposa Creek, a right-limit tributary to upper Scroggie Creek. The main objective was to reprocess cat-mined tailings produced by mining activities in the 1980s; Resore Industries Corp. was a company that was active on Mariposa Creek from 1984 to 1986 (Yukon Geological Survey, 2010). Although cat-mining techniques were not reported during that period, Aquila Mining and Exploration Ltd. processed the tailings based on previous testing conducted on the claims. They also uncovered in-situ pockets of virgin gravel beneath the tailings.

Several locations were mined in 2023 by a two-person crew who operated a daily 12-hour shift. Several cuts were completed on Scroggie Creek: one downstream from the confluence of Mariposa Creek; a second cut further upstream, past their 2020 mining location and measuring 120 by 300 m (394 × 984 ft); and a third cut measuring 70 by 400 m (230 × 1312 ft) located at the top end of Scroggie Creek, on an unnamed left-limit tributary. Mining activity also occurred on Stevens Creek, a left-limit tributary of Scroggie Creek, where a cut measuring 110 by 300 m (360 × 984 ft) was sluiced, and extended from bank to bank.



Aerial view of Aquila Mining and Exploration Ltd.'s operation on Mariposa Creek in 2022, looking downstream to the west.

Equipment and water treatment

The following equipment was used on site:

- Volvo 460B excavator
- Hitachi 330 excavator
- Zaxis 350 LC excavator
- Komatsu D375A bulldozer
- Caterpillar D9G bulldozer

The sluice plant consisted of a double screen deck with a 15 m3 (20 yd³) feeder, featuring a 1¾" top deck and a 9/16" bottom deck. This plant was able to process material at a rate of up to 153 m³ (200 yd³)/hr. Double runs on either side of the deck each measured 0.9 by 3.7 m (3 × 12 ft). The main run used hydraulic riffles to process concentrate from the top deck, while the



Aerial view of a cut on an unnamed left-limit tributary of Scroggie Creek. The view is looking upstream to the west. Photo was taken in 2023.

other run used Hungarian riffles and expanded metal to process concentrate from the bottom deck. A 10" John Deere 6090 pioneer pump supplied water to the plant. Clean-ups were conducted using a jig.

Surficial geology and stratigraphy

While excavating into the far, right limit of the modern valley of Mariposa Creek in 2022, Aquila Mining and Exploration Ltd. uncovered a buried bench deposit. The bench deposit consists of 3.5 m (11.5 ft) of colluvium overlying an oxidized, cobble-pebble gravel of unknown thickness.

Mining in upper Scroggie Creek consistently revealed a stratigraphy comprising two units. Unit 1, from 0 to 1.2 m (0–4 ft), is a mixing zone of weathered bedrock and matrix-supported, pebble-cobble gravel. Clasts are subrounded, having a size distribution of 60% pebbles and 40% cobbles. The matrix consists of medium to fine sand and minor silt. Unit 2, from 1.2 to 4.9 m (4–16 ft), is a poorly sorted, cobble-pebble gravel exhibiting mottled oxidation. It is matrix-supported, and percentage of matrix ranges from 30 to 40%. The matrix is composed of fine to medium sand and minor silt. Wood debris is common throughout unit 2. Up to 0.6 m (2 ft) of gravel and 0.9 m (3 ft) of bedrock were sluiced.

On the unnamed left-limit tributary of Scroggie Creek, undulations on the bedrock surface have variable reliefs and can be up to 1.2 m (4 ft). Overlying gravel thickness varies, due to the undulations, and can have a total thickness of up to 5.5 m (18 ft). Large boulders are present in the lowermost gravel unit (M. Hallowes, pers. comm., 2024).

Bedrock geology

Bedrock is variably decomposed orthogneiss. Decom position of the bedrock increased as they mined upstream into the headwaters of the drainage.

Gold characteristics

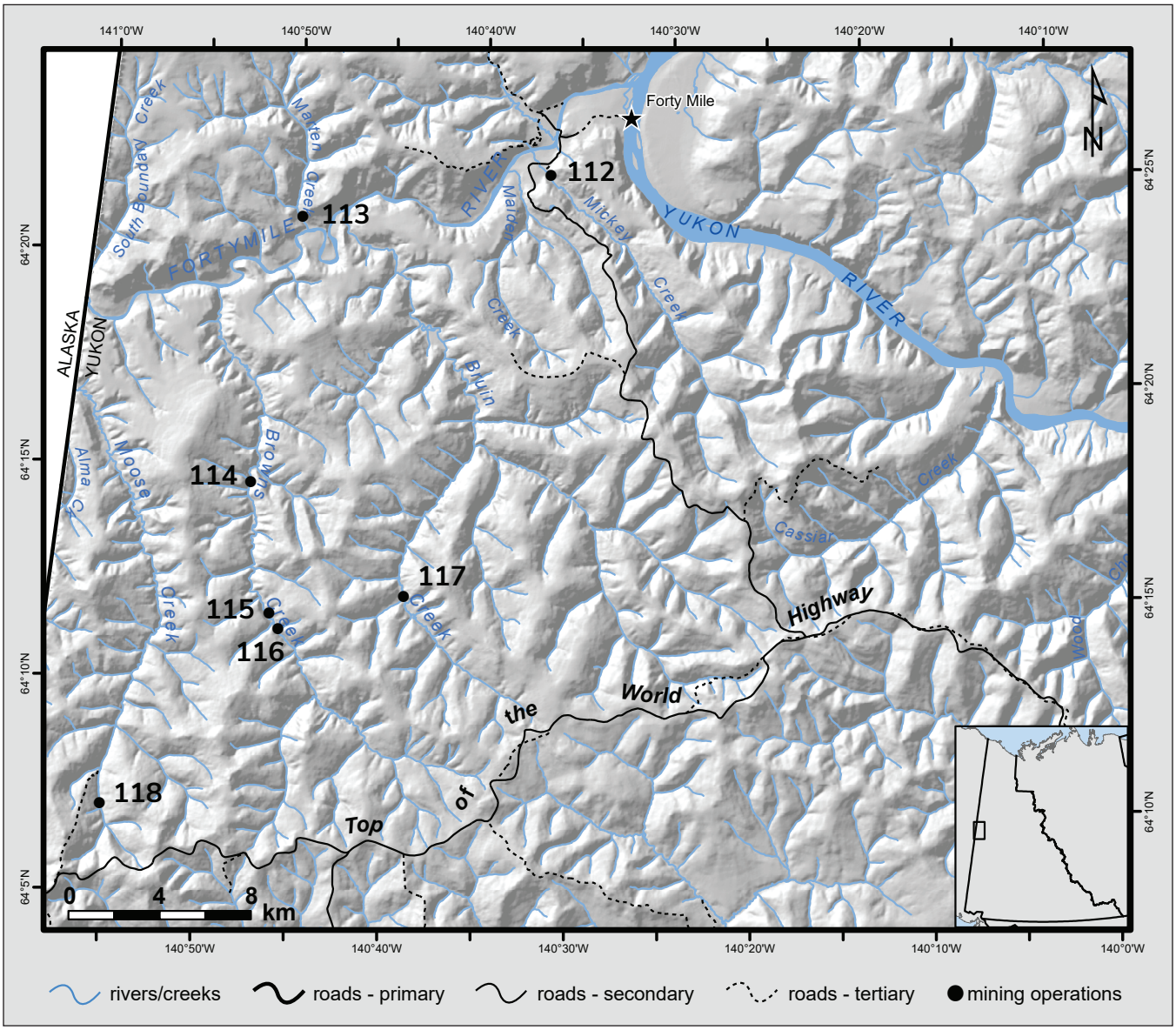
Gold is predominantly fine grained but 25% is coarse. The fineness is 900. The largest piece recovered was 1.8 oz.



J. Bond, formerly of the Yukon Geological Survey, and M. Hallowes of Aquila Mining and Exploration Ltd. investigating a trench on the right limit of Mariposa Creek that exposed a buried bench. The contact between the bench gravel and overburden (colluvium) is marked by a white dashed line.

Fortymile
placer mining area

Sites 112–118



Legend

112. MacDonald, B.
113. Fortymile Placers
114. Husky Wood and Exploration Ltd.
115. Ungar, R.
116. van der Woude, D.
117. Chrysos Mining Ltd.
118. Bondarchuk, V.

Mickey Creek, a tributary of Fortymile River

116C/07 2022: 64°23'11"N, 140°35'50"W

MacDonald, B., 2022
41497 Yukon Inc., 2009, 2012–2017

Water license: PM18-049-1 (active 12/2028)

Active producer (2022) **Operation no. 112**

Location

Mickey Creek, 0.5 km upstream on Mickey Creek, a right-limit tributary of the Fortymile River.

Work history and mining cuts

The claims on lower Mickey Creek were transferred from 41497 Yukon Inc. to M. MacDonald in 2020. No activity occurred on site in 2021. In 2022, a 55 by 65 m (180 × 213 ft) cut was stripped, and 45 by 60 m (148 × 197 ft) of material was excavated approximately 1.4 km upstream from Mickey Creek's confluence with the Fortymile River. A test pit, measuring 1.2 by 1.2 by 2.4 m (4 × 4 × 8 ft), was also completed on his uppermost claim, on the right limit of the drainage. No activity was reported in 2023.

Equipment and water treatment

Samples from 2022 were processed in a Keene highbanker sluice, which used a 1.5" Honda pump to supply it with water.

Surficial geology and stratigraphy

Gold values are present in the White Channel-equivalent (Pliocene to late Pleistocene) gravel that is found in the Mickey Creek drainage and down the Fortymile River.

Bedrock geology

Bedrock is mapped as quartzite, graphitic quartzite and quartz-muscovite-chlorite schist (Yukon Geological Survey, 2022a).

Gold characteristics

Gold particles are fine grained.

Marten Creek, a tributary of Fortymile River

116C/07 2022: 64°21'29"N, 140°48'58"W

Fortymile Placers, 1974–2023

Water license: PM15-045 (active 07/2025)

Active producer (2021–2023) **Operation no. 113**

Location

Marten Creek, approximately 0.7 km upstream from its confluence with the Fortymile River.

Work history and mining cuts

Mining continued from previous years on Marten Creek just below the confluence of the lowermost right-limit tributary, which is unnamed. A floating, trommel-style operation was managed by a two-person crew.

Equipment and water treatment

The following equipment was used on site:

- Hitachi EX200 excavator

Pay was processed using a floating New Zealand-style trommel measuring 1.2 by 3.6 m (4 × 12 ft) with a 10.4 m (34 ft) conveyor stacker; material was sorted to 5/16". On each side of the plant were sluice runs that measured 1.8 m (6 ft) wide by 2.4 m (8 ft) long and consisted of a boil box, hydraulic riffles, and expanded metal lined with unbacked nomad matting. The operation was very fuel efficient, burning 4 gal/hr for both the excavator and the plant. A command bridge located on top of the plant controlled the floating trommel through a series of hand winches connected to tie points on the ground. This enabled the plant captain to position the plant within convenient reach of the excavator, and rotate the tailings stacker to disperse coarse material. The plant captain also controlled the water to the plant, which was turned off when the plant needed repositioning or if no gravel was in the hopper.

Water was supplied to the plant by a 4" electric flight pump powered by a 35 kW generator, enabling the plant to process 38 m³ (50 yd³)/hr. Water was pumped from Marten Creek and was 100% recycled within the active cut. Recirculation of water within a relatively confined area can introduce woody debris into the pump, affecting the hydraulic riffles; a pond skimmer was used to remove the woody debris. Clean-ups were conducted with a long tom and gold wheel.

Surficial geology and stratigraphy

Marten Creek is a narrow, south-flowing tributary of the Fortymile River. The valley sides are relatively steep, and there is no evidence of high benches. Outcrops

of bedrock are exposed along the valley sides where Marten Creek has over-steepened the banks. The active channel of Marten Creek meanders through parts of the floodplain that are buried under thicker accumulations of fine-grained sediment and organics. These accumulations may have originated from slides or zones of active creep off the valley sides. The focus of mining operations has been within the active floodplain in order to avoid those areas covered with thick overburden.

Gravel deposits within the active floodplain range in thickness from 1.8 to 4.5 m (6–15 ft), and are underlain by bedrock composed of slate. The gravel within the tailings includes clasts of schist, weakly foliated granite, slate and vuggy, oxidized vein quartz. Some quartz clasts are rounded, while others are angular and locally derived. Overall, the percentage of quartz clasts in the tailings is approximately 1–2%. Quartz boulders are commonly found on the bedrock surface. The entire section of gravel is processed in the floating wash plant. At the time these observations were made, mining activities were approaching a fork in the valley, resulting in two very narrow drainages.

Bedrock geology

Bedrock is mapped as quartzite, graphitic quartzite and quartz-muscovite-chlorite schist (Yukon Geological Survey, 2022a).

Gold characteristics

Gold varies from fine-grained at 30 to 40 mesh (0.6–0.4 mm), and up to 3 mesh (6.7 mm) for the larger particles.

Browns Creek, a tributary of Fortymile River

116C/07 2023: 64°15'07"N, 140°49'54"W

Husky Wood and Exploration Ltd., 2016–2023

Water license: PM18-062-1 (active 04/2029)

Active producer (2021–2023) **Operation no. 114**

Location

Browns Creek, lower reach, 9.3 km upstream from its confluence with the Fortymile River.

Work history and mining cuts

Husky Wood and Exploration Ltd. began prospecting the lower reaches of Browns Creek by completing a shafting program in 2016. They began sluicing in 2017 and have been mining the entire width of the modern valley bottom, as well as a low-level bench deposit on the right limit. Since 2021, D. Holloway, Glacier Drilling Ltd., and Husky Wood and Exploration Ltd. have been mining in partnership. In 2022, they completed a cut 300 by 480 m (984 × 1575 ft). In 2023, a crew of up to six people completed two cuts: one on the left limit of the modern valley and another on the mid to right limit, encompassing a low-level bench. Sluicing continued each season until mid-September, and was followed up with stripping until the George Black ferry closed for the season.

Equipment and water treatment

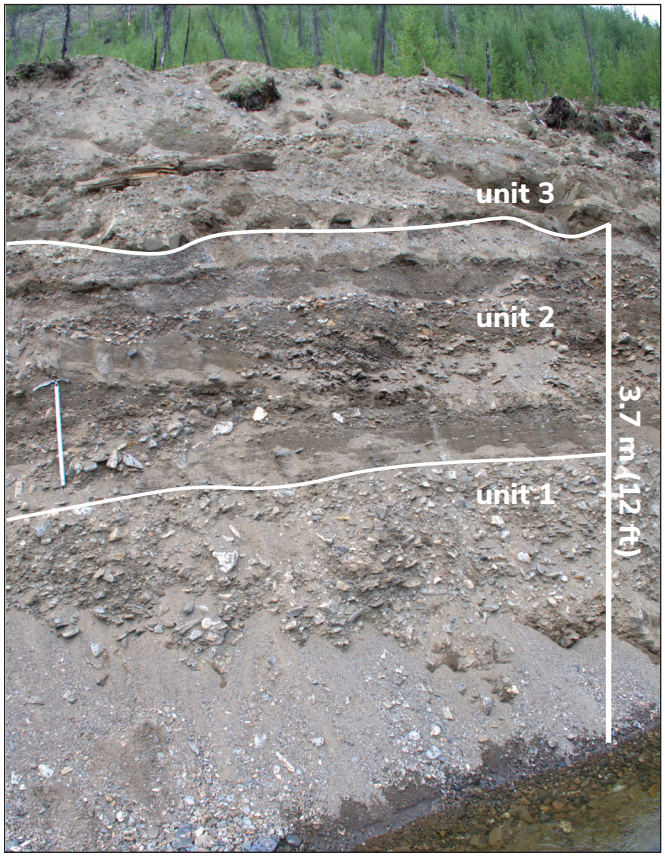
The following equipment was used on site:

- Doosan 225 excavator
- Doosan 350 excavator
- Doosan 420 excavator
- two haul trucks
- Caterpillar 966C wheel loader
- Caterpillar D9R bulldozer
- Doosan 300 wheel loader

The wash plant consisted of a screen deck with an upper 7/16" screen that processed material at a rate of up to



Drone image of Husky Wood and Exploration Ltd.'s operation on Browns Creek in 2023. The two cut locations are outlined with a white dashed line. The view is looking upstream and to the south.



Exposure on the left limit of Browns Creek in 2023. An ice axe for scale measures 0.9 m (3 ft).

115 m³ (150 yd³)/hr. The upper sluice run split into two 4.9 m (16 ft) runs, each lined with expanded metal and astro turf. Water was supplied by an 8" pump, reduced to 6" at the plant, and the effluent was settled in three ponds before returning to Browns Creek. Clean-ups were processed on site using a vortex riffle table and wheel and the final concentrate was tabled in town.

Surficial geology and stratigraphy

In 2023, a cut on the left limit of Browns Creek exposed three units. The downstream end of the cut exposed fan deposits derived from an unnamed left-limit pup that incised into the modern fluvial gravel of Browns Creek. Unit 1, from 0 to 1.8 m (6 ft), is a massive, poorly sorted gravel having subrounded to rounded clasts in a matrix of fine to medium sand. Weak downstream imbrication was observed in this unit. Unit 2, from 1.8 to 3.7 m (6–12 ft), consists of cross-bedded sand, pebble gravel and granules. Cross-bedding perpendicular to Browns Creek flow was evident in the finer-grained parts of unit 2. This suggests material was sourced from the fan of the unnamed tributary. Unit 3 is overburden consisting of black muck and overbank fines, ranging in thickness between 0.6 and 1.5 m (2–5 ft). All gravel units, and up to 0.6 m (2 ft) of bedrock were sluiced.

Bedrock geology

The bedrock surface is undulating, and consists of blocky, pervasively oxidized, hornblende gneiss.

Gold characteristics

One ounce of fine gold yielded up to seven grams of individual gold grains weighing up to one gram each (known as 'pickers'). The fineness is 857.

Browns Creek, a tributary of Fortymile River

116C/02 2022: 64°12'06"N, 140°47'58"W

Ungar, R., 2019–2023
Allan, G. and S. Payne, 2012–2018

Water license: PM19-070-1 (active 07/2030)

Active producer (2021–2023) **Operation no. 115**

Location

Browns Creek, approximately 15 km upstream from its confluence with the Fortymile River.

Work history and mining cuts

In August 2019, the claims were transferred to R. Ungar from G. Allan and S. Payne. Ungar's initial activity on the property consisted of hand sluicing. The first year of mechanized mining was in 2021, and a 20 by 30 m (66 × 98 ft) cut was completed. In 2022, Ungar worked solo and sluiced a 20 by 25 m (66 × 82 ft) area, and in 2023, completed a 20 by 40 m (66 × 131 ft) cut.

In 2022, a lease agreement was established with M. Brunnmyr, who employed a floating trommel to complete a 30 by 90 m (98 × 295 ft) cut on P 508750,



R. Ungar's trommel used to process material at his property.



M. Brunnmyr's floating trommel used to process material on Browns Creek in 2023.

sluicing for approximately 300 hours in total. Activity continued in 2023, though no specific work history is known. Mining progressed upstream, where a crew of three people completed a 100 by 130 m (328 × 427 ft) cut.

Equipment and water treatment

The following equipment was used on site:

- John Deere 690C excavator
- Samsung 210 excavator
- John Deere 455E crawler loader

A trommel was used to process pay at a rate of up to 19 m³ (25 yd³)/hr. Water was 100% recirculated. A highbanker and gold wheel were used for clean-ups.

Surficial geology and stratigraphy

The general stratigraphy of Browns Creek consists of modern alluvial gravel and low-level bench deposits on both limits of the drainage. The average thickness of gravel ranges from 2.4 to 3.0 m (8–10 ft), and is covered with overburden deposits averaging in thickness between 0.9 and 2.4 m (3–8 ft).

Bedrock geology

Bedrock is amphibolite.

Gold characteristics

Gold is mostly fine grained, but contains some nuggets. The fineness is 800 to 820.

Browns Creek, a tributary of Fortymile River

116C/02 2022: 64°11'46"N, 140°47'24"W

van der Woude, D., 2016–2023
Vencan Resources Ltd., 2015

Water license: PM15-030-1 (active 02/2026)

Active producer (2021–2023) **Operation no. 116**

Location

Browns Creek, approximately 16 km upstream from its confluence with the Fortymile River.

Work history and mining cuts

D. van der Woude has been progressively mining upstream from his lowermost placer claim. Activity on the property was initiated in 2016. In 2021, a two-person crew mined a 100 by 500 by 15 m (328 × 1640 × 49 ft) area, sluicing for 120 hours. The same number of hours were sluiced in 2022. In 2023, van der Woude reported sluicing 300 hours.

Equipment and water treatment

The following equipment was used on site:

- John Deere 350 excavator
- Hitachi excavator
- Link-Belt excavator
- Caterpillar D9 bulldozer
- rock truck
- trommel

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as intermediate to mafic volcanic and volcaniclastic rocks (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Bruin Creek, a tributary of Fortymile River

116C/02 2022: 64°12'54"N, 140°40'52"W

Chrysos Mining Ltd., 2019–2023

Water license: PM17-008-2 (active 06/2027)
Water license: PM17-066 (active 01/2028)
Water license: PM17-036 (active 07/2027)

Active producer (2021–2023) **Operation no. 117**

Location

Bruin Creek, approximately 8.4 km downstream from its headwaters.

Work history and mining cuts

Chrysos Mining Ltd. moved into the lower reaches of Bruin Creek in 2019. In 2022, they acquired the claims in the upper reaches of the drainage, and became the sole claim holder on Bruin Creek. Activity in 2021 was focused on lower Bruin Creek. In 2022, mining shifted to the upper claims, where the four-person crew targeted



Chrysos Mining Ltd.'s 2022 cut on the right limit of Bruin Creek. The camp is on the left limit, and the view is looking downstream or to the north.



Chrysos Mining Ltd.'s 2022 right-limit, low-level bench cut.

a low-level, discontinuous bench deposit on the right limit. Mining continued in 2023, but no specific work history is known.

Equipment and water treatment

The following equipment was used on site:

- Komatsu 400 excavator
- Komatsu excavator
- Hitachi excavator
- bulldozer

A screen deck was used to process pay. A gold wheel, a 0.9 by 1.2 m (3 × 4 ft) straight-run long tom, and an oscillator were used to process the concentrate.

Surficial geology and stratigraphy

In 2022, a cut in the right-limit bench deposit exposed two units. Unit 1, Bruin Creek gravel, is up to 1.5 m (5 ft) thick, and is a coarse cobble gravel containing well-rounded clasts. The upper part of the gravel is looser, has a higher percentage of matrix, and fines upward. Unit 2 (overburden) consists of black muck, and varies in thickness between 1.5 and 4.5 m (5–15 ft). Overburden is thickest on the valley sides due to the colluvial blanket overlying the bench deposit. The lowermost 1.2 m (4 ft) of gravel and up to 0.45 m (1.5 ft) of bedrock were sluiced.

Bedrock geology

Bedrock is mapped as silvery grey, muscovite-chlorite-quartz phyllite and micaceous quartzite (Yukon Geological Survey, 2022a).

Gold characteristics

Gold is fine grained, and fineness ranges from 800 to 820.

Moose Creek, a tributary of Fortymile River

116C/02 2023: 64°07'10"N, 140°55'45"W

Bondarchuk, V., 2020–2023

Water license: PM19-063 (active 04/2030)

Active producer (2021–2023) **Operation no. 118**

Location

Moose Creek, 4.1 km downstream from the Top of the World Highway.

Work history and mining cuts

V. Bondarchuk staked upper Moose Creek in 2017, initially engaging in hand mining. Sluicing commenced in 2021, and the operation progressively expanded



In 2023, 2074098 Alberta Ltd. and V. Bondarchuk worked on a cut along Moose Creek; the view is looking downstream or to the north. The narrow width of the valley is evident, highlighting the importance of strategic mine planning in such confined settings.

over subsequent seasons. By 2022, and working solo, Bondarchuk had mined rim to rim in a cut approximately 27 m (88 ft) wide. In 2023, 2074098 Alberta Ltd. leased claims from Bondarchuk on the upper reaches of Moose Creek. A four-person crew mobilized to the site in July. They started by designing a mine plan tailored to efficiently operate within the narrow creek, which measured 37 m (120 ft) in width.

Equipment and water treatment

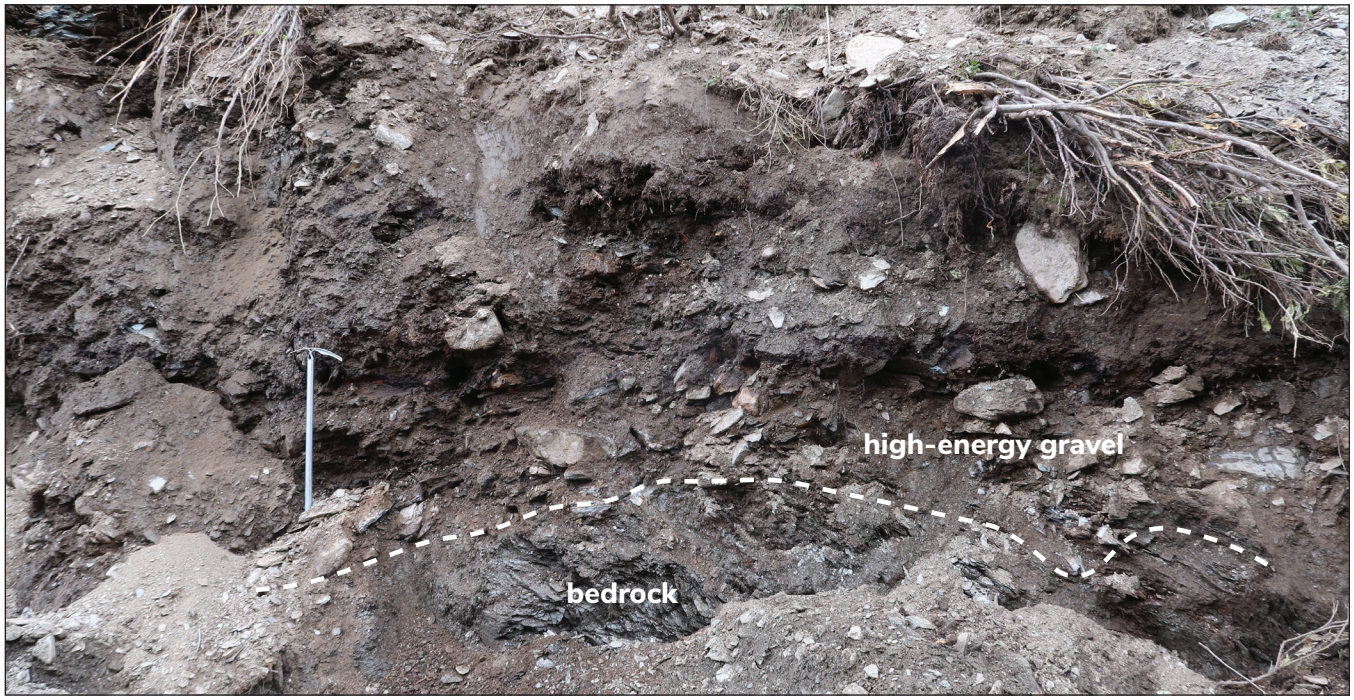
The following equipment was used on site:

- Koehring 6625 excavator (used in 2022 and 2023)
- John Deere 992D-LC excavator
- Komatsu 355 bulldozer

In 2022, a screen deck was used to process pay at a rate of 15 to 19 m³ (20–25 yd³)/hr. In 2023, a larger screen deck was used to process pay up to 61 m³ (80 yd³)/hr.

Surficial geology and stratigraphy

The bedrock surface in the narrow drainage of Moose Creek undulates significantly, which directly influences the pay thickness in the creek bed. The pay unit ranges in thickness from 0.6 to 4.6 m (2–15 ft), and has an average thickness of 1.2 m (4 ft). At the bedrock-gravel contact, a distinct mixing zone is present. The gravel within the creek is coarse, poorly sorted, and indicative of a high-energy deposit. It contains an abundance of large boulders, as well as colluvial bedrock fragments



High-energy gravel deposit typical in Moose Creek that was exposed in 2023 on the left limit. An ice axe for scale measures 0.9 m (3 ft).

that have been remobilized into the creek. These deposits are typical within Moose Creek's narrow steep valley. The overburden is primarily composed of organic material, up to 0.9 m (3 ft) thick, which increases on the valley sides. In this confined creek, the narrowness of the valley enhances the concentration and deposition of these materials. Up to 1.2 m (4 ft) of bedrock and an average of 1.2 m (4 ft) of gravel were processed. The confined nature of Moose Creek, especially at its headwaters, has resulted in challenging mining conditions.

Bedrock geology

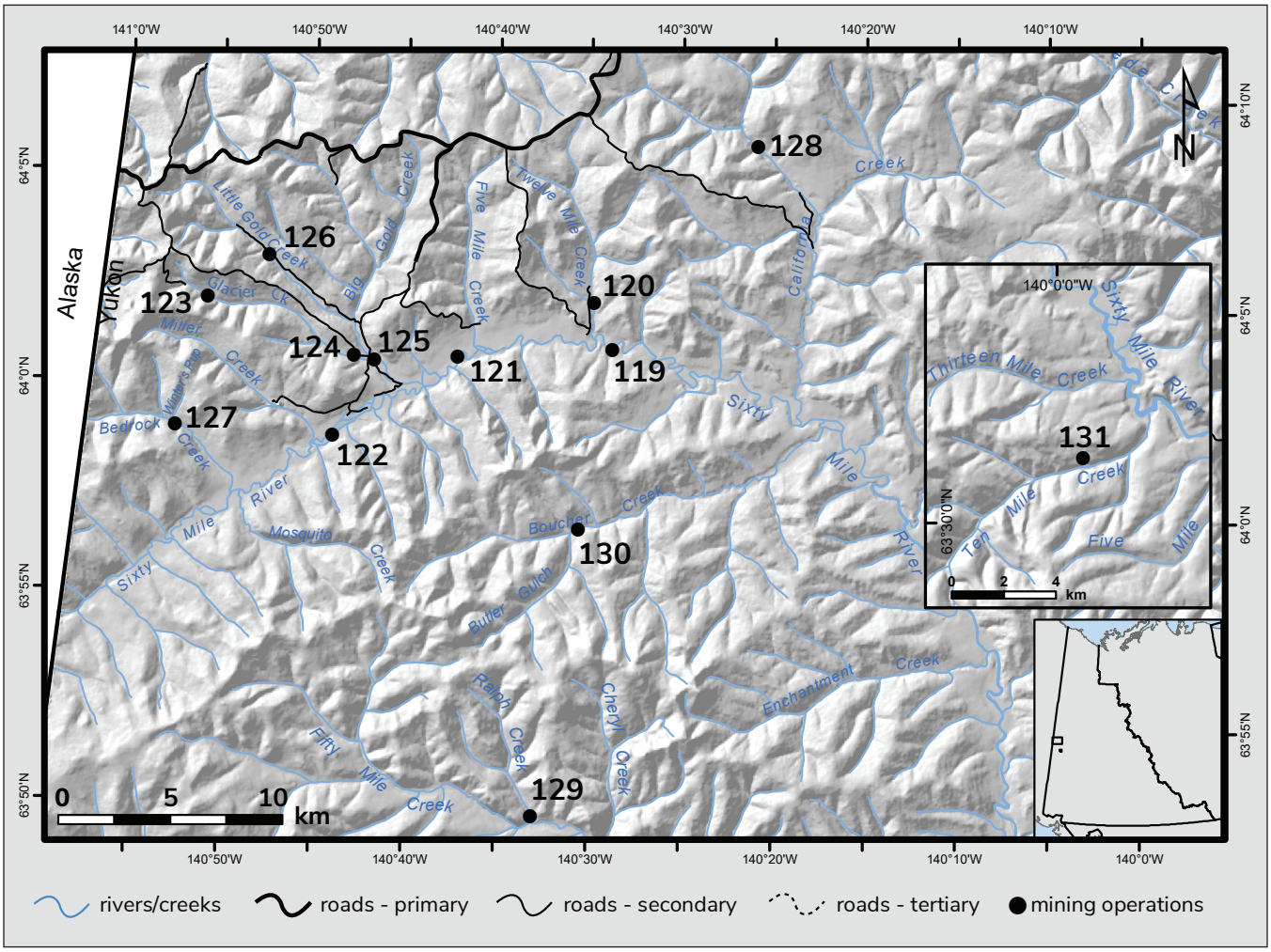
Bedrock is mapped as quartzite, quartz-muscovite-chlorite schist, gneiss and amphibolite (Yukon Geological Survey, 2022a).

Gold characteristics

The gold ranges from wire to ‘popcorn' gold, and the fineness is 890. The largest nugget was one ounce in size.

Sixty Mile
placer mining area

Sites 119–131



Legend

119. M2 Gold Mines Ltd.
120. 836470 Yukon Inc.
121. Hawk Mining Ltd.
122. Miller Creek Mining Company Ltd.
123. Cope, M.
124. Ground Resources Ltd.
125. Favron Enterprises Ltd
126. Trautwein, A.
127. K-1 Mining & Services
128. Hardclay Resource Services Ltd.
129. Nordling, R. and A. Rudis
130. de Windt, S. and B. Schmid
131. No Name Resources Inc.

Sixty Mile River, a tributary of Yukon River

116C/02 2022: 64°02'23"N, 140°31'53"W

M2 Gold Mines Ltd., 2016–2023

Water license: PM17-053 (active 07/2027)

Active producer (2021–2023) **Operation no. 119**

Location

Sixty Mile River, near the mouth of Twelve Mile Creek.

Work history and mining cuts

M2 Gold Mines Ltd. mined 507 400 m³ (663 667 yd³) of material from the valley bottom of the Sixty Mile River in 2021. In 2022, three distinct placer settings on the Sixty Mile River were mined: the floodplain, as well as mid-level and high-level benches on both limits of the river. The uppermost bench is situated on the right limit, 24 m (80 ft) above the floodplain. The 2022 season was the first time a right-limit bench of the Sixty Mile River was mined to a significant extent. Assessment of the gold potential in the bench deposits occurred over multiple seasons, leading to sluicing on both the mid and high-level benches. Preservation of the mid-level bench was discontinuous, whereas the high-level bench exposed a wider pay streak than initially estimated. An 18-person crew operated three plants and completed a total of 2000 sluicing hours. A large reclamation program was completed over previously mined areas, starting at the mouth of Twelve Mile Creek and continuing an additional 1.8 km upstream. In 2023, mining operations targeted three locations: the modern floodplain, a mid-level bench, and a high-level bench 1 km downstream from the mouth of Twelve Mile Creek. A total of 515 000 m³ (673 000 yd³) of material was mined.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 240 excavator
- Hitachi 330 excavator
- Hitachi 450 excavator
- two Caterpillar 323F excavators
- Caterpillar 349 excavator
- two Caterpillar 329 excavators
- two Caterpillar 336F excavators
- two Caterpillar 336 excavators
- John Deere 270 excavator
- two Caterpillar D10T bulldozers
- two Caterpillar D9N bulldozers
- John Deere D300 articulated haul truck

Three wash plants were used: two custom-fabricated, 115 m³ (150 yd³)/hr trommels and a 53 m³ (70 yd³)/hr New Zealand-style trommel. The 115 m³ (150 yd³)/hr trommels have 1/2" screens. Each sluice run included 1.8 m (6 ft) of Hungarian riffles, followed by a boil box, 0.9 m (3 ft) of hydraulic riffles, and 1.8 m (6 ft) of expanded metal. The New Zealand-style trommel, measured 2.1 by 4.9 m (7 × 16 ft) with a 1/2" screen, and used a 9 m (30 ft) conveyor stacker. Sluice runs on both sides of the trommel featured angle iron riffles, a boil box and hydraulic riffles.

Surficial geology and stratigraphy

The right limit of the Sixty Mile River has two distinct bench deposits preserved. An exposure that included the two levels was documented in 2022, 1.6 km downstream from the confluence of Twelve Mile Creek. The upper and lower benches are 24 m (80 ft) and 15 m (50 ft) above the modern valley bottom, respectively. The stratigraphy of the upper bench consists of 2.1 to 2.4 m (7–8 ft) of gravel overlain by 0.9 to 1.2 m (3–4 ft) of black muck. The gravel is fine grained and composed of 70% pebbles and 30% cobbles. It is matrix-supported and contains up to 30% fine to medium sand. The gravel is partially oxidized. The lower bench had already been reclaimed at the time of the site visit and no stratigraphy was described. The lowermost 0.9 m (3 ft) of gravel, along with up to 0.3 m (1 ft) of the bedrock surface, was sluiced from the benches.

A left-limit bench on the Sixty Mile River consists of 1.7 m (5.7 ft) of gravel overlain by 3.9 m (12.7 ft) of silt and organics. The thickness of both the gravel and silt units decrease toward the bench rim. The bedrock surface dips toward the slope on the left limit, potentially stranding the paleo-Sixty Mile River channel on the left limit. Texturally, the bench gravel deposits on both limits are similar, characterized by fine, pebble-sized clasts. The gravel is moderately sorted and cross-bedded. The gravel exhibits moderate clast imbrication that has a paleoflow direction parallel to the modern flow direction.

Bedrock geology

Bedrock is variably decomposed orthogneiss.

Gold characteristics

Gold grains are coarser on the modern floodplain and on low-level benches compared to the high-level benches. Fineness is 835 to 840.

Twelve Mile Creek, a tributary of Sixty Mile River

116C/02 2021: 64°03'27"N, 140°33'11"W

836470 Yukon Inc., 2021–2022
F.W. Grant and Yukon Exploration Green Gold Inc., 2016–2020

Water license: PM15-078-1 (active 03/2026)

Active producer (2021–2022) **Operation no. 120**

Location

Twelve Mile Creek, 1.3 km upstream from its confluence with the Sixty Mile River.

Work history and mining cuts

In 2021, 836470 Yukon Inc. mined Yukon Exploration Green Gold Ltd.'s claims on Twelve Mile Creek, a left-limit tributary of the Sixty Mile River. 836470 Yukon Inc. had a two-person crew that operated a floating dredge, and completed a 30 by 200 m (98 × 656 ft) cut across placer claims P 516733 and P 516628. They processed a total of 14 000 m^3 (494 400 ft^3). Reclamation took place in 2022, and no activity occurred on site in 2023.

Equipment and water treatment

The following equipment was used on site:

- Komatsu PC360 excavator

A floating dredge was used to process pay, which consisted of a trommel mounted on pontoons.

Surficial geology and stratigraphy

A cut on a right-limit bench exposed 8 to 10 m (26–33 ft) of poorly to moderately sorted pebble-cobble gravel containing occasional boulders. The bench gravel is well-drained and unfrozen, whereas the valley bottom deposits are blanketed with silt and remain frozen.

Bedrock geology

Bedrock is mapped as orthogneiss (Yukon Geological Survey, 2022a).

Gold characteristics

Gold fineness is 810 to 840.

Sixty Mile River, a tributary of Yukon River

116C/02 2022: 64°01'46"N, 140°40'15"W

Hawk Mining Ltd., 1989–2023

Water license: PM14-040 (active 02/2025)

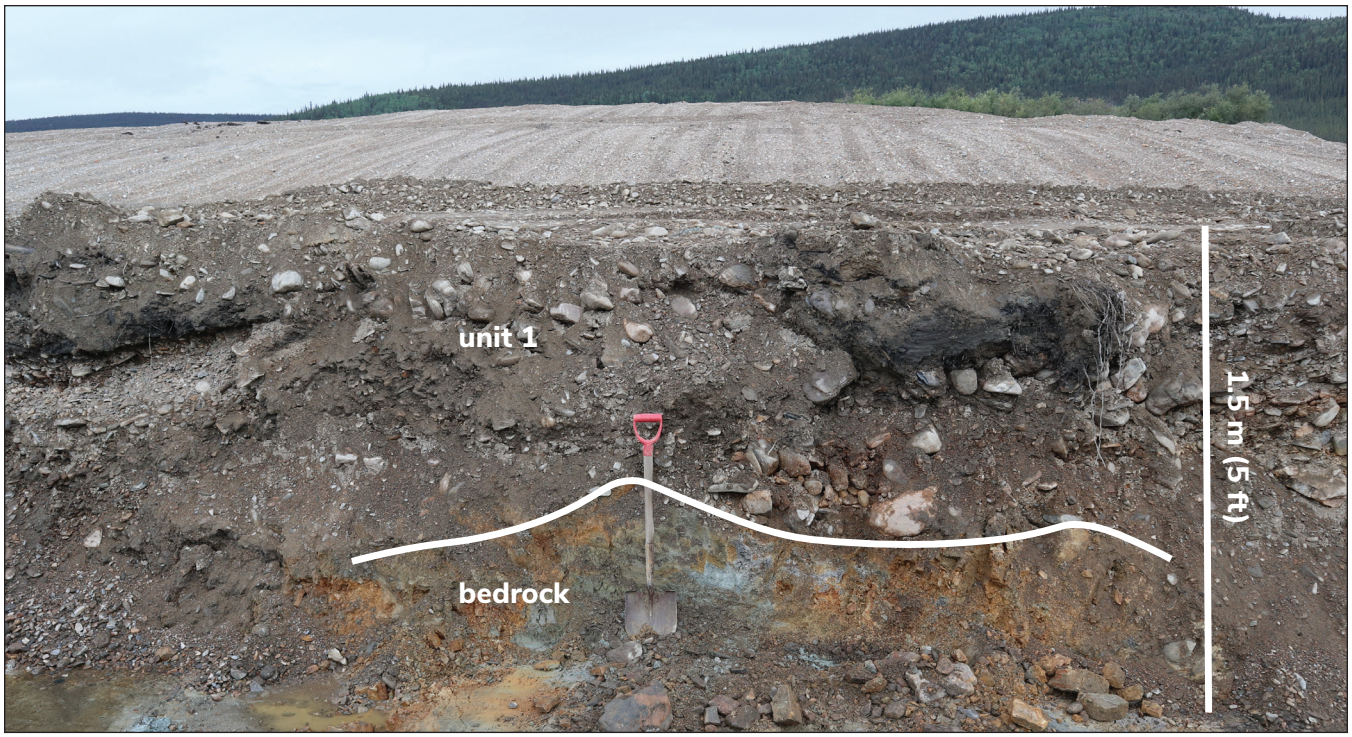
Active producer (2021–2023) **Operation no. 121**

Location

Sixty Mile River, 0.9 km upstream from the mouth of Five Mile Creek.



Aerial view of a mid-valley, left-limit cut on the Sixty Mile River mined by Hawk Mining Ltd. in 2022 and 2023. The view is looking upstream or to the east.



An exposure from an active cut in 2022 in the Sixty Mile River valley.

Work history and mining cuts

Hawk Mining Ltd. focused its mining efforts on the left limit of the Sixty Mile River valley from 2021 to 2023. In 2021, they mined a total of 47 678 m³ (62 365 yd³) of material and reclaimed the cuts from 2020. In 2022, a six-person crew targeted a mid to left-limit cut measuring approximately 73 by 457 m (240 × 1500 ft), and mined a total of 42 000 m³ (54 933 yd³) of material. In 2023, they extended the cut by continuing upstream. They operated with an eight-person crew, worked 12-hour shifts, and mined a total of 40 000 m³ (52 280 yd³) of material.

Equipment and water treatment

The following equipment was used on site:

- two Volvo EC 480D excavators
- Hitachi 450 excavator
- three Caterpillar 9L bulldozers
- two Caterpillar 980 wheel loaders
- Volvo 250 wheel loader
- Volvo A35 haul truck
- Caterpillar 735 haul truck
- Caterpillar 14G grader

The plant consisted of a grizzly hopper, followed by an 18 m (60 ft) EL-Russ conveyor that fed into a double screen deck with a 1" upper screen and a 1/2" lower screen. The sluice runs were 8.2 m (27 ft) long and consisted of 6.1 m (20 ft) of boil boxes, followed by hydraulic riffles, Hungarian riffles and expanded metal. A 10" pump powered by a 3306 Cat engine supplied water to the plant, allowing it to process material at a rate of up to 138 m³ (180 yd³)/hr. Effluent was settled in a series of three ponds.

Surficial geology and stratigraphy

An exposure on the left limit of the Sixty Mile River valley consisted of three distinct units. Unit 1, from 0 to 1.5 m (0–5 ft), is a weakly oxidized, moderately sorted, cobble-pebble gravel, composed of 60% cobbles, 40% pebbles and less than 1% small boulders. The clast-supported gravel contains 15% matrix of fine to medium sand. This unit is situated on bedrock, and a boulder lag is present at the bedrock contact. Unit 2, from 1.5 to 2.5 m (5.0–8.3 ft), is a loose, pebble-cobble gravel, and is finer-grained than unit 1. The matrix percentage increases to 20%, indicative of deposition in a lower-energy environment. All clasts are composed of flat, platy schistose fragments. Unit 3, from 2.5 to 4.5 m (8.3–14.7 ft), consists of overburden made up of bedded silt, sand and organics. Up to 1.5 m (5 ft) of unit 1 was sluiced for pay.

Bedrock geology

Bedrock varies from highly weathered metasedimentary rocks (‘gumbo') to more competent quartzite. The bedrock surface is highly undulatory with reliefs of up to 0.7 m (2.3 ft).

Gold characteristics

Gold is predominantly fine grained, and the fineness is 860.

Sixty Mile River, a tributary of Yukon River

115N/15 2021: 63°59'31"N, 140°46'31"W

Miller Creek Mining Company Ltd., 1991–2023

Water license: PM23-022 (active 06/2034)
Water license: PM14-004 (active 06/2024)

Active producer (2021–2023) **Operation no. 122**

Location

Sixty Mile River, at the mouth of Miller Creek.

Work history and mining cuts

Miller Creek Mining Company Ltd. spent the 2021 season sluicing on the Sixty Mile River, at the mouth of Miller Creek. In 2022, no sluicing occurred; however, the company spent the season stripping, which included a left-limit cut 1.3 km downstream from the mouth of Miller Creek. No specific work history was known for 2023.

Equipment and water treatment

The following equipment was used on site:

- two Hitachi Zaxis 330 excavators
- Hitachi 200 excavator
- Hitachi EX700H excavator
- two Komatsu HM 300 haul trucks

The wash plant consisted of a 2.4 by 2.4 m (8 × 8 ft) hopper that fed a 2.0 by 12 m (6.5 × 40 ft) trommel containing a length of 1.8 m (6 ft) of 3/4" screen. Coarse tailings were stacked using a 15 m (50 ft)-conveyor. Water was supplied to the plant by a 10" pump, which allowed the plant to process material at a rate of up to 88 m^3 (115 yd^3)/hr. The sluice consisted of 3.6 m (12 ft) of expanded metal and 2 m (7 ft) of hydraulic riffles. A jig was used for clean-ups.

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as basalt, breccia, andesite, porphyry, dacite and trachyte (Yukon Geological Survey, 2022a).



Miller Creek Mining Company Ltd.'s cut on the left limit of the Sixty Mile River in 2023. Stripping of this cut occurred in 2022.

Gold characteristics

Gold particles are coarser than those recovered in Miller Creek, and flakes approximately 5 mm (0.2 in) in size are common.

Glacier Creek, a tributary of Big Gold Creek

116C/02 2023: 64°02'26"N, 140°54'18"W

Cope, M., 2017–2023
Hagen, G., 1983–1984, 1998–2001, 2007–2012

Water license: PM15-072 (active 07/2026)

Active producer (2021–2023) **Operation no. 123**

Location

Glacier Creek, approximately 9 km upstream from its confluence with Big Gold Creek.

Work history and mining cuts

M. Cope and family were active on Glacier Creek from 2021 to 2023, but no specific work history is known.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 330B excavator
- shaker deck plant
- Hein Werner C-128 excavator

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as quartzite, graphitic-quartzite and quartz-muscovite-chlorite schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Glacier Creek, a tributary of Big Gold Creek

116C/02 2022: 64°01'27"N, 140°45'55"W

Ground Resources Ltd., 2018–2023

Water license: PM18-036-1 (active 08/2028)

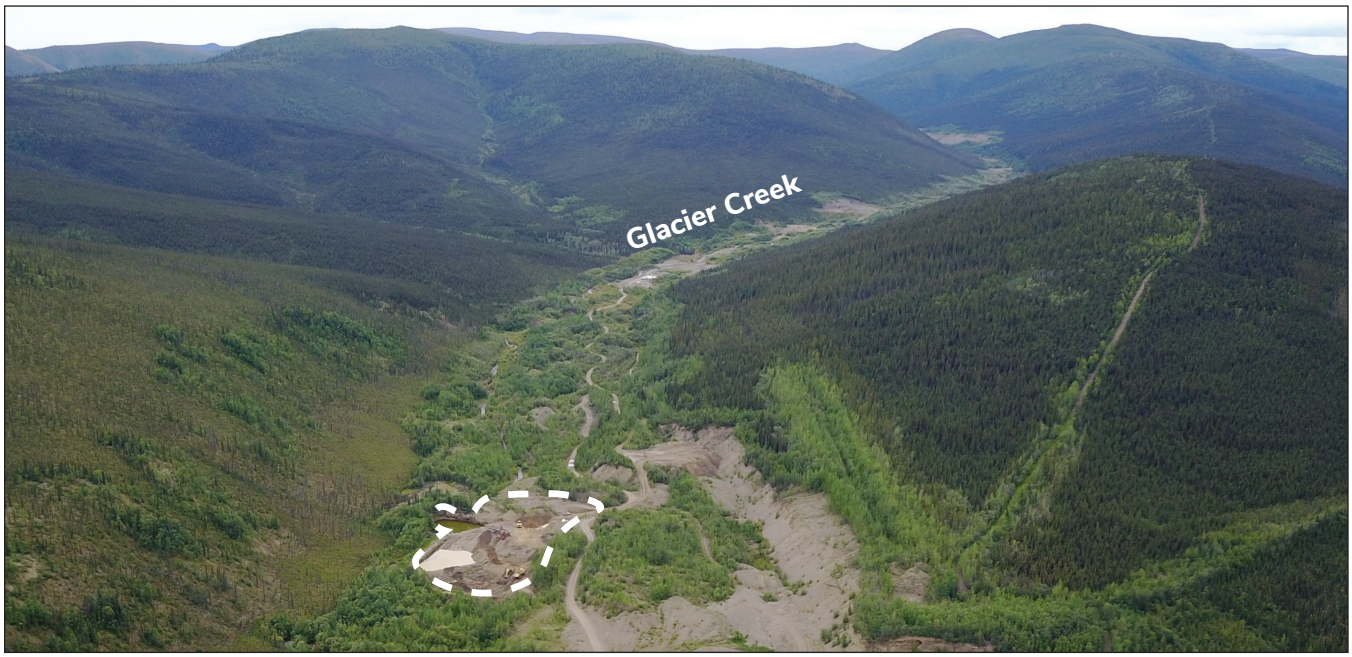
Active producer (2021–2023) **Operation no. 124**

Location

Glacier Creek, approximately 2.7 km upstream from its confluence with Big Gold Creek.

Work history and mining cuts

M. Burkhardt of Ground Resources Ltd. purchased the claims in 2017, and mining operations began in 2018. Ground Resources Ltd. has been active on the property ever since, and in 2021, they sluiced 6 600 m³



Drone image of Glacier Creek in 2022, looking upstream or to the northwest toward the headwaters of the drainage. Ground Resources Ltd.'s operation is delineated by the white dashed line.



An exposure within the 2022 cut on the left limit of Glacier Creek.

(233 100 ft³) of material. In 2022, a three-person crew completed a 60 by 20 m (66 x 22 yd) cut on the lower left limit of Glacier Creek. An extension of the 2022 cut was completed in 2023.

Equipment and water treatment

The following equipment was used on site:

- New Holland 385B excavator
- Volvo A40 rock truck
- Cat 980G wheel loader

A screen deck was used to process pay at an average rate of 20 m³ (26 yd³)/hr, but it was capable of processing up to 40 m³ (52 yd³)/hr.

Surficial geology and stratigraphy

An exposure in 2022 on Glacier Creek revealed two distinct units. Unit 1, from 0 to 4.3 m (0–14.1 ft), consists of matrix-supported, pebble-cobble gravel, composed of 60% small cobbles and 40% pebbles, within a silty to sandy matrix. Part way up the unit [at approximately 2 m (6.6 ft)], the percentage of matrix decreases significantly and the gravel has a more openwork framework. Clasts are moderately imbricated and indicate a paleoflow direction parallel to modern flow direction. Unit 2, from 4.3 to 6.3 m (14.1–20.7 ft), consists of fine sand and silt deposited by overbank flooding events. Technogenic deposits from historic stripping of overburden are preserved in the uppermost part of the section. The lowermost 2.5 m (8.2 ft) of gravel and up to 0.9 m (3 ft) of the bedrock surface was processed as pay.

Bedrock geology

Bedrock is andesite and the surface has undulations up to 1 m (3.3 ft) in relief.

Gold characteristics

The fineness is 820.

Glacier Creek, a tributary of Big Gold Creek

116C/02 2022: 64°01'26"N, 140°44'45"W

Favron Enterprises Ltd., 2022–2023

Water license: PM22-038 (active 05/2033)
Water license: PM19-045 (active 10/2029)
Water license: PM12-050-1 (expired 09/2022)

Active producer (2022–2023) **Operation no. 125**

Location

Glacier Creek, approximately 1.7 km upstream from its confluence with Big Gold Creek.



Drone image from 2022, outlining the approximate location of Favron Enterprises Ltd.'s cut. At the time the photo was taken, the cut was just being developed; it is delineated with a white dashed line. View is to the south.

Work history and mining cuts

Favron Enterprises Ltd. has been transitioning operations to focus on their claims in the Glacier Creek, Bedrock Creek, Big Gold Creek and Sixty Mile River drainages. In 2022, they carried out stripping on the left limit of lower Glacier Creek, in preparation for a future cut. Stripping also occurred on their claims on Big Gold and Bedrock creeks. In 2023, additional ground preparation occurred, and equipment was mobilized to the site. A YMEP grant supported a drill program under PM20-044 on Bedrock Creek and a left-limit bench on the Sixty Mile River. Claims are jointly held by Favron Enterprises Ltd., Paushe Industries Inc. and Northern Envy Industries Ltd.

Equipment and water treatment

Not reported for 2023. The following equipment was used on site in 2022:

- Caterpillar 375 excavator
- Caterpillar 450 excavator

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as basalt, breccia, andesite, porphyry, dacite and trachyte (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Little Gold Creek, a tributary of Big Gold Creek

116C/02 2022: 64°03'37"N, 140°51'14"W

Trautwein, A., 2010–2023

Water license: PM22-030 (active 05/2025)
Water license: PM15-028-3 (active 05/2025)
Water license: PM13-021 (expired 08/2023)

Active producer (2021–2023) **Operation no. 126**

Location

Little Gold Creek, 5.4 km downstream from its headwaters.



Trommel at A. Trautwein's operation on Little Gold Creek in 2022.

Work history and mining cuts

A. Trautwein was active on his claims on Little Gold Creek from 2021 to 2023, primarily as a solo operation. All activity occurred on the left limit of the drainage, approximately 5 km upstream from its confluence with Big Gold Creek.

Equipment and water treatment

The following equipment was used on site:

- Hitachi EX350H excavator
- Caterpillar 225 excavator

Material was processed by a 1.2 by 7.6 m (4 × 25 ft) trommel with a 3/4" screen. The sluice box consisted of a single 0.6 by 3.6 m (2 × 12 ft) run containing a boil box, angle iron riffles and expanded metal. Effluent was settled out-of-stream.

Surficial geology and stratigraphy

The total section thickness in Little Gold Creek is 3 m (10 ft). The pay gravel is situated on bedrock and is poorly sorted, oxidized, and consists of 60% cobbles and 40% pebbles. The gravel is matrix supported, and contains 25% matrix consisting of silt and minor sand.

Bedrock geology

Bedrock is quartzite.

Gold characteristics

Gold is coarse grained.

Bedrock Creek, a tributary of Sixty Mile

115N/01 2023: 63°59'17"N, 140°55'10"W
115N/01 2021: 63°59'13"N, 140°54'38"W

K-1 Mining & Services, 2019–2023

Water license: PM21-051 (active 06/2029)
Water license: PM12-015-1 (expired 06/2022)

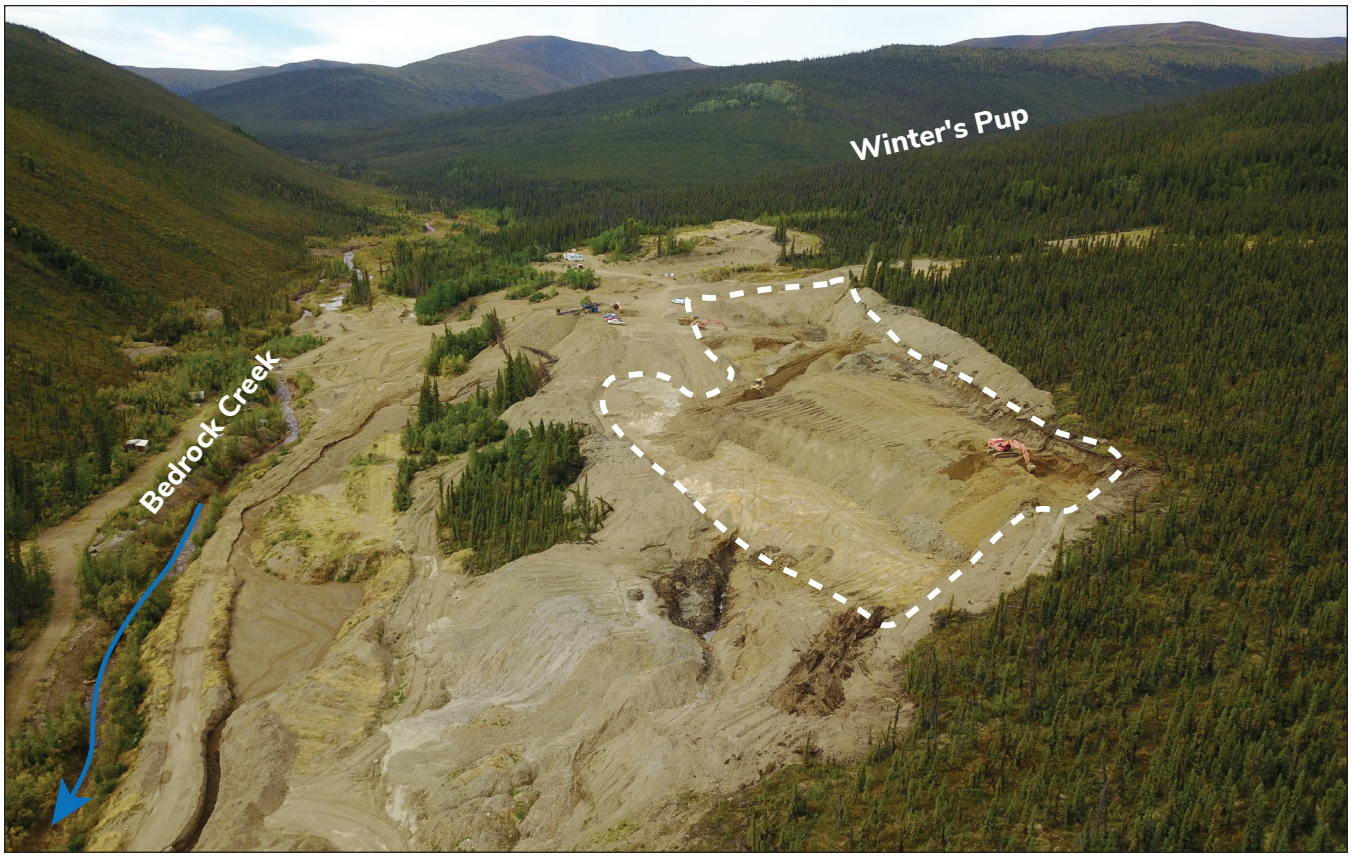
Active producer (2021–2023) **Operation no. 127**

Location

Bedrock Creek, immediately downstream from the mouth of Winter's Pup.

Work History and Mining cuts

During the 2021 season, K-1 Mining & Services operated on the left limit of the Sixty Mile River and initiated a new cut on the left limit of Bedrock Creek. The target was a unit of side pay gravel on the valley bottom, as well as a terrace gravel at the mouth of Winter's Pup. Winter's Pup is an area with a long history of mining activity, including work by early prospectors, major operations in the 1950s, and a resurgence of activity in the late 1970s through to the 1980s. K-1 Mining & Services conducted extensive research on the property by using old aerial photographs, government records, and knowledge passed down from previous generations. With over 80 drill holes in Bedrock Creek at and downstream from the Winter's Pup confluence, K-1 has delineated a significant placer deposit. While the geology of the area is complex, the site has proven to be economically viable if thorough research and exploration precedes mining.



Drone image of Bedrock Creek at the K-1 Mining & Services' operation in 2023. The 2022 and 2023 cut on the left-limit bench deposit is outlined by a white dashed line. The view looks upstream or to the west toward the headwaters of the drainage.

The company sluiced a total of 500 hours in 2021. In 2022, they shifted operations back to a prominent left-limit bench located immediately below Winter's Pup. In 2023, a crew of five people extended the cut in the downstream direction, and they sluiced 34 596 m^3 (45 250 yd^3) of gravel. Every year, the company aims for a sluicing target of approximately 4248 m^3 (150 000 ft^3) per season.

Equipment and water treatment

The following equipment was used on site:

- Hitachi Zaxis 450LC-3 excavator
- two Hitachi 270 excavators
- Hitachi 330 excavator
- Komatsu D375A-2 crawler tractor
- Komatsu HM300 haul truck
- Champion 740A grader
- Doosan DA30 rock truck

The wash plant consisted of a 1.5 m (5 ft)-diameter New Zealand trommel with 3/4" mesh and expanded metal over Nomad matting and hydraulic riffles. Tailings were stacked with an 11 m (35 ft)-long conveyor. An Isuzu diesel engine, powered a 6" by 6" pump at 800 IGPM, and was able to process material at a rate of 38 to 50 m^3 (50–65 yd^3)/hr. Water was acquired from Bedrock Creek and treated out-of-stream in a series of eight ponds. Clean-ups were completed using a two-cell jig, followed by a long tom and a gold wheel. Hand-panning was used for the final concentration.

Surficial geology and stratigraphy

Exploration was carried out on a left-limit bench of Bedrock Creek. A season of mining in the valley bottom of Bedrock Creek revealed intermittent gold distribution, suggesting that the main pay channel may still be partially preserved on the bench. This led to further exploration and future mining plans on the bench deposit. In 2023, mining efforts focused on the left-limit bench, specifically targeting a fan deposit at the mouth of Winter's Pup, which has incised into the bench.

In 2023, mining efforts targeted the left-limit bench at the mouth of Winter's Pup, where a 14.4 m (47 ft)-thick section was exposed. The bench stratigraphy consists of four units. Unit 1, from 0 to 1 m (0–3 ft), was composed of a matrix-supported, poorly sorted gravel or diamict, likely representing a transition zone between the basal gravel deposit and weathered bedrock. Unit 2, from 1 to 3.7 m (3–12 ft), is a moderately sorted, oxidized pebble gravel, interpreted as a paleo-Bedrock Creek gravel.

Unit 3, from 3.7 to 7.4 m (12–24 ft), is coarser than unit 2 and is a manganese-stained gravel containing boulders and is likely sourced from Winter's Gulch. Unit 4, from 7.4 to 14.4 m (24–47 ft), is a moderately sorted, weakly stratified cobble gravel, also believed to originate from Winter's Pup. The average pay thickness is 3.6 m (12 ft), which includes all of units 1 and 2.

Bedrock geology

Bedrock is orange-coloured, flaggy-weathering schist.

Gold characteristics

Gold particle size from the Bedrock Creek bench is primarily between 20 and 35 mesh (0.84 and 0.5 mm, respectively).

Right-limit tributary of California Creek, a tributary of Sixty Mile River

116C/01 2023: 64°07'39"N, 140°25'19"W
116C/01 2021: 64°08'51"N, 140°26'11"W
116C/01 2021: 64°07'58"N, 140°26'07"W

Hardclay Resource Services Ltd., 2021–2023
Hardclay Resource Services Ltd. and Yukon Exploration Green Gold Inc., 2016–2020

Water license: PM15-079-4 (active 03/2026)

Active producer (2021–2023) **Operation no. 128**

Location

Unnamed right-limit tributary of California Creek, 4.1 km upstream from its confluence with California Creek.



Sluicing on the right-limit tributary of California Creek in 2023. (Photo credit: J. Lotz, Yukon Exploration Green Gold Inc.)



Hardclay Resource Services Ltd.'s plant in operation in 2021 in the California Creek drainage.

Work history and mining cuts

In 2021, Hardclay Resource Services Ltd. marked their sixth year of activity on California Creek. Since 2016, they have optioned the claims from Yukon Exploration Green Gold Inc., and mined both the valley bottom and a right-limit bench deposit. In 2021, they partnered with F. Lewis from the Gold Rush TV show, which led to increased activity in the drainage. Lewis mined on an unnamed left-limit tributary of a right-limit tributary of California Creek. A total of 1052 hours of sluicing was reported that season. Both operations extended their cuts into the 2022 season, reporting a total of 1076 hours sluiced. In 2023, B. Clayton of Hardclay Resource Services Ltd. mined downstream from the 2022 cut, while Lewis completed his sluicing and followed-up with reclamation of his operation. The site was only active for four weeks in 2023.

Equipment and water treatment

The following equipment was used on site in 2022:

- Caterpillar 40 ton excavator
- trommel
- Caterpillar D8 bulldozer

Surficial geology and stratigraphy

Two placer settings are present in the drainage: a modern alluvial channel gravel and a left-limit bench deposit. The majority of work on the property has taken place below the forks of the unnamed left-limit tributary. The focus was in an area where the valley narrows into a small, s-shaped canyon that is 21 m (70 ft) wide. The gravel in the modern valley is overlain by 1.8 to 3.7 m (6–12 ft) of muck. The bench deposit consists of 2.4 m (8 ft) of gravel overlain by 3.7 m (12 ft) of muck (J. Lotz, pers. comm., 2024).

Bedrock geology

Bedrock is mapped as dark grey to black carbonaceous metasedimentary rocks and metachert (Yukon Geological Survey, 2022a).

Gold characteristics

Gold from the bench deposit contains more nuggets and is generally coarser than the gold derived from the valley bottom.

Ralph Creek, a tributary of Fifty Mile Creek

115N/16 2023: 63°51'02"N, 140°33'06"W

Nordling, R. and A. Rudis, 2023
50 Mile Mining Corp., 2013–2021

Water license: PM20-063-1 (active 07/2032)
Water license: PM12-022 (expired 07/2022)

Active producer (2021, 2023) **Operation no. 129**

Location

Ralph Creek, 0.4 km upstream from its confluence with Fifty Mile Creek.

Work history and mining cuts

Sluicing took place on Ralph Creek in 2021, focusing on the left limit of the drainage. A crew of two to three people processed 32 000 m³ (41 854 yd³) of pay and stripped an additional 30 000 m³ (39 239 yd³) on the left limit of the drainage. No sluicing occurred on Ralph Creek or Cheryl Creek in 2022. Activity resumed on lower Ralph Creek in 2023, and a cut was completed 0.4 km upstream from its confluence with Fifty Mile Creek.



Aerial photo of sluicing on Ralph Creek in 2021.

Equipment and water treatment

The following equipment was used on site:

- Hitachi Zaxis 450 excavator
- John Deere 450LC excavator
- Volvo 220E wheel loader
- Caterpillar D8L bulldozer
- Caterpillar D400D haul truck

Material was processed using a double screen deck with two sluice runs each measuring 1.8 by 2.4 m (6 × 8 ft). The sluice runs featured an initial section of expanded metal, a double nugget trap, and hydraulic riffles. A 12" by 10" pump supplied water through an 8" water line. The screen deck was capable of processing material at a rate of between 76 and 99 m³ (100 and 130 yd³)/hr. Water was stored in an out-of-stream reservoir, and effluent was diverted into a single, out-of-stream settling pond. Final clean-ups were completed using a Devon vortex sluice and a Keene long tom with miracle mat.

Surficial geology and stratigraphy

The general stratigraphy on Cheryl Creek consists of two units. Unit 1, from 0 to 2.4 m (0–8 ft), is a coarse, poorly sorted gravel containing abundant cobbles and minor boulders. The gravel includes discontinuous sand beds interspersed throughout the unit. Unit 2, from 2.4 to 4.3 m (8–14 ft), consists of organic-rich silt with sand lenses.



Drone image of R. Nordling and A. Rudis' property from 2022 of upper Cheryl Creek. The view is looking upstream or to the north where active mining occurred in 2021.

Bedrock geology

Bedrock is blocky amphibolite. The bedrock surface is highly undulated, and bedrock reefs are common throughout the drainage.

Gold characteristics

Gold grain sizes are approximately 16 to 20 mesh (1.2 to 0.84 mm), and the fineness is between 881 and 910.

Boucher Creek, a tributary of Sixty Mile River

115N/15 2023: 63°58'00"N, 140°32'31"W
115N/15 2023: 63°57'33"N, 140°32'48"W

de Windt, S. and B. Schmid, 2016–2023

Water license: PM16-052-2 (active 02/2027)

Active producer (2021–2023) **Operation no. 130**

Location

Boucher Creek, approximately 12 km upstream from its confluence with the Sixty Mile River.

Work history and mining cuts

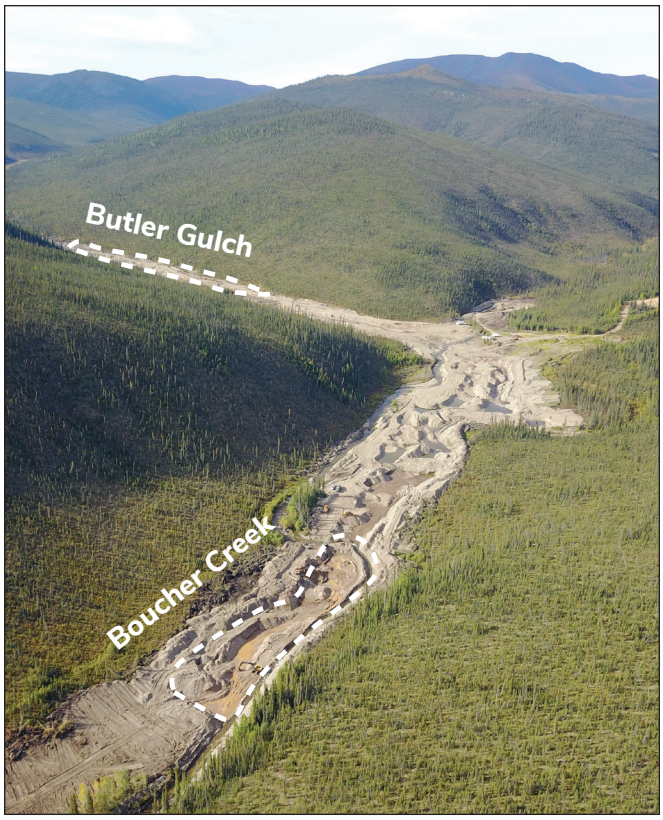
B. Schmid and S. de Windt have been actively mining Boucher Creek for entire seasons over the past four years. In 2023, Boucher Creek was one of the newer placer creeks in the Yukon to report placer production. A tributary to the Sixty Mile River, Boucher Creek was initially explored in 1892 but remained relatively underexplored until the current owners staked it in 2016. Schmid and de Windt began sluicing in 2017, and operations have continued to expand in the drainage. In 2023, a three-person crew completed a cut on Boucher Creek, as well as a 137 by 222 m (450 × 730 ft) cut on Butler Gulch, a right-limit tributary of Boucher Creek.

Equipment and water treatment

The following equipment was used on site:

- John Deere 270D excavator
- Hitachi 220UH09 excavator
- John Deere 844 wheel loader
- Caterpillar D8K bulldozer

The wash plant was an oscillating 1.5 by 3.4 m (5 × 11 ft) screen deck with a 1" upper screen and a 3/4" lower



Drone image of Schmid and de Windt's operation in 2023. Their two cuts, which were active in 2023, are delineated with white dashed lines. They mined on both Boucher Creek and Butler Gulch, a right-limit tributary of Boucher Creek. The view is looking upstream or to the west.

screen. The sluice run measured 1.2 m (4 ft) in width by 4.9 m (16 ft) in length, and was configured with 3 m (10 ft) of expanded metal, 0.6 m (2 ft) of 1/2" riffles, and 1.2 m (4 ft) of expanded metal. Water was supplied to the plant by a 6" pump powered by a Deutz engine. The screen deck was capable of processing material at a rate of 61 m³ (80 yd³)/hr. Water was not recycled, and the effluent was settled in a series of two ponds. Clean-ups were completed using a Klondike table followed by a wheel.

Surficial geology and stratigraphy

The bedrock in Boucher Creek is flat-lying and is overlain by a thickness of surficial material that remains consistent from limit to limit. The gravel is up to 1.2 m (4 ft) thick, variably oxidized, and clast-supported. Clasts are subrounded and composed of 55% small cobbles and 45% large pebbles. The matrix is composed of fine to medium sand and silt. An increase in placer gold content is noted when larger clasts are encountered, and the clasts are pervasively manganese stained. Overburden thickness ranges from 1.8 to 2.4 m (6–8 ft). The lowermost 0.3 m (1 ft) of gravel and the uppermost 0.3 m (1 ft) of the bedrock surface was processed as pay.



Exposure on the left limit of Boucher Creek in 2023. An ice axe for scale measures 0.9 m (3 ft).

On Butler Gulch, the total section thickness was 3.7 m (12 ft). The lowermost 0.3 m (1 ft) of gravel on the bedrock surface was processed as pay.

Bedrock geology

Bedrock is quartzite and biotite schist. Undulations on the bedrock surface are common.

Gold characteristics

Up to 75% of the gold is coarse grained, and it has a fineness of 840.

Ten Mile Creek, a tributary of Sixty Mile River

115O/12 2022: 63°31'44"N, 139°57'43"W

No Name Resources Inc., 2010–2023

Water license: PM15-008-1 (active 06/2025)

Active producer (2021–2023) **Operation no. 131**

Location

Ten Mile Creek, 3.6 km upstream from its confluence with the Sixty Mile River.

Work history and mining cuts

No Name Resources Inc. maintained consistent activity on their Ten Mile Creek property from 2021 to 2023.

In 2022, with a crew of five people, they mined two locations in the Ten Mile Creek drainage, but focused on a prominent high-level bench on the left limit. They completed two cuts, each containing a 10 m (33 ft)-section of gravel. Mining continued in 2023 on the same high-level bench. In 2023, they reported mining two cuts: one measuring 46 by 305 m (150 × 1000 ft) and the second 24 by 366 m (80 × 1200 ft); they processed a total of 158 823 m³ (207 776 yd³) of material. Reclamation was completed as mining progressed, and overburden stockpiles were used to backfill previous cuts, and hill slope material was used to recontour the surface.

Equipment and water treatment

The following equipment was used on site:

- John Deere 450D-LC excavator
- John Deere 270C excavator
- John Deere 330C excavator
- Caterpillar D9H bulldozer

The wash plant consisted of a dump box feeding a 1.5 m (5 ft)-diameter trommel that classified material to 1/2". Sluice runs were 1.0 by 3.6 m (3 × 12 ft) and configured with dream matting in the upper part of the run followed by hydraulic riffles. The plant was able to process up to 92 m³ (120 yd³)/hr in silty gravel, and up to 138 m³ (180 yd³)/hr in sandier gravel. Water was 100% recirculated on the bench. Clean-ups were conducted using a shaker table.

Surficial geology and stratigraphy

The surficial geology of the Ten Mile Creek area consists of a sequence of gravel terraces along the left limit. A high-level bench, 3.6 km upstream from its confluence with Sixty Mile River, consists of two units. Unit 1 from 0 to 3.5 m (0–11.5 ft) consists of boulder-cobble-pebble gravel within a silty sand matrix and represents the pay gravel. The lowermost 0.5 m (1.6 ft) is notably sandy, likely reflecting some component of weathered bedrock. Unit 2 from 3.5 to 12.5 m (11.5–41 ft) is a finer, stratified cobble-pebble gravel interbedded with silt and minor organic-rich horizons. The paystreak is concentrated along the rim of the bench.

Bedrock geology

Bedrock is variably oxidized sericite-schist.

Gold characteristics

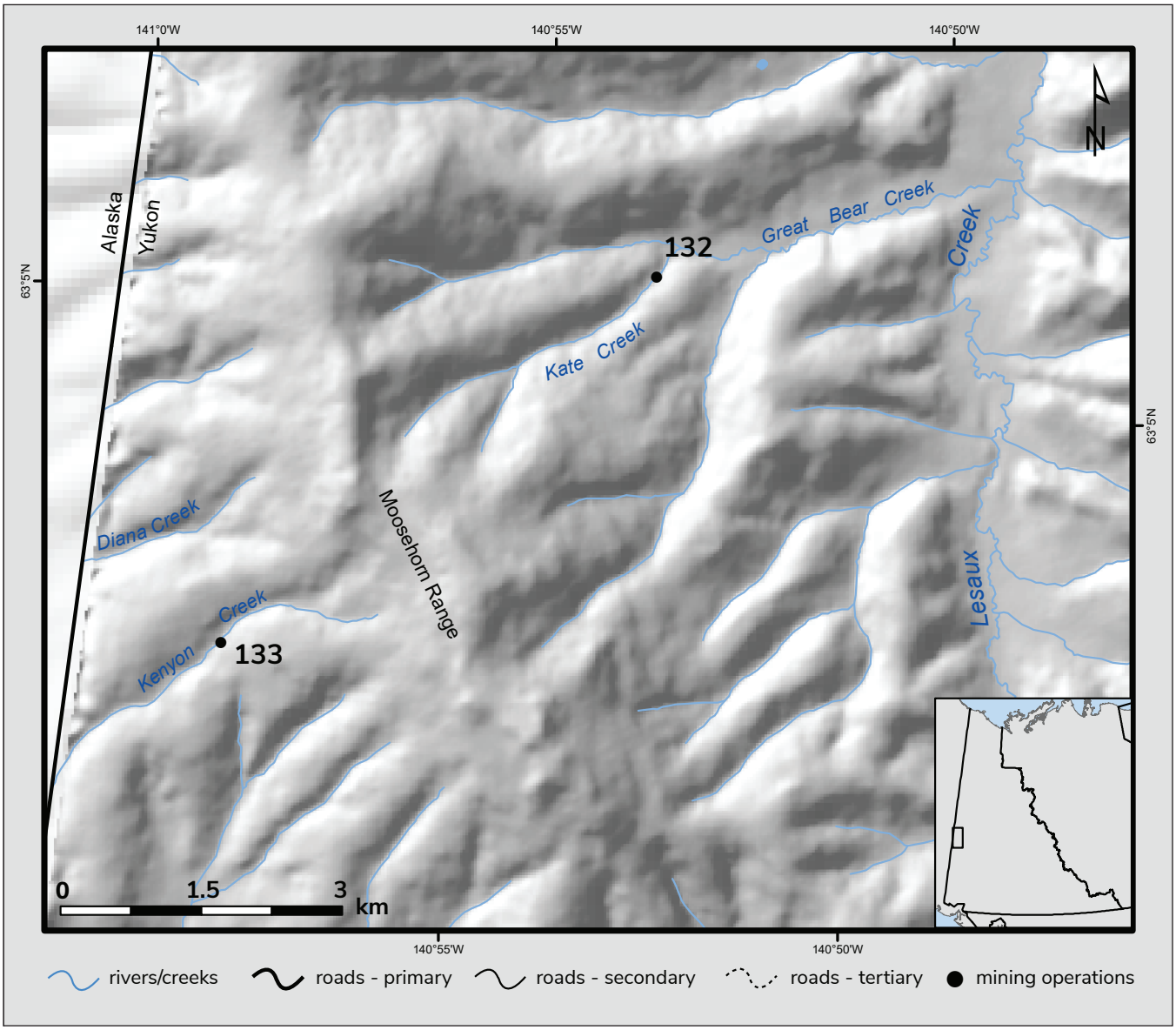
Gold from the bench is primarily 20 mesh (0.84 mm) in size.



Aerial view of 10 Mile Creek with No Name Resources Inc.'s active cut on the left limit bench in 2022 (outlined with a black dashed line). The view is looking downstream or to the north.

Moosehorn
placer mining area

Sites 132–133



Legend

132. Moosehorn Exploration
133. Moosehorn Exploration

Kate Creek, a tributary of Great Bear Creek

115N/02 2022: 63°05'29"N, 140°53'21"W

Moosehorn Exploration, 1989–2023

Water license: PM16-022 (active 05/2027)

Active producer (2021–2023) **Operation no. 132**

Location

Kate Creek, approximately 300 m upstream from its confluence with Great Bear Creek.

Work history and mining cuts

The Warrick family of Moosehorn Exploration has called the Moosehorn Range home for several decades. Beginning in 1989, they mined on Swamp, Soya, Kenyon, Kate and Great Bear creeks. They operate at two separate sites: one on the east side of the Moosehorn Range (Kate and Great Bear creeks), and the other on the west side (Swamp, Soya and Kenyon creeks). Drought-like conditions hindered operations in 2021, as a lack of water in the drainage prevented sluicing. Mining in 2022 continued on lower Kate Creek as they progressively moved upstream. In 2023, drought conditions persisted throughout the season, resulting in a shift from mining to focusing on camp and equipment maintenance.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 345B excavator
- Hitachi 350 excavator
- two Terex TA30 rock trucks
- Caterpillar 980G wheel loader
- Caterpillar 8N bulldozer

A wet dump box with 3/4" spacing on grizzly bars was used to process material at a rate of 46 m³ (60 yd³)/hr and was configured with a series of three sluice runs. The top run measured 1.2 by 3.6 m (4 × 12 ft) and contained 1" Hungarian riffles with 3.5" spacing. The second run started with an area of 1.1 by 0.9 m (3.5 × 3 ft) and then split into three 1.1 by 3.6 m (3.5 × 12 ft) runs. The lower runs contained expanded metal. A 20 by 150 m (66 × 492 ft) settling pond was used to settle effluent and the water was 100% recycled. Clean-ups were conducted using a long tom, wheel, rod mill, jig and table.



Aerial photograph of Moosehorn Exploration operation on lower Kate Creek in 2022.

Surficial geology and stratigraphy

A cut from previous work on Kate Creek exposed three units. Unit 1, from 0 to 3.8 m (0–12.5 ft), is a poorly sorted, pebble-cobble gravel containing minor boulders. This unit is clast-supported with a matrix comprised of coarse sand to silt. Unit 2, from 3.8 to 5.0 m (12.5–16.5 ft), is a clast-supported gravel consisting of 60–80% boulders and 20–40% cobbles and pebbles in equal proportions. The matrix (15%) is composed of coarse sand to silt. Unit 3, from 5.0 to 5.6 m (16.5–18.5 ft), is composed of overbank deposits of fluvial sand, silt and organics. The boulder-rich gravel of unit 2 may be indicative of a reworked glacial moraine from early Pleistocene alpine glaciation in the Moosehorn Range.

Bedrock geology

Bedrock is granodiorite and varies in degree of decomposition.

Gold characteristics

Approximately one quarter of the recovered gold particles were 45 mesh (0.354 mm), and most were approximately 200 mesh (0.074 mm). The fineness is 800.

Kenyon Creek, a tributary of the Ladue River

115N/02 2023: 63°03'05"N, 140°58'12"W

Moosehorn Exploration, 2015–2023

Water license: PM17-079 (active 09/2028)

Active producer (2021–2023) **Operation no. 133**

Location

Kenyon Creek, headwaters.

Work history and mining cuts

C. and A. Warrick of Moosehorn Exploration have focused their recent mining efforts on Kenyon Creek. Kenyon Creek is the westernmost placer mine in the Yukon. Active sluicing occurred from 2021 to 2023. No additional information is known.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 345B excavator
- Hitachi Zaxis 350LC excavator



Aerial view of C. and A. Warrick's property on Kenyon Creek in 2023. The view is looking south.

- Caterpillar wheel loader
- Caterpillar 8N bulldozer
- Volvo A30 articulated dump truck

Material was processed using a wet dump box with a unique, tapered grizzly bar. The initial sluice run, measuring 1.2 by 1.8 m (4 × 6 ft), consisted of 1¼" angle iron riffles at an 11° slope angle, which then distributed material into three 1.2 by 4.9 m (4 × 16 ft) sluice runs of expanded metal at an 8° slope angle. The sluice runs were lined with unbacked 3M™ Nomad matting. The entire riffle tray folds off the mats as one unit, allowing for frequent clean-ups. Water was supplied to the plant using an 8" pump, enabling the plant to process material at a rate of up to 50 m³ (65 yd³)/hr.

Surficial geology and stratigraphy

The operation is located at high-elevation in a southwest-facing drainage of the Moosehorn Range. This elevation marks the transition from colluvial to fluvial environments and is reflected in the surficial deposits. Colluvial deposits are formed from the gravitational transport of weathered bedrock, whereas fluvial deposits involve some degree of sorting by water. The exposed sediment exhibits a poor degree of sorting indicative of a very immature fluvial deposit, which is consistent with this type of transitional environment.

An exposure of side-pay gravel from previous work consists of 50% clasts (20% boulders, 50% cobbles and 30% pebbles) and 50% matrix consisting of coarse sand and granules. The gravel is poorly sorted, oxidized, and manganese-stained. The matrix has a grus-like texture and is likely derived from decomposed granodiorite, which is the local bedrock. Due to the coarse nature and low silt content in the matrix, the pay gravel does not require extensive washing to liberate the gold grains. The sluiced material included a section of virgin side pay, historic tailings from previous mining efforts in the middle of the valley, and deeper excavations into the bedrock.

Bedrock geology

Bedrock is decomposed granodiorite.

Gold characteristics

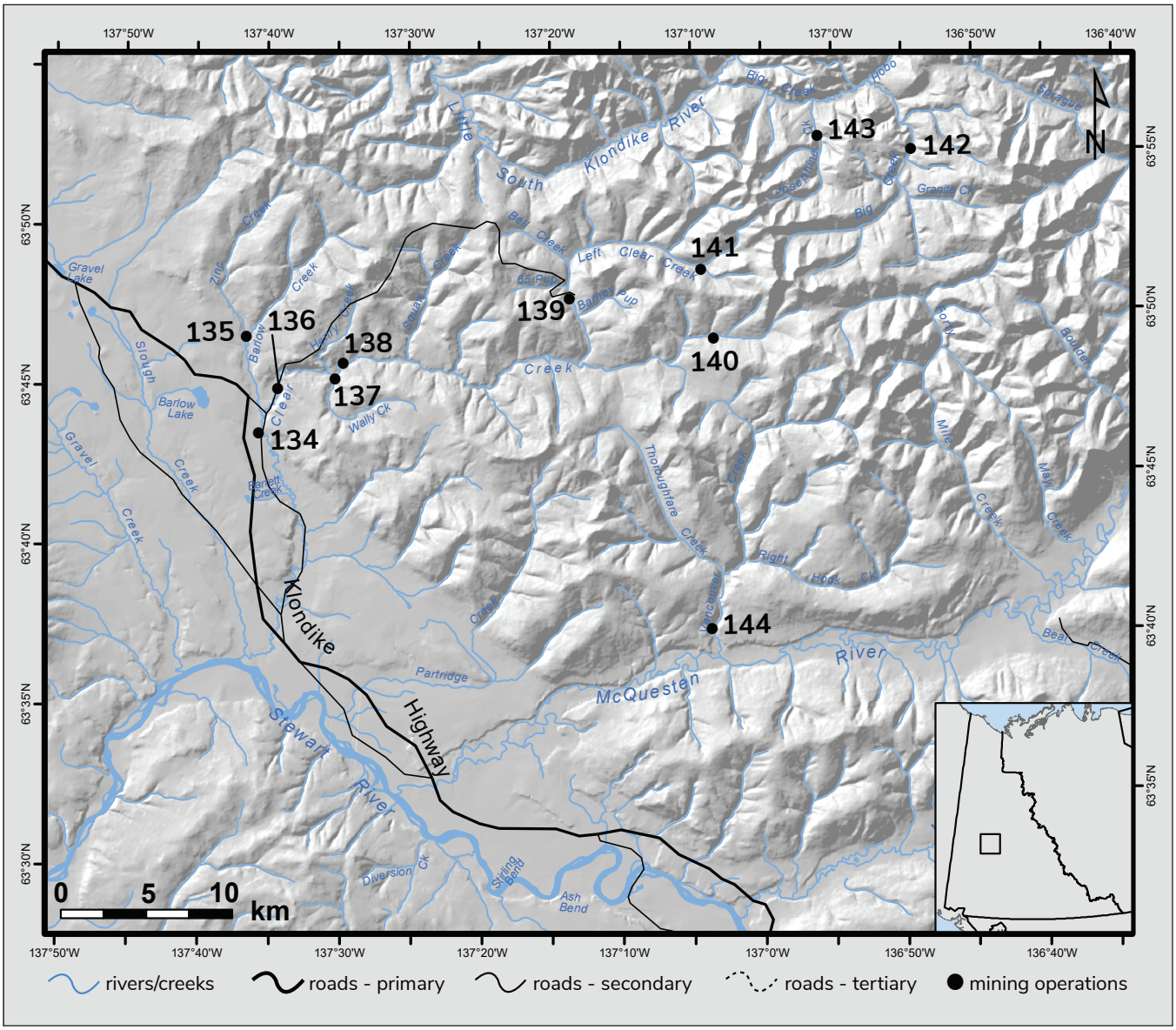
The gold recovered is mostly fine grained with lesser amounts of small hackly pieces containing quartz inclusions. No gold is larger than 20 mesh (0.841 mm). The fineness is 830.



Sluicing in 2023 on upper Kenyon Creek.

Clear Creek-McQuesten
placer mining area

Sites 134–144



Legend

134. Wolf Head Discovery and Mining LLC
135. Moonlight Mining Ltd.
136. Wasylenko, W.
137. Bellavance, O.
138. Kowalski Trucking Ltd.
139. Scott and Son Mining
140. Phillips, P.
141. Blackstone Placer Mining Ltd.
142. Schmidt Mining Corp. and Yukon Exploration Green Gold Inc.
143. Schmidt Mining Corp. and Nevada Zinc Corp.
144. 44830 Yukon Inc.

Clear Creek, a tributary of Stewart River

115P/12 2023: 63°44'02"N, 137°38'30"W

Wolf Head Discovery and Mining LLC, 2014–2023

Water license: PM14-009-1 (active 05/2024)

Active producer (2021–2023) **Operation no. 134**

Location

Clear Creek, approximately 16 km upstream from its confluence with the Stewart River.

Work history and mining cuts

Wolf Head Discovery and Mining LLC completed major mining efforts on their property in 2020. In 2021, activities included reclamation of exploration test pits, trenches and drill pads. Tailings and overburden piles from previous mining were contoured, and organics were spread on the surface to facilitate revegetation. Minor reclamation efforts continued throughout 2022. In 2023, Moonlight Mining Ltd. leased the property for half of the season. They completed a cut in the valley bottom of Clear Creek, in the mid to right limit of the drainage.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

The stratigraphy of the Clear Creek floodplain deposits observed during mining has remained consistent. The modern Clear Creek channel is situated near the far left limit of the valley bottom, and bedrock outcrops a short distance away. However, mining activities have been focused adjacent to the creek but on the right limit of the valley where the depth to bedrock drops off. Here, the pay gravel remains perched on a false bedrock of compact sand. As mining moves away from the creek, the bedrock surface continues to drop, making tracking pay gravel challenging.

Two units are identified in the stratigraphy. Unit 1 is a coarse, compact, cobble-rich gravel containing minor boulders of quartz up to 1.8 m (6 ft) in diameter. This unit is considered the target pay gravel. Overlying unit 1 is the modern Clear Creek gravel (unit 2). This unit is up to 3 m (10 ft) thick and less cohesive and better sorted compared to unit 1. The gravel units are overlain by floodplain silts and organics up to 1 m (3 ft) thick.



Aerial view of lower Clear Creek at Wolf Head Discovery and Mining LLC's operation. The most recent activity in 2023 occurred in the modern valley bottom and can be seen in the centre of the image. The view is looking upstream and to the north.

Bedrock geology

Bedrock is blocky quartzite. The bedrock surface is highly undulating, and reliefs can be up to 1.2 m (4 ft) high.

Gold characteristics

The gold grains are very flat.

Barlow Creek, a tributary of Clear Creek

115P/13 2022: 63°47'02"N, 137°39'56"W

Moonlight Mining Ltd., 2019–2023
Storm Structures, 2015–2019
Caw Mining & Exploration Ltd., 2008–2014

Water license: PM14-073 (active 04/2025)

Active producer (2021–2023) **Operation no. 135**

Location

Barlow Creek, 3 km upstream from its mouth.

Work history and mining cuts

Moonlight Mining Ltd. optioned the property from Caw Mining & Exploration Ltd. beginning in fall 2019. They were active each season and had a crew of four to six people. They progressively mined upstream on Barlow Creek, and ended at the confluence with Zinc Creek.

Equipment and water treatment

In 2022, the following equipment was used on site:

- Hitachi 200 excavator
- Hitachi EX300 excavator
- Hitachi Zaxis 470LC excavator
- wheel loader
- bulldozer
- two Caterpillar D40 haul truck

The wash plant consisted of an automatic-dumping grizzly conveyor that feeds a New Zealand-style trommel. Classified material was fed into sluice runs on either side of the trommel, which were configured with angle iron and expanded metal.



Photo of the cut at Moonlight Mining Ltd.'s operation on Barlow Creek. The view is looking upstream or north toward the mouth of Zinc Creek.

Surficial geology and stratigraphy

The surficial geology of Barlow Creek resembles that of lower Clear Creek, whereby gold-bearing gravel is typically situated on a false-bedrock of compact sand (unit 1). It is interpreted as a periglacial gravel that is coarse grained, containing approximately 10% large, rounded quartz boulders. The unit is cohesive or dense, and fines upward to a silt-rich gravel near its upper contact. The lower contact with the underlying sand unit is erosive. Although this area has not experienced glaciation since the early Pleistocene, periglacial environments persisted throughout subsequent glacial periods. Evidence of deposition in a periglacial environment is documented by the presence of vertically oriented or frost-heaved clasts in the gravel unit. These periglacial environments also had few trees on the slopes, leading to rapid runoff and high-energy creek flows. The periglacial pay gravel (unit 2) in Barlow Creek is typically 1.8 to 2.4 m (6–8 ft) thick. This gravel is overlain by modern alluvial deposits (unit 3), which are composed of loosely consolidated, fine-grained Barlow Creek gravel about 2 m (6 ft) thick. The gravel units are capped by muck deposits (unit 4) ranging in thickness from 1 to 5 m (3–16 ft), which are thicker on the left-limit, and increase in thickness toward the hillside.

Bedrock geology

Bedrock is mapped as phyllite, shale, sandstone, grit, conglomerate and limestone (Yukon Geological Survey, 2022a).

Gold characteristics

Gold particles are mostly fine grained and have a fineness of 820.

Clear Creek, a tributary of Stewart River

115P/13 2022: 63°45'46"N, 137°37'32"W

Wasylenko, W., 1993–2022

Water license: PM22-065 (active 08/2033)
Water license: PM12-078 (expired 05/2023)

Active producer (2021–2022) **Operation no. 136**

Location

Clear Creek, 2.5 km upstream from the mouth of Barlow Creek.



Aerial view of W. Wasylenko's operation on Clear Creek in 2022. The 2022 cut is delineated by a white dashed line, and the view is looking downstream or to the southwest.

Work history and mining cuts

W. Wasylenko has held claims on lower Clear Creek since 1990. Over the past several decades, the ground has been mined by various joint ventures; however, in recent years, Wasylenko has been running the operation solo. In 2022, a testing program and reclamation were completed, along with sluicing from a 9.1 m (30 ft) long cut on the right limit. The property was not active in 2023.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 322 excavator
- Caterpillar 950 wheel loader
- Caterpillar D9H bulldozer

The wash plant consisted of a screen deck with a 1" screen, capable of processing material at a rate of up to 50 m³ (65 yd³)/hr. It had a single sluice run measuring 1.2 by 3.7 m (4 × 12 ft), with angle iron in the upper 1.2 m (4 ft) and expanded metal in the lower 2.4 m (8 ft). The water was 100% recycled. A rod mill was used for clean-ups.

Surficial geology and stratigraphy

The general stratigraphy on lower Clear Creek consists of two units: a basal unit of coarse, compact, cobble-rich gravel, overlain by the modern alluvial gravel. Historically, only the gutter of the drainage has been mined on the property, leaving areas of the channel untouched (W. Wasylenko, pers. comm., 2022). The pay gravel, as seen within the gutter, is recognizable by large cobbles and boulders. The pay unit is 1.8 to 2.1 m (6–7 ft) thick.

Bedrock geology

Bedrock is phyllite.

Gold characteristics

The gold is mostly fine grained, and fineness is 850 to 860.

Wally Creek, a tributary of Clear Creek

115P/13 2022: 63°45'55"N, 137°33'25"W

Bellavance, O., 2023
Hollingsworth, M., 2014–2022
Wilson, K., 2008–2009, 2011, 2013

Water license: PM17-074-1 (active 05/2028)

Active producer (2021–2023) **Operation no. 137**

Location

Wally Creek, 0.5 km upstream from its confluence with Clear Creek.



Right-limit bench cut in 2022 at the mouth of Wally Creek that M. Hollingsworth and J. Colosimo mined in 2021 and 2022. The 2022 cut is delineated by a white dashed line, and the view is looking across the mouth of Wally Creek or to the east.

Work history and mining cuts

M. Hollingsworth and J. Colosimo have been mining the lower part of the Wally Creek drainage since purchasing the claims from K. Wilson in 2014. Initially, mining was focused on the valley bottom, but in 2021 and 2022, attention shifted to a high-level, right-limit bench. In spring 2023, the claims were transferred to O. Bellavance, who was active on the property throughout the season.

Equipment and water treatment

In 2022, the following equipment was used on site:

- John Deere 450LC excavator
- Caterpillar articulated haul truck
- Hyundai HL760 wheel loader
- Caterpillar D9L bulldozer

The wash plant consisted of a grizzly feeder and a 12 m (40 ft) conveyor leading to a vibrating shaker deck with a 2" screen and a 1/2" screen. Classified material was fed into an initial single sluice run that split into two runs and then into six runs. The sluice runs used angle iron riffles and expanded metal. The plant processed material at a rate of up to 46 m³ (60 yd³)/hr. Water was sourced from Wally Creek, and the effluent was settled in a series of four ponds before being recirculated.



Image of the high-energy bench gravel exposed in 2022 on the right limit of Wally Creek. Pick for scale measures 0.6 m (2 ft).

Surficial geology and stratigraphy

Two distinct placer settings are present on this property: the main channel of Wally Creek, and a recently identified right-limit bench that may have been overlooked by previous miners. The bench was initially discovered when mining activities were completed at the mouth of a right-limit tributary. This tributary had cut through the bench, reworking and depositing a coarse gold component into Wally Creek. Preliminary results indicate significant potential. At the time of the property visit, extensive stripping operations were underway on the bench to expose and further evaluate its potential. The exposed bench deposit consists of a clast-supported, poorly sorted gravel, with angular to subrounded clasts and a sandy matrix. There is no dominant clast size, and clasts range from pebbles to cobbles. The presence of angular clasts and a lack of stratification suggests a high-energy depositional environment.

Bedrock geology

Bedrock is highly fractured, oxidized quartzite.

Gold characteristics

Gold became coarser as the operator moved upstream. The fineness of the gold from the bench ranges from 825 to 845 and the gold is coarser than the gold from the valley bottom.

Clear Creek, a tributary of Stewart River

115P/13 2022: 63°46'26"N, 137°32'55"W

Kowalski Trucking Ltd., 2015–2023
Kosuta, D., 1995–1996, 2003, 2006, 2008–2013

Water license: PM14-044-1 (active 05/2025)

Active producer (2021–2023) **Operation no. 138**

Location

Clear Creek, approximately 2 km upstream from the mouth of Henry Creek.

Work history and mining cuts

Kowalski Trucking Ltd. was active from 2021 to 2023 and operated with a two-person crew. They focused mining efforts on the right limit of Clear Creek.



Drone image of Kowalski Trucking Ltd.'s operation in 2022. The active mining cut is seen upstream from camp.

Equipment and water treatment

The following equipment was used on site:

- excavator
- Caterpillar bulldozer
- two wheel loaders
- rock truck
- screen deck

Surficial geology and stratigraphy

The general stratigraphy on lower Clear Creek consists of two units: a coarse, compact, cobble-rich gravel overlain by a modern alluvial gravel.

Bedrock geology

Bedrock is mapped as granite to quartz monzonite (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Left Clear Creek, a tributary of Stewart River

115P/14 2023: 63°49'00"N, 137°17'15"W
115P/14 2022: 63°47'33"N, 137°15'31"W

Scott and Son Mining, 1998–2023

Water license: PM20-057 (active 10/2031)
Water license: PM11-037-2 (expired 10/2021)

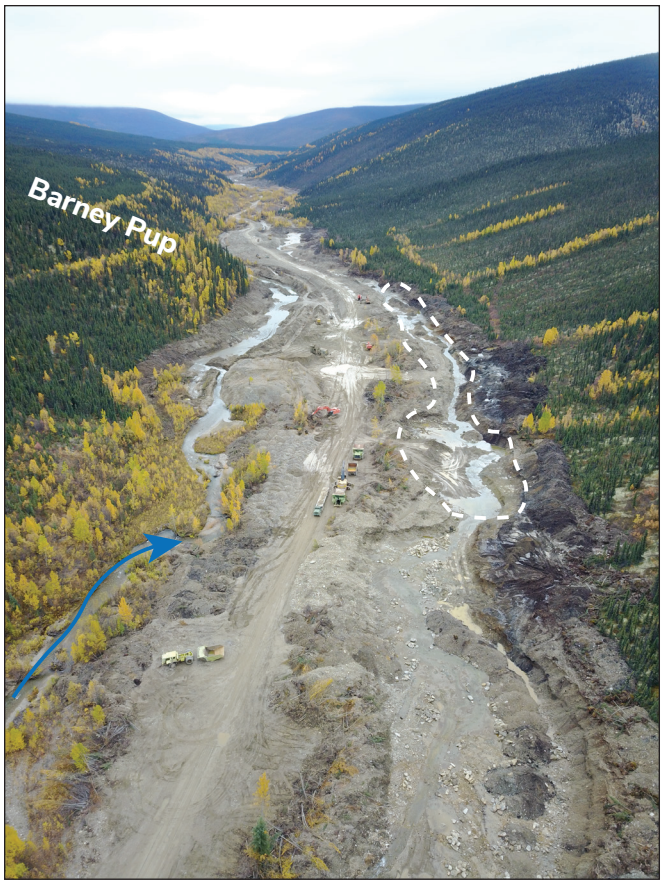
Active producer (2021–2023) **Operation no. 139**

Location

Left Clear Creek, immediately downstream from the confluence with 65 Pup.

Work history and mining cuts

Scott and Son Mining has focused on Left Clear Creek from 2021 to 2023. In 2023, they started the season immediately downstream of the mouth of Barney Pup and progressively mined upstream. They concluded the season 0.5 km downstream from the confluence with 65 Pup. This area had previously been dredged by Queenstake Resources, who were active in the



Aerial view of Scott and Son Mining's operation on Left Clear Creek in 2023. The view is looking downstream to the south, and the active cut, delineated by a white dashed line, is situated 0.5 km downstream from the mouth of 65 Pup.

drainage from 1979 to 1984. The dredge operated full time from 1981 until 1987 and dredged 175 000 m³ (228 890 yd³) in 1982, 164 800 m³ (215 600 yd³) in 1983, and 148 200 m³ (193 880 yd³) in 1984. Scott and Son Mining has been targeting areas missed by the dredge, as well as intermittently preserved in-situ Left Clear Creek side pay masked by a blanket of colluvium. Ten employees worked two 12-hour shifts and processed 53 000 m³ (570 487 ft³) of material.

Equipment and water treatment

The following equipment was used on site:

- John Deere 400 excavator
- John Deere 450D excavator
- Hitachi 350 excavator
- Hyundai 780 wheel loader
- John Deere 400D rock truck
- Caterpillar 740 rock truck
- Caterpillar 980 wheel loader
- Caterpillar D10N bulldozer



Sluicing on Left Clear Creek in 2022 at Scott and Son Mining's operation. View is upstream or to the north.

The wash plant consisted of a 1.8 by 6 m (6 × 20 ft) double screen deck with 2½" and ¾" openings. Two oscillating sluice runs, each measuring 1.5 by 6 m (5 × 20 ft), contained hydraulic riffles and diamond mesh. Two 6" pumps supplied water to the plant, which was capable of processing material at a rate of up to 138 m³ (180 yd³)/hr.

Surficial geology and stratigraphy

During the Pre-Reid glaciation (early Pleistocene or >200 thousand years), ice filled the Clear Creek and Left Clear Creek valleys. Evidence of this glaciation is preserved as Pre-Reid drift, which includes deposits of till, resedimented till, and glaciofluvial sediments on the lower slopes of Clear Creek and parts of Left Clear Creek. Alpine glaciers once existed at the headwaters of Left Clear Creek; however, most of the deposits from this glaciation have since been eroded.

Unit 1, from 0 to 1.2 m (0–4 ft), is a cobble gravel with a high matrix content of 50%. The matrix is composed of silty sand, which is largely derived from aeolian (wind) deposition in a periglacial environment. This unit is similar to the gravel observed on lower Clear Creek and Barlow Creek, where deposition took place during a cold glacial climate. Unit 2, from 1.2 to 3.7 m (4–12 ft), consists of a moderately sorted, fining-upward, imbricated gravel. It is in sharp, erosional contact with unit 1. Small boulders and cobbles are concentrated at the base of the unit, and the gravel becomes increasingly sandy toward the top, indicating high-energy deposition. Unit 3, varying in thickness from 1.8 to 2.4 m (6–8 ft), is composed of silt and organics.

Bedrock geology

Bedrock is variably oxidized schist.

Gold characteristics

Gold grains appear worn, and have rough, hackly edges. The average fineness is 800.

Clear Creek, a tributary of Stewart River

115P/14 2021: 63°48'06"N, 137°06'47"W

Phillips, P., 2005 2021

Water license: PM13-050 (active 02/2024)

Active producer (2021) **Operation no. 140**

Location

Clear Creek, upper reach, 6.3 km downstream from its headwaters.

Work history and mining cuts

In 2021, P. Phillips continued mining upstream on his property on upper Clear Creek. A locally derived till deposit was discovered on the left limit, marking the maximum extent of ice advance from the headwaters of Clear Creek during the Pre-Reid glaciation. Phillips mined with a crew of up to six employees. The property was inactive in 2022 and 2023.

Equipment and water treatment

In 2021, the following equipment was used on site:

- Komatsu PC400 excavator
- Hitachi EX300LC excavator
- John Deere 450D excavator
- Caterpillar 980G wheel loader
- Caterpillar D300B haul truck
- Caterpillar D400E haul truck

The wash plant consisted of a grizzly hopper and conveyor that fed a 1.5 m (5 ft)-diameter by 7.6 m (25 ft)-long trommel that had 4.6 m (15 ft) of 1/2" screen. The plant was capable of processing material at a rate of up to 61 m³ (80 yd³)/hr. Two sluice runs, each measuring 1.8 by 2.7 m (6 × 9 ft), were configured with boil boxes, expanded metal and flat iron riffles. Effluent was settled out-of-stream in a series of two ponds.



P. Phillips' operation on upper Clear Creek in 2021. The view is looking downstream or to the west.

Surficial geology and stratigraphy

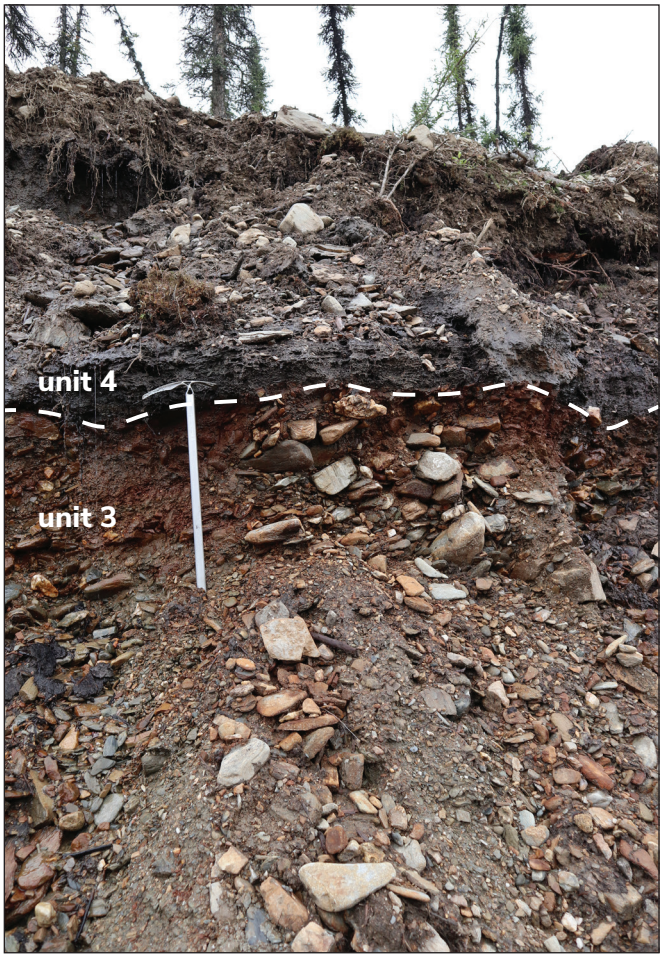
The general stratigraphy of upper Clear Creek includes four units. Unit 1 consists of a grey-green to brown till deposit, containing fragments of locally derived schist bedrock. The thickness of till varies, but is generally less than 1 m (3 ft), and commonly 0.5 m (1.5 ft). The upper part of the till is pervasively oxidized. Unit 2 is a poorly to moderately sorted cobble-rich gravel, approximately 1 m (3 ft) thick. It is clast-supported with a silty to sandy matrix. Unit 3 is an oxidized gravel 2 m (6.5 ft) thick. It is clast-supported; however, the matrix contains fewer fines, which increases porosity and enhances manganese staining from iron and manganese-rich groundwater. Unit 4 consists of approximately 0.5 m (1.5 ft) of overbank silt.

Bedrock geology

Bedrock is a dark grey schist containing quartz veins.

Gold characteristics

The fineness is 720 and increases to 840 downstream.



An exposure on the far left limit of upper Clear Creek in 2021. The till (unit 1) and cobble gravel (unit 2) were not exposed at the time of the photo. Ice axe for scale measures 0.9 m (3 ft).

Left Clear Creek, a tributary of Clear Creek

115P/14 2021: 63°50'13"N, 137°08'03"W

Blackstone Placer Mining Ltd., 1978–2021

Water license: PM18-063 (active 05/2029)

Active producer (2021) **Operation no. 141**

Location

Left Clear Creek, at the mouth of the uppermost unnamed left-limit tributary.

Work history and mining cuts

N. and M. Harper of Blackstone Placer Mining Ltd. have been active at the headwaters of Left Clear Creek since 1978. Sluicing occurred in 2021; no activity was reported in 2022 or 2023.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 235 excavator
- Caterpillar D8 bulldozers
- Hough 90E wheel loader



Aerial view of Blackstone Placer Mining Ltd.'s operation in 2022 on Left Clear Creek. The view is looking downstream or to the west.

Material processing was initiated using a 3.8 m^3 (5 yd^3) wet hopper that discharged into a trommel 12 m (40 ft) long. The trommel fed a double screen deck with a 1½" screen over a ¾" screen. Oversize material from the 3/4" screen emptied into a sluice run 0.6 m (2 ft) wide by 6 m (20 ft) long, lined with 2" angle iron riffles for the first 0.6 m (2 ft), followed by a nugget trap and expanded metal on Nomad matting. The undersize from the 3/4" screen flowed into a sluice run 1.2 m (4 ft) wide by 6 m (20 ft) long with expanded metal riffles. Water was supplied to the plant using a 10" pump.

Surficial geology and stratigraphy

The stratigraphy on the left limit of Left Clear Creek has two units. Unit 1, from 0 to 1.5 m (0–5 ft), is a highly oxidized, manganese-stained, pebble-cobble gravel containing minor boulders. This unit is considered pay gravel. Unit 2, from 1.5 to 2.5 m (5–8.2 ft), is a modern alluvial Left Clear Creek gravel, and exhibits better sorting compared to unit 1. All of unit 1, and up to 0.5 m (1.6 ft) of bedrock was processed as pay.

Bedrock geology

Bedrock is mapped as phyllite, shale, sandstone, grit, conglomerate and limestone (Yukon Geological Survey, 2022a).

Gold characteristics

Gold is a mixture of fine and coarse grained particles. The fineness is 820.

Big Creek, a tributary of Little South Klondike River

115P/15 2021: 63°54'28"N, 136°53'43"W

Schmidt Mining Corp. and Yukon Exploration Green Gold Inc., 2015–2023

Water license: PM14-010-3 (active 07/2024)

Active producer (2021–2023) **Operation no. 142**

Location

Big Creek, approximately 3 km downstream from the mouth of Granite Creek.

Work history and mining cuts

Schmidt Mining Corp. and Yukon Exploration Green Gold. Inc. were active on their Big Creek property until mid-2023, when they completed mining operations and relocated their equipment to another site. In 2021, mining progressed downstream from the mouth of



Aerial view of the significant reclamation undertaken on Big Creek in 2021. The view is looking upstream and to the south.

Granite Creek, focusing on shallow ground that was approximately 6 m (20 ft) in depth. The typical cut sizes measured 52 by 274 m (170 × 900 ft). Below their lowermost cut, the surficial deposits changed, becoming thicker and having a more complex stratigraphy. A significant reclamation plan was initiated in 2021 in collaboration with EDI Environmental Dynamics Inc. In 2022, two large cuts were completed in the drainage, along with final reclamation activities. Steep parts of the slope were contoured, channels connecting settlement ponds were established, and fines mixed with organic material were spread to promote revegetation.

Equipment and water treatment

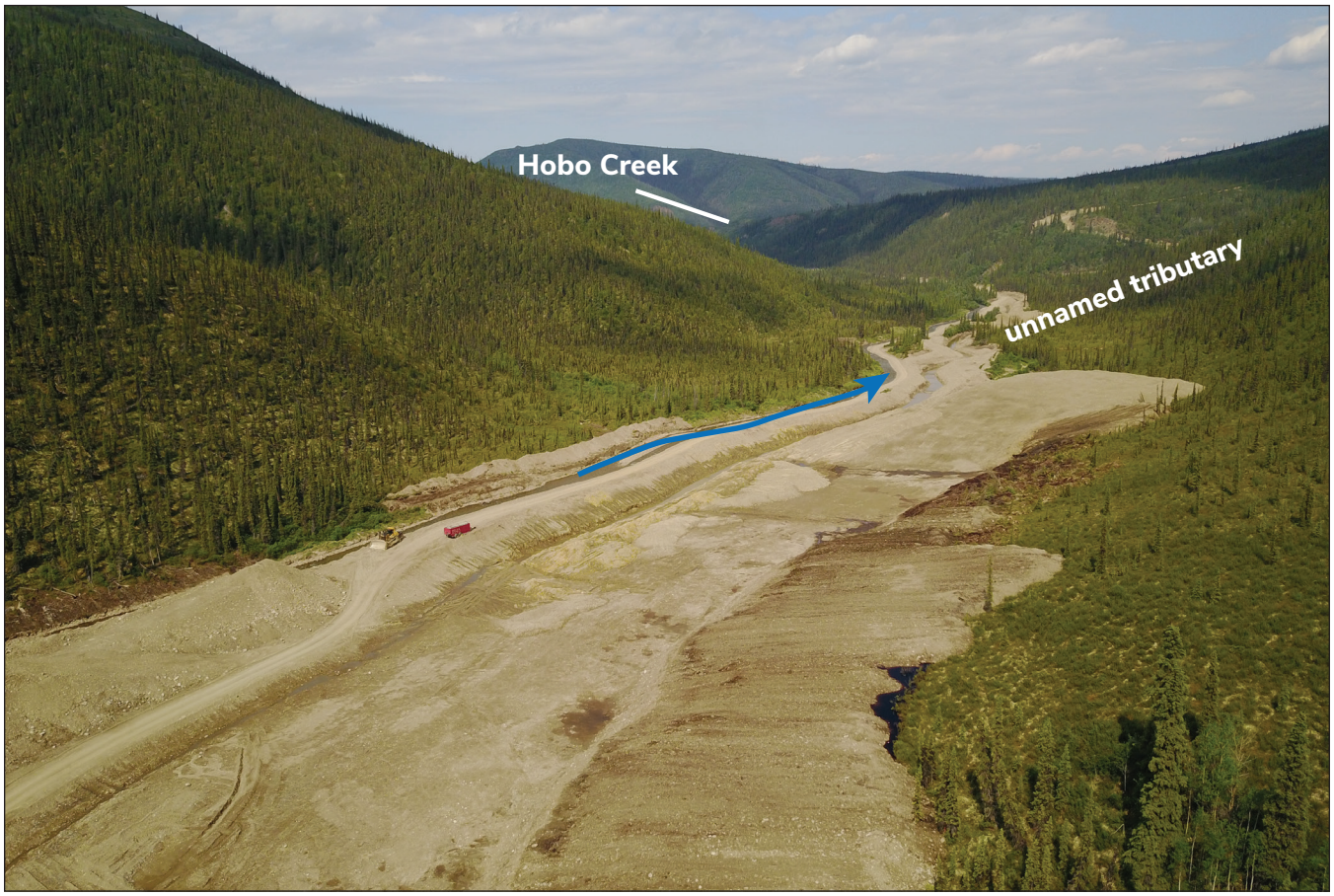
The following equipment was used on site:

- Caterpillar 374D excavator
- Caterpillar 340 excavator
- John Deere 450D excavator
- two Volvo A40E rock trucks
- Caterpillar D9L bulldozer
- Caterpillar D10N bulldozer

The wash plant consisted of a 2.4 m (8 ft)-diameter trommel and a 1.1 m (3.5 ft)-wide conveyor to remove oversize material. Three, 1.2 m (4 ft)-wide sluice runs, totaling 7.3 m (24 ft) in length, were located on either side of the plant. The wash plant processed gravel at a rate of 153 m^3 (200 yd^3)/hr.

Surficial geology and stratigraphy

The surficial deposits in Big Creek include three gravel units that overlie bedrock composed of weathered silvery phyllite, graphitic schist and shale. Unit 1, consists of a coarse, moderately sorted, imbricated, weakly stratified, and oxidized cobble gravel; a boulder lag occurs at the bedrock contact. This unit is clast supported and contains a mix of pebbles, cobbles and boulders. The matrix is silt rich and has a higher concentration in the lower part of the unit toward the bedrock contact. The best pay in this unit is found in the high-energy zones, which are characterized by poorly sorted, highly oxidized, openwork gravel containing angular bedrock fragments. Unit 2 is a matrix-supported gravel, and contains an equal mix of clasts and sandy to silty matrix. Some of the cobbles and pebbles are vertically oriented indicating past cryoturbation. This unit is in gradational



One of Schmidt Mining Corp.'s cuts on Big Creek in 2021. The view is looking downstream or to the north toward the mouth of an unnamed right-limit tributary. Hobo Creek is in the distance.

contact with the underlying unit 1. Unit 3 is a moderately sorted, imbricated, and horizontally stratified gravel dominated by pebbles and cobbles, and represents the modern alluvial deposit associated with Holocene floodplain activity. This unit has a sharp, erosional basal contact. The sluiced material included the lowermost gravel unit and the uppermost 0.6 m (2 ft) of bedrock.

Bedrock geology

Bedrock is mapped as chert, siltstone, phyllite, limestone and conglomerate (Yukon Geological Survey, 2022a).

Gold characteristics

Gold is relatively coarse grained, and the fineness is 800.

Josephine Creek, a tributary of Big Creek

115P/15 2021: 63°54'41"N, 137°00'28"W

Schmidt Mining Corp. and Nevada Zinc Corp., 2019–2023

Water license: PM18-019 (active 07/2028)

Active producer (2021–2023) **Operation no. 143**

Location

Josephine Creek, 2 km upstream from its confluence with Big Creek.

Work history and mining cuts

Schmidt Mining Corp. optioned Josephine Creek from Nevada Zinc Corp. and commenced exploration and mining in 2019. Schmidt Mining Corp. spent several seasons preparing to mine Josephine Creek but did not conduct extensive sluicing until 2021. This marks the first reported placer production from the drainage since the early 1980s. In 2021, Schmidt Mining Corp. began mining a 50 by 125 m (164 × 410 ft) cut. In 2022, a total of three claims were mined, and in 2023, sluicing took place during the months of June and July.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 349E excavator
- Caterpillar 374 excavator
- two Volvo A40G rock trucks

The wash plant consisted of a 6 m (20 ft)-long hopper, a 1.5 m (5 ft)-diameter trommel with a 3/4" screen, and a 9 m (30 ft)-long tailings stacker, all mounted on excavator tracks. Sluice runs on either side of the plant used angle iron riffles, slick plates and expanded metal to concentrate gold. A 10" pump supplied water to the plant, which processed material at a rate of 61 m³ (80 yd³)/hr. Water was settled out-of-stream on the right limit of Josephine Creek. A second plant featured a 2.4 m (8 ft)-diameter trommel with a 1.1 m (3.5 ft)-wide conveyor for removal of oversized material. There were three, 1.2 m (4 ft)-wide sluice runs, totaling



Schmidt Mining Corp. sluicing on Josephine Creek in 2021.

7.3 m (24 ft) in length, on each side of the plant. This wash plant processed gravel at a rate of 153 loose m³ (200 loose yd³)/hr. Water was 100% recycled.

Surficial geology and stratigraphy

The Josephine Creek drainage is a glaciated valley, and the majority of placer gold is concentrated in till deposits. Depth to bedrock ranges from 3 to 6 m (10–20 ft) in shallow settings, and deepens near the mouth of the valley to 24 to 30 m (80–100 ft). In 2021, at the time of this property visit, Schmidt Mining Corp. was actively mining in the shallower depths.

Till deposits in Josephine Creek are associated with local alpine glaciers that originated from cirques at the headwaters, and advanced to the mouth of the drainage. The age of the glaciation that produced the till deposits in the mining area is uncertain but is believed to be older than the Reid glaciation (130 thousand years ago), based on evidence of glacial limits further up the valley.

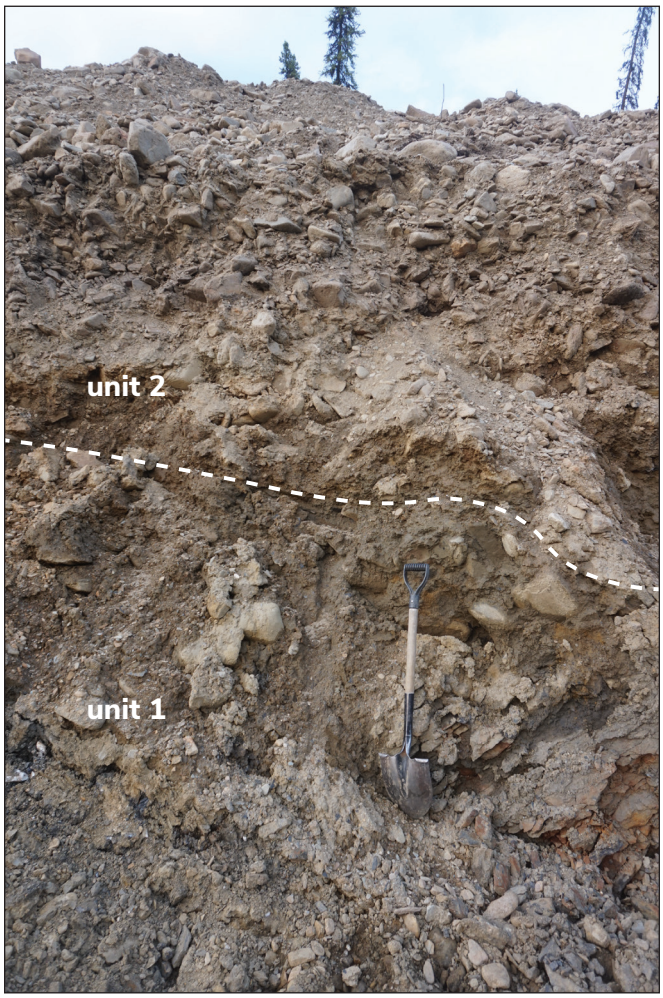


Photo of the lowermost two units exposed on Josephine Creek in 2021. A shovel for scale is 1.0 m (3.3 ft).

Near the mouth of Josephine Creek, depth to bedrock increase significantly, where glacially scoured bedrock reaches a depth of 18 m (60 ft). At this location, a deep trough infilled with till is preserved. The modern creek channel is located on the right limit of the valley where depth to bedrock is very shallow (1.5 m or 5 ft). Better gold values are found in the deeper ground.

An active cut on Josephine Creek in 2021 exposed three units. Unit 1, from 0 to 1 m (0–3 ft), consists of an olive-coloured till deposit containing clasts of decomposed igneous rock. The unit consists of 70% sandy to silty matrix and 30% clasts of pebbles, cobbles and boulders. In other locations in the drainage, this till can be up to 0.9 m (3 ft) thick. Unit 2, from 1 to 2.5 m (3–8 ft), is a poorly to moderately sorted cobble-rich gravel and has a sharp lower contact with the till. Unit 3, from 2.5 to 4.0 m (8–13 ft), consists of colluvium and organic material. All of unit 1 (till) and up to 0.6 m (2 ft) of bedrock (shale) was processed as pay.

Bedrock geology

Bedrock is mapped as brown to pale green shale, quartz-rich sandstone, grit and pebble conglomerate (Yukon Geological Survey, 2022a).

Gold characteristics

Two populations of gold grains are recovered from Josephine Creek: flattened nuggets and subangular, chunky nuggets with quartz inclusions.

Vancouver Creek, a tributary of McQuesten River

115P/11 2023: 63°39'00"N, 137°05'22"W

44830 Yukon Inc., 2015–2023

Water license: PM15-033-3 (active 05/2025)

Active producer (2021–2023) **Operation no. 144**

Location

Vancouver Creek, 2.1 km upstream from its confluence with the McQuesten River.

Work history and mining cuts

44830 Yukon Inc. has varied in their level of activity since they acquired the claims on Vancouver Creek in 2018. Sluicing took place during the 2021 to 2023 seasons, and the company operated with a crew of up to three people.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 345 excavator
- Volvo 390 excavator
- John Deere 744E wheel loader
- Caterpillar D8N bulldozer

Material was processed using a 1.2 by 2.4 m (4 × 8 ft) screen deck with a 3/8" screen, which was capable of processing material at a rate of 31 m³ (40 yd³)/hr. Two runs were present on either side of the plant, each 0.9 by 3.0 m (3 × 10 ft), and consisted of expanded metal lined with Nomad matting. A 6" pump delivered water to the plant, and water was 100% recycled. A vortex riffle table was used for clean-ups.

Surficial geology and stratigraphy

The stratigraphy in Vancouver Creek consists of 0.6 m (2 ft) of loess overlying 8.5 m (28 ft) of cobble gravel; cobbles are rounded. The unit is an unfrozen, openwork gravel. Up to 2.4 m (8 ft) of top gravel was removed and the remainder of the unit was sluiced.

Bedrock geology

Bedrock is mapped as phyllite, shale, sandstone, grit, conglomerate and limestone (Yukon Geological Survey, 2022a).

Gold characteristics

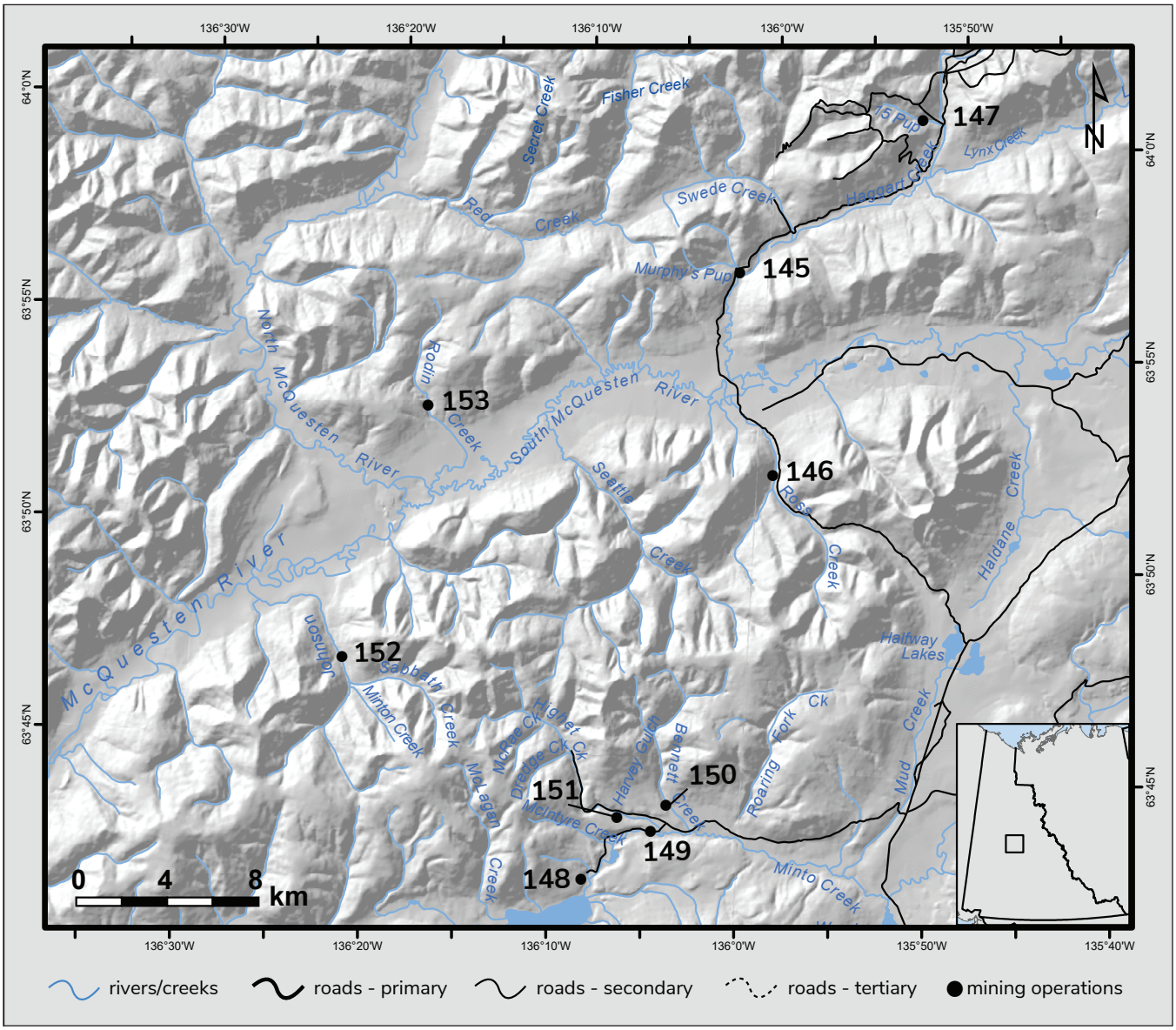
Gold particles are well travelled, as is evidenced by the very thin flat texture, and ‘cornflake' appearance. The fineness is 830.



Drone image of 44830 Yukon Inc.’s mining operation on Vancouver Creek in 2021.

Mayo
placer mining area

Sites 145–153



Legend

145. 532 Placer Mining
146. Yukon Mining Ventures Ltd.
147. Andre, L.
148. 535785 Yukon Inc.
149. Jardine, E.
150. Wilson, K. and J.
151. Steppler Mining Co.
152. Barchen, R.
153. Thomas, C.

Murphy's Pup, a tributary of Haggart Creek

115P/16 2021: 63°56'37"N, 136°01'36"W

532 Placer Mining, 2011–2023

Water license: PM17-049 (active 10/2027)

Active producer (2021–2023) **Operation no. 145**

Location

Murphy's Pup, 0.2 km upstream from its confluence with Haggart Creek.

Work history and mining cuts

532 Placer Mining was active on Murphy's Pup from 2021 to 2023. In 2021, the crew consisted of up to three people, and they completed a cut on the left limit of the drainage. No specific work history is known for 2022 or 2023; however, the company was active on the property for both seasons.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 322 excavator
- dump truck
- John Deere 710D backhoe

The wash plant consisted of a 1.2 by 7.3 m (4 × 24 ft) trommel that screened to 3/4" into a 1 by 3 m (3 × 10 ft) single sluice run. They operated a closed-cell settling facility with a full recycle pumping system. A pan and wheel were used for clean-ups.

Surficial geology and stratigraphy

The stratigraphy at the lower reach of Murphy's Pup consists of five units. The lowermost unit 1 is a false bedrock composed of Reid-age till. Unit 2 is a coarse channel gravel containing boulders from Murphy's Pup deposited during high-energy flow events. Unit 3 is a fluvial fan deposit extending into Haggart Creek. It



Drone image of 532 Placer Mining's property at the mouth of Murphy's Pup in 2023. The view is looking downstream Haggart Creek, or to the south.

consists of a layer of stratified, clast-supported, pebble-rich gravel typical of fan sediments. Unit 4 is a fine-grained overbank deposit composed of silt and sand. Overlying the fan deposit is a landslide diamict (unit 5) that originated from a large landslide on the right-limit slope of Murphy's Pup. This landslide diverted the creek to the left limit and added an overburden layer on the fan surface.

Bedrock geology

Bedrock is mapped as phyllite, shale, sandstone, grit, conglomerate and limestone (Yukon Geological Survey, 2022a).

Gold characteristics

Gold particles are fine grained and have a fineness of 850–860.

Ross Creek, a tributary of South McQuesten River

105M/13 2023: 63°51'53"N, 135°59'14"W

Yukon Mining Ventures Ltd., 2018–2019, 2021–2023

Water license: PM19-013 (active 06/2029)

Active producer (2021–2023) **Operation no. 146**

Location

Ross Creek, 3.6 km upstream from its confluence with the South McQuesten River.

Work history and mining cuts

Yukon Mining Ventures Ltd. staked Ross Creek in 2018, and since then, they have been gradually mining up the drainage. In 2021, mining occurred on placer claims P 524860 and P 524861, which are located at the mouth of an unnamed right fork on Ross Creek. In 2022, the company worked the same general area, and activity was focused on the left limit of Ross Creek. Approximately 18 000 m³ (23 500 yd³) of material was processed. In 2023, a one-person crew sluiced 15 292 m³ (20 000 yd³) of material. A 17 by 35 m (55 × 115 ft) cut on the left limit of Ross Creek targeted a buried glaciofluvial bench deposit. Progressive reclamation occurred during all active seasons.

Equipment and water treatment

The following equipment was used on site:

- Komatsu 290 excavator
- Komatsu 200 excavator

A 1.2 by 4.9 m (4 × 16 ft) trommel was used to process material at a rate of up to 38 m³ (50 yd³)/hr. Water was sourced in equal portions from the surface water of Ross Creek and local groundwater. Additional make-up water was drawn from Ross Creek using a 6" pump, and effluent was settled in a series of two ponds. Clean-ups were completed using a vortex table, followed by a wheel for final concentrate.



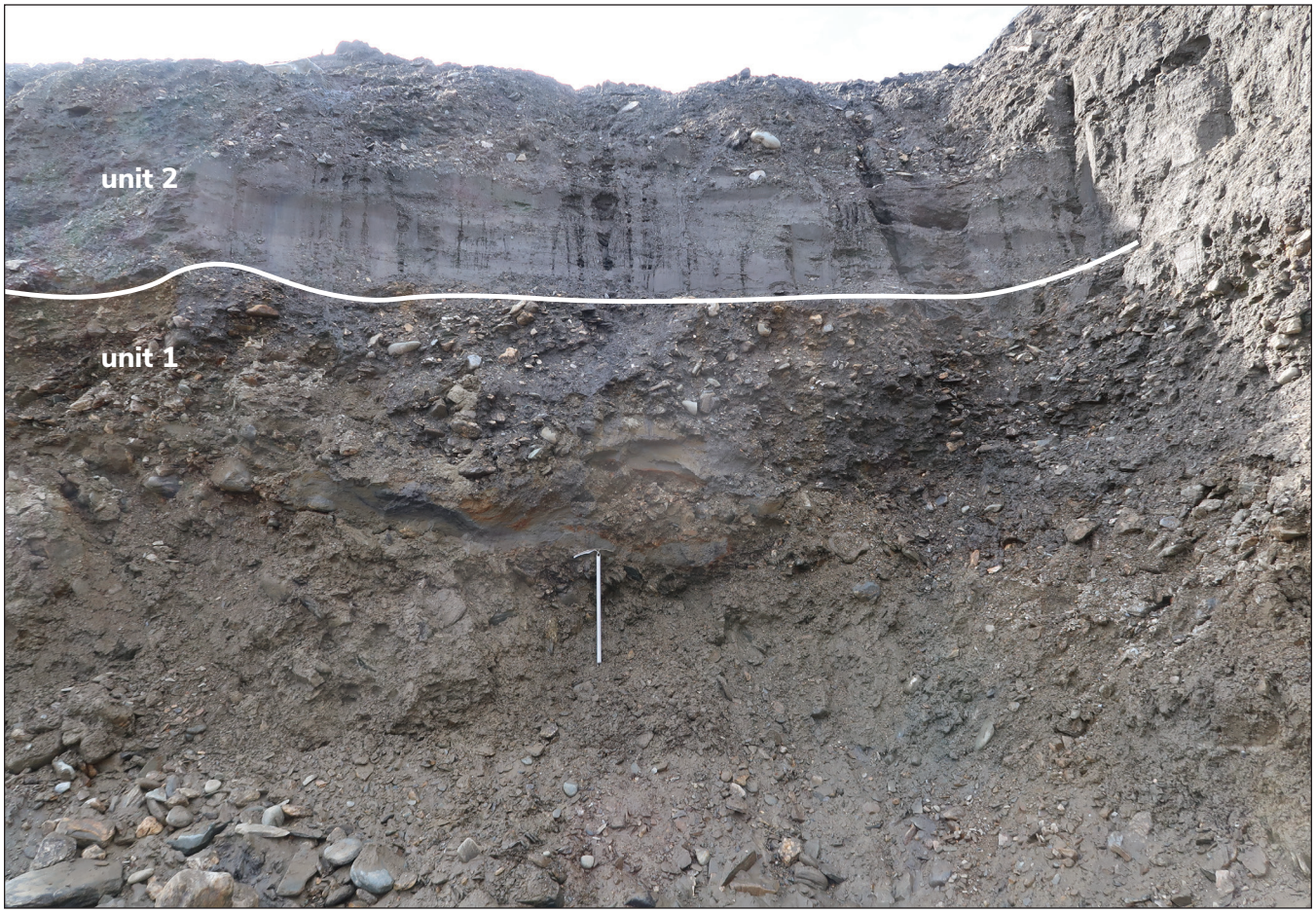
Aerial view of Yukon Mining Ventures Ltd.'s active cut on the left limit of Ross Creek in 2023. The view is looking upstream or to the south.

Surficial geology and stratigraphy

In 2023, a section on Ross Creek exposed 9.7 m (32 ft) of surficial material overlying a flat bedrock surface. Unit 1, from 0 to 3.7 m (0–12 ft), is composed of matrix-supported, massive and compact gravel. This unit contains discontinuous silt and fine-grained sand lenses, flame structures, ice wedge casts, and vertically aligned clasts. Unit 1 is interpreted as a glaciofluvial gravel. Unit 2, from 3.7 to 6.7 m (12–22 ft), comprises angular, grey, well-sorted sand and gravel. Unit 2 is interpreted as interglacial fluvial and colluvial deposits. The uppermost part of the section was stripped prior to mining, but was noted as up to 3.0 m (10 ft) of black muck. The lowermost 3.0 m (10 ft) of gravel and up to 1.2 m (4 ft) of bedrock were processed as pay.

Bedrock geology

Bedrock is brown to pale green shale.



Left-limit exposure on Ross Creek in 2023. Unit 3 is not exposed. An ice axe for scale measures 0.9 m (3 ft).

Gold characteristics

Gold fineness is 790 to 800. In addition to gold, an abundance of native silver was also recovered.

15 Pup, a tributary of Haggart Creek

106D/04 2023: 64°00'26"N, 135°52'12"W

Andre, L., 2022–2023
Dye, K. and B., 2011–2014

Water license: PM20-026-1 (active 03/2026)

Active producer (2022–2023) **Operation no. 147**

Location

15 Pup, a right-limit tributary of Haggart Creek, 0.9 km upstream from its confluence with Haggart Creek.

Work history and mining cuts

In 2022, 50 to 60 hours of sluicing occurred on the property using a shaker screen plant. A second season of sluicing took place in 2023, when L. Andre and his crew of up to seven employees operated a daily 10 hour shift. They completed a 52 by 198 m (170 × 650 ft) cut, and processed the entire width of the creek. As mining progressed, a buried left-limit paleochannel was revealed in the cut. Mining in 15 Pup required thorough planning and a well-developed total recirculation system due to the narrow nature of the valley, which is only 20 m (66 ft) wide.

Equipment and water treatment

The following equipment was used on site:

- Hitachi Zaxis 350 excavator
- John Deere 450 excavator
- Caterpillar D9N bulldozer
- Caterpillar D7H bulldozer

Over the past few years, L. Andre fabricated a new 1.8 by 9.8 m (6 × 32 ft) trommel with a 3/4" screen, capable of processing material at a rate of 76 m³ (100 yd³)/hr. The double sluice runs, each measuring 2.4 by 6.1 m (8 × 20 ft), consisted of slick plates and expanded metal, lined with unbacked miner's moss. The plant included a lower boil box. A 10" pump supplied water to the plant, which operated on a closed-cell system with complete water recirculation.



Aerial view of L. Andre's custom-fabricated trommel on 15 Pup in 2023. View is looking upstream or to the west.

Surficial geology and stratigraphy

An exposure in 2023 on 15 Pup, as described by the operator, consisted of a section 9.1 m (30 ft) thick that included an incised channel 2.4 m (8 ft) deep and approximately 4.6 to 6.1 m (15–20 ft) wide. The pay unit, situated on bedrock, consists of a coarse gravel including boulders several metres in diameter. Overlying the coarse gravel (pay) is a package of sediment that includes four units: a unit of clay; a gravel unit 1.2 m (4 ft) thick; another unit of clay; and a unit of oxidized gravel at the top of the section. An additional cut in 2023 had a total thickness of 3.7 m (12 ft). The previous operator targeted a bedrock gutter that was present in the middle of the drainage; the current operator is targeting the pay gravel that remains on the limits of the gutter. Up to 2.4 m (8 ft) of gravel and up to 0.6 m (2 ft) of bedrock was processed as pay.

Bedrock geology

Bedrock is phyllite.

Gold characteristics

Gold particles are mostly fine grained and have a fineness of 880.

Jarvis Creek, a tributary of Minto Creek

115P/09 2021: 63°42'07"N, 136°08'16"W

535785 Yukon Inc., 2017–2023

Water license: PM15-061 (active 11/2025)

Active producer (2021–2023) **Operation no. 148**

Location

Jarvis Creek; high-level bench above Minto Creek near Minto Lake.

Work history and mining cuts

From 2021 to 2023, 535785 Yukon Inc. has been carrying out limited mining activities and assessment work on their property.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

Based on a previous site visit to the property, the stratigraphy consists of a complex sequence of Reid-age glacial deposits. Unit 1 (pay) is in contact with bedrock and consists of a boulder-rich glacial outwash gravel that has a paleo-flow direction to the southwest. Unit 2 is glacial lake deposit consisting of laminated silt and sand that formed when ice dammed the Minto Creek and Minto Lake valleys. Unit 3 is a compact till deposited by westward-flowing ice. Unit 4 consists of another phase of glacial lake sedimentation after the ice retreated. The sediment package is at least 26 m (85 ft) thick. Exploration bulk sampling has focused on the bedrock terrace rim where sediments are thinner, and where pre-glacial gravel is preserved under glacial lake sediment.

Bedrock geology

Bedrock is phyllite containing quartz veins, which is in contact with oxidized granitic rock.

Gold characteristics

Not reported.

Minto Creek, a tributary of the Mayo River

115P/09 2021: 63°43'21"N, 136°04'43"W

Jardine, E., 2015–2023

Water license: PM18-050 (active 08/2029)

Active producer (2021–2023) **Operation no. 149**

Location

Minto Creek, upper reach, 4.8 km downstream from Minto Lake.

Work history and mining cuts

E. Jardine has five placer claims in the Minto Creek valley, near the confluence with Highet Creek. Little information is known about the level of activity on the property during the reporting period of 2021 to 2023.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 143 excavator
- Bobcat skid steer
- 15 m (50 ft) conveyor

The wash plant featured an oscillating screen deck with a 1.8 by 3.7 m (6 × 12 ft) hopper, capable of processing material at a rate of up to 23 m³ (30 yd³)/hr. The double-deck sluice run, measuring 2.4 by 2.4 m (8 × 8 ft), was equipped with expanded metal and unbacked Nomad matting.

Surficial geology and stratigraphy

At the time of the reporting period, the operator was mining a near-surface, high-energy paleo gravel up to 2.1 m (7 ft) thick. This unit was situated on a low-level terrace on the left limit of Minto Creek. The uppermost 0.6 m (2 ft) of this gravel is very coarse and contains boulders approximately 1 m (3 ft) in diameter. This gravel is overlain by up to 1.2 m (4 ft) of sand, which thickens away from the slope toward the main valley. The gravel unit is interpreted as a deposit of glacial outwash that originated from an ice sheet that flowed up-valley toward Minto Lake. Despite several re-working and incision events in the valley bottom, the pay unit on the low-level terrace remained preserved.

Bedrock geology

Bedrock is mapped as phyllite, shale, sandstone, grit, conglomerate and limestone (Yukon Geological Survey, 2022a).

Gold characteristics

Gold particles are fine grained.

Bennett Creek, a tributary of Minto Creek

115P/09 2023: 63°43'59"N, 136°03'58"W
115P/09 2022: 63°43'52"N, 136°03'45"W

Wilson, K. and J., 2013–2023

Water license: PM17-024-3 (active 05/2027)

Active producer (2021–2023) **Operation no. 150**

Location

Bennett Creek, 1.6 km upstream from its confluence with Minto Creek.

Work history and mining cuts

Bennett Creek has been historically worked but more recently explored by K. and J. Wilson (lower reach) and S. Wozniak (upper reach). The 2021 season was the first time that the creek had been mechanically mined. At the beginning of the 2021 season, the Wilsons concluded mining and reclamation on Minto Creek at the mouth of Bennett Creek, and then followed up by progressively mining up Bennett Creek. They began test mining the lower part of the drainage where it empties from the confines of a narrow valley. Sonic drilling was completed to map gold distribution in the lower part of the drainage. In 2022, an eight-person crew sluiced a cut measuring 30 by 457 m (100 × 1500 ft) in the middle reaches of the drainage. Activity continued throughout 2023, mining upstream toward a canyon in the drainage.



Aerial view of the Wilson's property on Bennett Creek in 2023 where they spent the season progressively mining upstream. The view is looking downstream or to the south toward the Minto Creek valley.

Equipment and water treatment

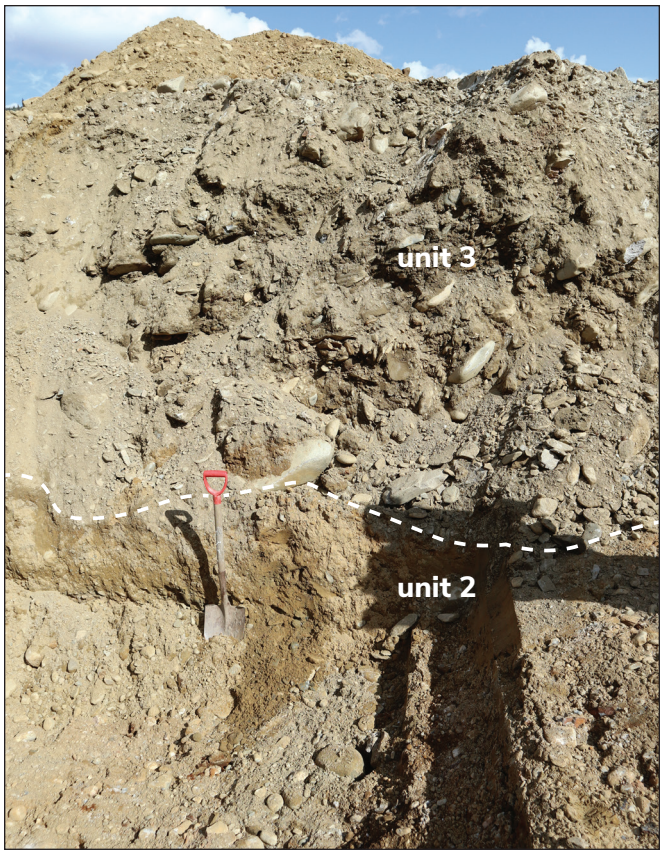
The following equipment was used on site:

- Case 470B excavator
- Linkbelt 460 excavator
- Liebherr 350 excavator
- Samsung 350 excavator
- Caterpillar D300E rock truck
- Caterpillar D9L bulldozer
- Caterpillar D9H bulldozer
- Caterpillar 966 wheel loader
- Caterpillar 988G wheel loader
- Volvo 350 rock truck

The wash plant consisted of an oscillating 2.4 by 3.7 m (8 x 12 ft) deck with 1/2" screen to process fine gold and the high sand content. The sluice runs consisted of six, 0.6 m (2 ft)-wide runs lined with long (1 cm) strand matting and expanded metal riffles. The angle of the runs was increased by 15%, which reduced the concentrate volume while still capturing the gold. The plant processed material at a rate of 61 to 76 m^3 (80–100 yd^3)/hr. Water was 100% recycled. Concentrate was initially run through a mini long tom, then through a 'Flying Dutchman' before being tabled.

Surficial geology and stratigraphy

An exposure in 2022 on the far right limit of Bennett Creek consisted of three units, which were situated on a false bedrock of till (unit 1); the exposure only reached the top of unit 1. Unit 2 is 6.1 m (20 ft) thick and consists of a compact, matrix-supported diamicton. Clasts are angular bedrock fragments, and the matrix is composed of medium sand and minor silt. Unit 3 is a thin, pebble-cobble gravel that is pervasively oxidized, and manganese stained. It is 3 m (10 ft) thick on the far limit and thins to 0.9 m (3 ft) near the creek. The overall stripping ratio is favourable, and gravel stripped off as overburden ranges from 0.9 to 3.0 m (3–10 ft) in thickness. Up to 1.2 m (4 ft) of unit 2 was sluiced. Drilling results indicated 18 m (60 ft) of till on top of bedrock in the main valley bottom of Bennett Creek.



An exposure in 2022 revealed a section consisting of three units. Unit 1 is not visible in the photo and is a till unit acting as a false bedrock. Unit 2 was processed as pay. A shovel for scale measures 1 m (3.3 ft).

Bedrock geology

Bedrock is mapped as phyllite, shale, sandstone, grit, conglomerate and limestone (Yukon Geological Survey, 2022a).

Gold characteristics

Gold particles are fine grained, and 50% of the gold is less than 50 mesh (0.3 mm). The fineness is 840.

Highet Creek, a tributary of Minto Creek

115P/16 2022: 63°43'38"N, 136°06'32"W

Steppler Mining Co., 2016–2022

Water license: PM15-092 (active 06/2026)

Active producer (2021–2022) **Operation no. 151**

Location

Highet Creek, headwaters of the drainage; mid-level, right-limit bench across the valley from the mouth of Harvey Gulch.

Work history and mining cuts

Lower Highet Creek was inactive for several decades until 2021 when Steppler Mining Co. optioned the ground from M. Powers. They began operations mid-season in 2021 with a crew of three people, and sluiced 11 468 m³ (15 000 yd³) of material from a right-limit bench. Mining on the bench continued throughout the 2022 season, and the three-person operation sluiced 26 759 m³ (35 000 yd³) from August to October.

Equipment and water treatment

The following equipment was used on site:

- Hitachi UH30 excavator
- Doosan 225LC excavator
- Caterpillar 988D wheel loader
- Caterpillar D6 bulldozer
- Hayundai 100 loader
- Volvo A25 rock truck
- Volvo A35C rock truck

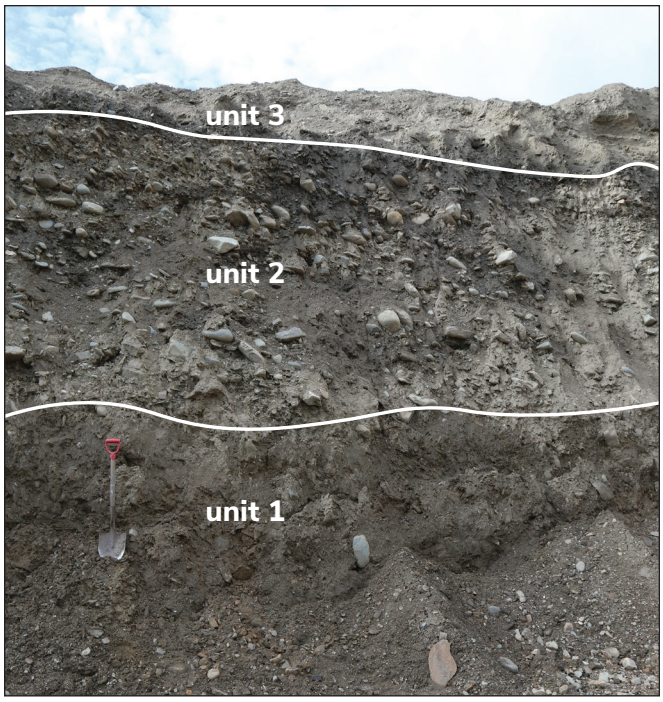
Material was processed with a Derocker, which was able to process material at a rate of up to 76 m^3 (100 yd^3)/hr. Water was supplied to the plant using a 6" pump and water was 100% recycled.

Surficial geology and stratigraphy

In 2022, an exposure on the right-limit bench of lower Highet Creek, targeted by Steppler Mining Co., revealed stratigraphy consisting of two units. Unit 1, from 0 to 3.3 m (0–10.9 ft), is a compact, poorly sorted diamicton. This unit is characterized by a matrix of fine silt and minor sand, and a framework of 70% cobbles and 30% pebbles. Unit 2, from 3.3 to 6.5 m (10.9–21.4 ft), consists



Drone image from 2022 on lower Highet Creek. Steppler Mining Co.'s active cut is delineated by a white dashed line. The view is looking upstream or to the northwest.



Exposure of a right-limit cut wall in 2022. A shovel for scale measures 1 m (3.3 ft).

of a matrix-supported glaciofluvial gravel. Clasts are generally rounded to subrounded and consist of 65% cobbles, 30% pebbles and 5% boulders. The matrix is composed of fine sand and silt. Unit 2 fines upward into a pebble gravel in the uppermost 0.9 m (3 ft), indicating a reduction in flow energy. This upward-fining sequence could be associated with waning meltwater flows during the recession phase of glaciation.

Bedrock geology

Bedrock is biotite schist, and blocky, competent quartzite.

Gold characteristics

The fineness is 840.

Johnson Creek, a tributary of McQuesten River

115P/16 2023: 63°47'02"N, 136°21'42"W

Barchen, R., 2016–2020, 2023

Water license: PM20-049 (active 11/2030)
Water license: PM15-017 (active 05/2025)

Active producer (2023) **Operation no. 152**

Location

Johnson Creek, approximately 6.5 km from its confluence with the McQuesten River.

Work history and mining cuts

R. Barchen has been actively mining in Johnson Creek since 2016. Sluicing was reported for the 2023 season, but no additional information was available for 2021 or 2022.

Equipment and water treatment

The following equipment was used on site:

- John Deere 922D-LC excavator
- Caterpillar 992C wheel loader
- Caterpillar D9H bulldozer
- Komatsu 355 crawler tractor

A Derocker was used to process material at a rate between 99 and 115 m³ (130 and 150 yd³)/hr, depending on the material. The sluice run was 1.2 m (4 ft) wide and included 0.3 m (1 ft) of angle iron, 0.5 m (1.5 ft) of minus 1/2" punch plate, and 3.7 m (12 ft) of angle iron. Concentrate that was separated by the punch plate was then split into two 1.2 by 3.0 m (4 × 10 ft) runs, each with a 0.9 m (3 ft) slick plate, 0.5 m (1.5 ft) angle iron, 0.9 m (3 ft) expanded metal, and 0.5 m (1.5 ft) angle iron. An 8" x 8" pump supplied water to the plant, and effluent was settled in one large pond.

Surficial geology and stratigraphy

Johnson Creek was glaciated during the Reid glaciation, 130 thousand years ago. At that time, ice advanced up Highet Creek and overtopped the divide into Sabbath and Johnson creeks. An exposure from previous work revealed 13.9 m (46 ft) of sediments preserved from this period and earlier glaciations. The gold-bearing unit is a coarse, iron and manganese-stained gravel with a silty, coarse sand matrix. Overlying the pay unit is a diamict. Both units are dissected by Reid outwash gravel, which reworked the lower units near the cut edge, and partially reworked the units when adjacent to the hillside. Reid outwash deposits include more foreign, well-rounded rocks and contain significant placer gold where there has been considerable reworking. However, Pre-Reid gravel contains more locally derived rocks, and the placer gold is concentrated in paleochannels that are preserved closer to the hillsides.

Bedrock geology

Bedrock is phyllite, shale and sandstone of the Yusezyu Formation. The Late Cretaceous Scheelite Dome stock occurs at the headwaters of the drainage.

Gold characteristics

Gold derived from the right-limit cut is all fine grained. The fineness varies from 817 to 820 in Johnson Creek.

Rodin Creek, a tributary of South McQuesten River

115P/16 2023: 63°53'05"N, 136°17'54"W

Thomas, C., 1988–1991, 2022–2023

Water license: PM23-034 (application)

Active producer (2022–2023) **Operation no. 153**

Location

Rodin Creek, 4.2 km upstream from its confluence with the South McQuesten River.

Work history and mining cuts

Little mining activity has taken place on Rodin Creek since the discovery claim was staked in 1908. Although C. Thomas was active in the drainage in the late 1980s to the early 1990s, the property remained inactive until 2022. At that time, C. Thomas and J. Dunne resumed activity and for the past two seasons, focussed their efforts on exploration and bulk sampling.

Equipment and water treatment

The following equipment was used on site:

- Yanmar B7 8.5 ton excavator
- Mustang dumper

Surficial geology and stratigraphy

On Rodin Creek, gold-bearing gravel is situated on bedrock within a thick, stratified sand unit, believed to be a variably reworked, glaciofluvial deltaic deposit of Reid age (120 thousand years ago).

In the South McQuesten River valley, aeolian sand deposits (dunes) have been identified on the Rodin Creek alluvial fan. The sand originated from extensive Reid-age, glacio-deltaic deposits in Rodin Creek, which were redeposited onto the alluvial fan during interglacial periods. The dunes likely formed due to katabatic winds from the McConnell ice sheet (LeBarge et al., 2002).

Bedrock geology

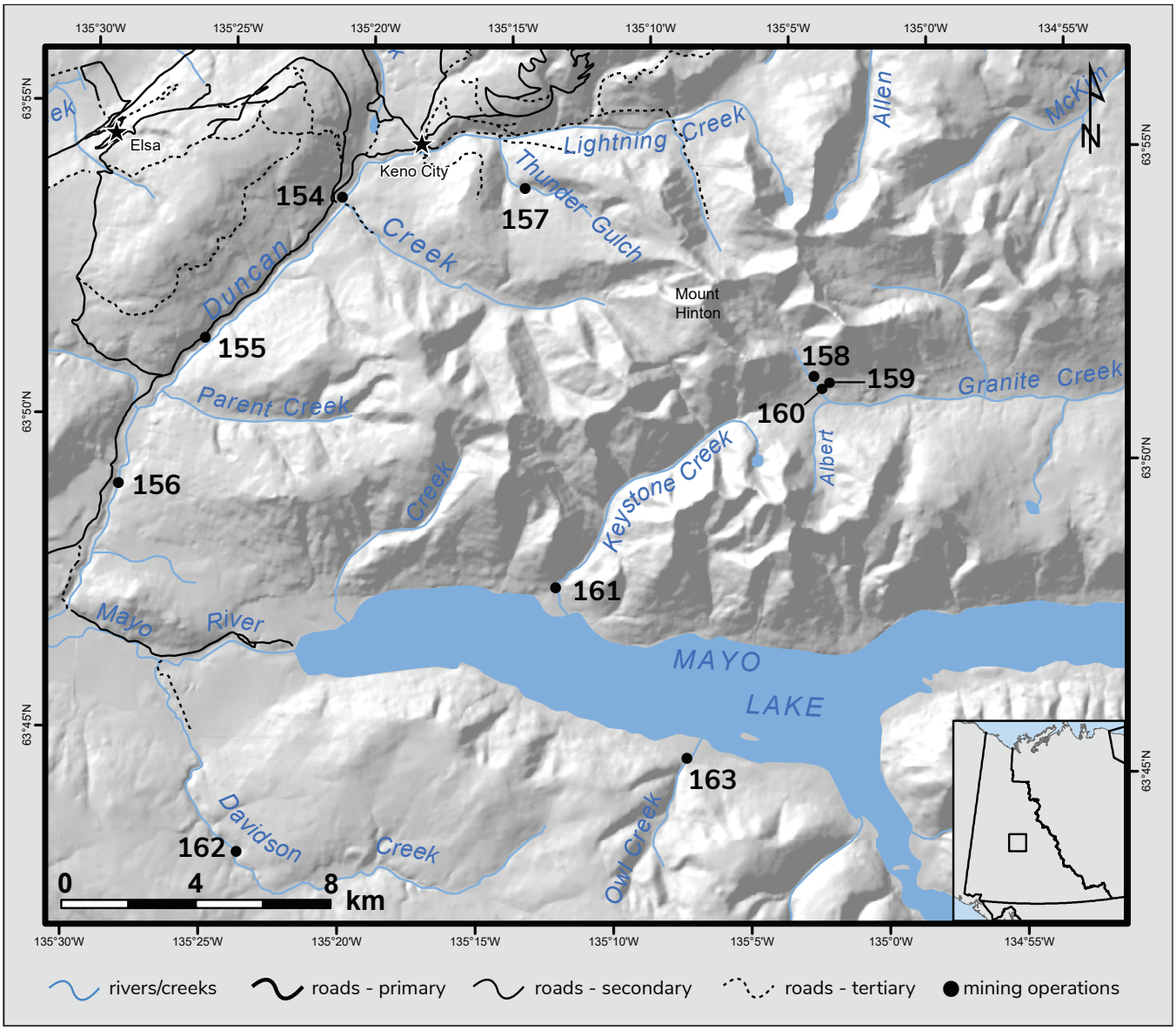
Bedrock is mapped as brown to pale green shale, quartz-rich sandstone, grit and pebble conglomerate (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Keno
placer mining area

Sites 154–163



Legend

154. Humrickhouse, L.
155. FTG Exploration Ltd.
156. Rally! Mining ULC
157. Bardusan Placers Ltd.
158. MDB Nothern Mining and Exploration Inc.
159. Earth & Iron Mines Inc.
160. Dulac Mining
161. Dulac Mining
162. 535785 Yukon Inc.
163. Dulac Mining

Duncan Creek, a tributary of Mayo River

105M/14 2023: 63°53'38"N, 135°20'57"W

Humrickhouse, L., 2023

Water license: PM18-058-1 (active 01/2029)

Active producer (2023) **Operation no. 154**

Location

Duncan Creek, upper reach, at the confluence with Lightning Creek.

Work history and mining cuts

L. Humrickhouse and Duncan Creek Golddusters Ltd. signed a lease agreement and executed a drill program on the property in 2022 to guide mining efforts for the following season. In 2023 Humrickhouse and a five-person crew commenced sluicing on Duncan Creek at its confluence with Lightning Creek. Working daily 12-hour shifts throughout the season, they completed a cut measuring 43 by 52 m (140 × 170 ft) on Duncan Creek and stripped an additional cut on Lightning Creek, located immediately upstream from its confluence with Duncan Creek.

Equipment and water treatment

The following equipment was used on site:

- Hitachi Zaxis 450 HC excavator
- Hitachi Zaxis 350 excavator
- Hitachi Zaxis 670 HC excavator
- Caterpillar 316 excavator
- Komatsu 475 bulldozer
- Caterpillar D8 bulldozer

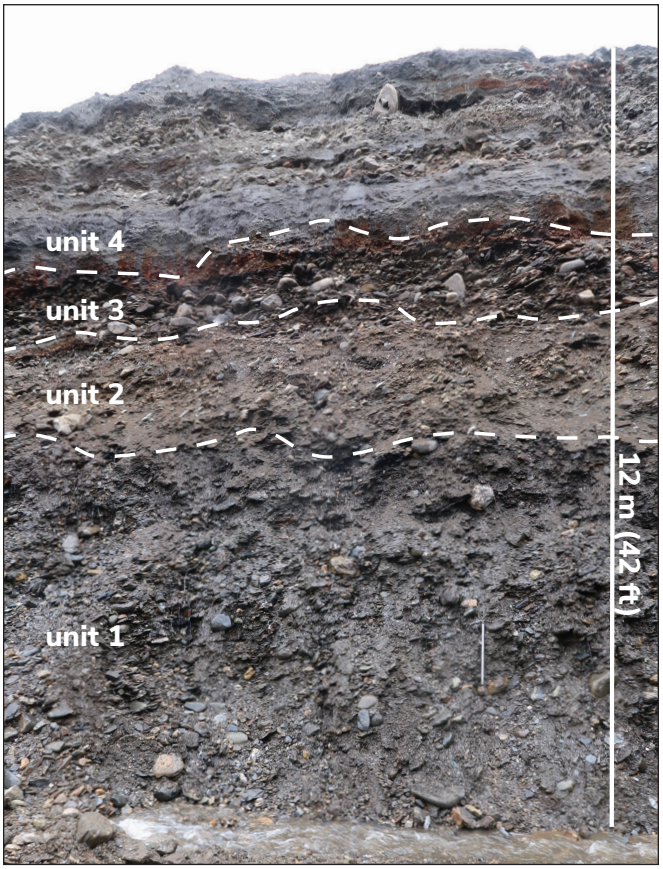
The wash plant consisted of a vibrating screen deck capable of processing material at a rate of up to 229 m³ (300 yd³)/hr.

Surficial geology and stratigraphy

In 2023, a cut on Duncan Creek, immediately downstream from its confluence with Lightning Creek, exposed four units. At the time of the visit in early September, the operators had not reached the bedrock surface. Unit 1, from 0 to 6.4 m (0–21 ft), is a poorly sorted cobble-boulder gravel, containing up to 60% medium-sized cobbles in a sandy matrix. The unit is massive and exhibits no apparent imbrication. The unit fines upward with an increasing silt content



Drone image of L. Humrickhouse's operation in 2023. The two cut locations are delineated with white dashed lines.



Section exposed on Duncan Creek, immediately downstream from its confluence with Lightning Creek.

near the contact with unit 2. Unit 2, from 6.4 to 8.2 m (21–27 ft), is a weakly imbricated, poorly sorted cobble gravel. Unit 3, from 8.2 to 10.1 m (27–33 ft), is a clast-supported, cobble-pebble gravel that fines upward to granules and sand, and has a sharp upper contact with unit 4. Unit 4, from 10.1 to 12.8 m (33–42 ft), consists of a matrix-supported pebble gravel with interbedded lenses of sand, silt and granules.

Bedrock geology

Bedrock is mapped as chlorite schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Duncan Creek, a tributary of Mayo River

105M/14 2023: 63°51'19"N, 135°25'41"W
105M/14 2021: 63°50'07"N, 135°28'03"W

FTG Exploration Ltd., 2021–2023
Zeiler, M., 2003–2017

Water license: PM14-037-1 (active 01/2025)

Active producer (2021–2023) **Operation no. 155**

Location

Duncan Creek, approximately 2 km upstream from the mouth of Parent Creek.

Work history and mining cuts

M. Zeiler transferred his placer claims to FTG Exploration Ltd. in June 2021 when they began their first full season of mining on Duncan Creek. They started the season with a 17-hole drill program supported by the Yukon Mineral Exploration Program. Two areas were mined: one location was adjacent to the Duncan Creek Road on the right limit of Duncan Creek, and the second area was located 0.8 km downstream from the mouth of Parent Creek on the left limit of Duncan Creek. FTG Exploration Ltd. sluiced a total of approximately 650 hours in 2022 and six people were employed. The 2022 and 2023 seasons were spent mining their lowermost claims on the right limit of Duncan Creek, targeting modern Duncan Creek gravel. Each season the company aims to sluice 700 to 800 hours.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 345B excavator
- Caterpillar 330D excavator
- Hitachi 200 excavator
- two Caterpillar 980 wheel loaders
- Caterpillar D6C bulldozer
- Caterpillar D8H bulldozer
- Caterpillar 740 rock truck
- Volvo 40-ton rock truck

The sluice plant consisted of a Macon T-400 and a 1.2 by 4.8 m (4 × 16 ft) trommel with a 5/8" screen. The sluice run included three 1 by 2.4 m (3 × 8 ft) runs of expanded metal and miner's moss. The three runs converged into a 2 by 2 m (6 × 6 ft) run of hydraulic riffles at the lower end of the sluice. A 7.3 m (24 ft)-long conveyor was used to displace tailings. The plant processed material at a rate of up to 92 m³ (120 yd³)/hr. Clean-ups were conducted using a mini trommel followed by a G4 shaker table.

Surficial geology and stratigraphy

The gravel deposit targeted on the right limit of Duncan Creek is 3 to 4.6 m (10–15 ft) thick, and overlies a layer of glaciolacustrine silt and till that acts as a false bedrock. The Holocene alluvium consists of crudely stratified pebble-cobble gravel. The overburden, composed of black muck, is up to 4.6 m (15 ft) thick.

Bedrock geology

Bedrock is graphitic schist and muscovite schist.

Gold characteristics

Not reported.

Duncan Creek, a tributary of Mayo River

105M/14 2023: 63°48'56"N, 135°28'37"W

Rally! Mining ULC, 2018–2021, 2023
Duncan Creek Golddusters Ltd., 1975–2018

Water license: PM18-058-1 (active 01/2029)
Water license: PM14-066 (active 04/2025)

Active producer (2021–2023) **Operation no. 156**

Location

Duncan Creek, approximately 6 km upstream from its confluence with the Mayo River.

Work history and mining cuts

Duncan Creek Golddusters leased their property to Rally! Mining ULC in 2021 and 2023. In 2023, three



Drone image from 2023 of Duncan Creek; the view is downstream and to the south-southwest. Rally! Mining ULC's deep channel cut on the right limit is outlined with a dashed white line.

distinct placer deposits were mined in the creek. The first target was a near-surface deposit of Duncan Creek gravel, where they sluiced 18 349 m³ (24 000 yd³) of material. The second target was a deep channel on the right limit of the creek, where they processed 19 878 m³ (26 000 yd³) of material. Lastly, they confirmed and expanded on a buried left-limit bench deposit that extended farther into the slope than initially anticipated. Although the presence of a preglacial bench on the left limit was known, the use of geophysics and the development of a large cut by Rally! Mining ULC revealed a much larger extent to the deposit. The crew sluiced approximately 25 995 m³ (34 000 yd³) of the preglacial bench deposit.

Equipment and water treatment

The following equipment was used on site:

- Volvo EC700 excavator
- Volvo EC4800L excavator
- Caterpillar 330B excavator
- four Volvo A40F rock trucks
- two Volvo L220 wheel loaders

Surficial geology and stratigraphy

Three placer deposits were targeted on Duncan Creek by Rally! Mining ULC and Duncan Creek Golddusters. The first two, the Holocene Duncan Creek gravel and the deep right-limit channel, have been extensively mined. The Holocene Duncan Creek gravel is a well-sorted coarse gravel deposit up to 2 m (6 ft) thick, situated on a false bedrock of glaciolacustrine silt and till.

The most recently excavated deposit is the preglacial bench on the left limit of Duncan Creek. Using



Rally! Mining ULC's buried left-limit bench on Duncan Creek. The view is looking upstream at a large cut outlined with a white dashed line that was completed to evaluate the deposit.

geophysics combined with the excavation of a large cut, they confirmed the economic viability and extent of this deposit.

Bedrock geology

Bedrock is variably decomposed muscovite-schist.

Gold characteristics

The gold is typically smooth and flat, and includes some rough and rounded pieces. The majority of the gold is finer than 18 mesh (1 mm). The fineness is 780.

Thunder Gulch, a tributary of Lightning Creek

105M/14 2022: 63°53'55"N, 135°14'20"W

Bardusan Placers Ltd., 1991–1992, 1998–2012, 2014–2023

Water license: PM13-055 (active 04/2024)

Active producer (2021–2023) **Operation no. 157**

Location

Thunder Gulch, 2 km upstream from its confluence with Lightning Creek.

Work history and mining cuts

For the past five years, Bardusan Placers Ltd. has focused mining at the confluence of Thunder Gulch and Lightning Creek. In 2022, they reestablished mining on the mid-reaches of Thunder Gulch, approximately 1.5 km upstream from its confluence with Lightning Creek. Working with a three-person crew, they completed a cut measuring 30 by 91 m (100 x 300 ft), and 24 m (80 ft) deep. They continued to progressively mine upstream throughout 2023.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 450 excavator
- Caterpillar 365 excavator
- Caterpillar 980C wheel loader
- Hitachi UH20 excavator
- Caterpillar 988B wheel loader
- Volvo wheel loader

The wash plant consisted of a 3 by 6 m (10 × 20 ft) Derocker, which fed three stacked sluice runs with flat bar riffles in the upper run, and 1" angle iron riffles and expanded metal in the lower two runs. The Derocker was able to process material at a rate of 57 m^3 (75 yd^3)/hr. Clean-ups were conducted using a long tom to concentrate, followed by a magnet to isolate the magnetic minerals. The concentrate was then melted into a doré bar.



Bardusan Placers Ltd.'s operation on Thunder Gulch in 2022. The view is looking upstream or to the southeast.

Surficial geology and stratigraphy

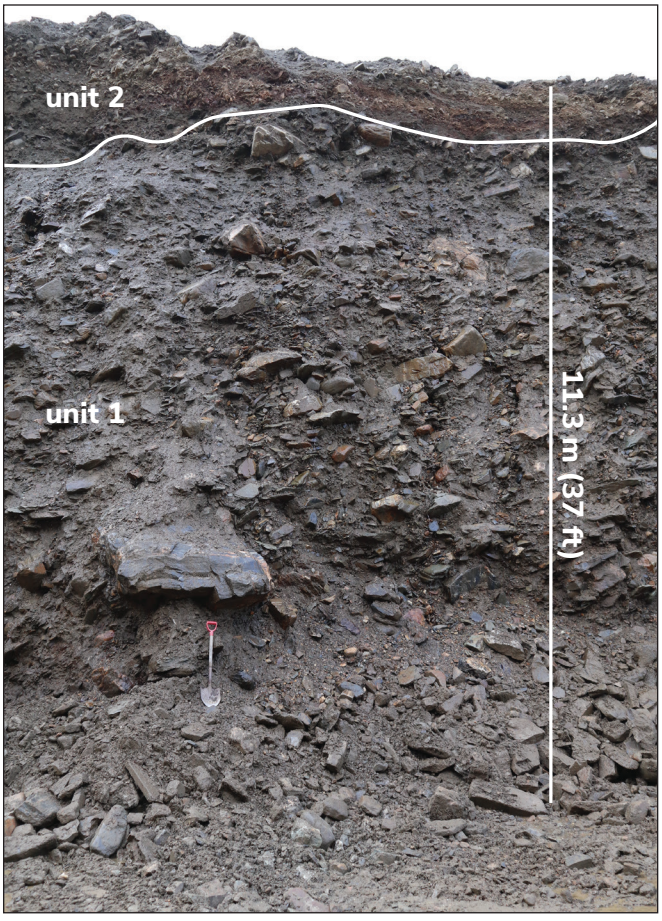
A section in 2022 at Thunder Gulch, revealed a gold-enriched bedrock trough approximately 18 m (60 ft) wide. The total exposed section was 11.3 m (37.1 ft) thick and comprised two units. Unit 1, from 0 to 8.7 m (0–28.5 ft), is a boulder-rich till, and clasts range from rounded to angular. The lower half of the unit is matrix-supported, and contains imbricated subrounded boulders with paleoflow parallel to modern current direction. The largest boulder is 2.2 m (7.2 ft) in diameter. The lower part of the unit consists of 70% clasts (50% boulders, 40% cobbles, 10% pebbles) and 30% matrix composed of sandy silt. The upper part of unit 1 transitions to a cobble-boulder till containing angular clasts. Unit 2, from 8.7 to 11.3 m (28.5–37.1 ft), is an oxidized cobble-pebble gravel with interbedded sand lenses.

Bedrock geology

Bedrock varies between shale, quartzite and schist.

Gold characteristics

Gold grain texture is subcrystalline and becomes more crystalline upstream.



Exposure in 2022 on Thunder Gulch consisting of two units.

Granite Creek, a tributary of Roop Lakes

105M/14 2023: 63°51'00"N, 135°03'00"W

MDB Northern Mining and Exploration Inc., 2022–2023
Davies, J., 2014–2021

Water license: PM20-064-1 (active 08/2032)
Water license: PM19-049 (cancelled)
Water license: PM12-012-3 (expired 07/2022)

Active producer (2021–2023) **Operation no. 158**

Location

Upper Granite Creek, southeast of Mount Hinton.

Work history and mining cuts

J. Davies was active in 2021, alongside three other operators who leased claims on his Granite Creek property. Earth & Iron Mines Inc. worked an 80 by 130 m (262 × 426 ft) cut throughout the season, processing material at a rate of 153 m³ (200 yd³)/hr using their double screen deck. Dulac Mining operated with a crew of up to eight people, targeting a section 6 m (20 ft) thick. B. Gemmer of GEM Steel Edmonton Ltd. began their first season sluicing in the drainage on Albert Creek, a right-limit tributary to Granite Creek, processing coarse pay gravel using a custom-built Derocker feeding into a screen deck.

In 2022, a new operator, MDB Northern Mining and Exploration Inc., leased the property from J. Davies. MDB Northern Mining and Exploration Inc. arrived on the creek in late July, and completed two cuts. By mid-September they had sluiced and backfilled one cut, and were sluicing material from their second cut. This second cut, measured 40 by 55 m (131 × 180 ft) and was 20 m (66 ft) deep. An eight-person crew continued mining throughout the 2023 season, and in July 2023, MDB Northern Mining and Exploration Inc. acquired 50% ownership of the claims.

Equipment and water treatment

The following equipment was used on site:

- two John Deere 450 excavators
- John Deere 270 excavator
- Caterpillar 966 wheel loader
- Caterpillar D9 bulldozer
- Terex and Caterpillar rock trucks

The wash plant consisted of a Derocker that screened material to 1¼", and included sluice runs containing hydraulic riffles, Hungarian riffles and expanded metal. A 10" pump supplied water to the plant at a flow rate of 4543 LPM (1200 GPM), and material was processed at a rate of 34 to 38 m³ (45–50 yd³)/hr. A series of three settling ponds were located out-of-stream, immediately downstream from the wash plant, and there was no discharge into the creek.

Surficial geology and stratigraphy

Placer gold concentrations in the subsurface of Granite Creek valley are variable and were affected significantly by past alpine glaciation. Bedrock mineralization is the primary control on placer gold distribution, which is poorly understood because of the surficial cover in the valley bottom. Erosion of gold-bearing veins in bedrock by multiple, past alpine glacial events, and subsequent reworking of the glacial sediments by interglacial streams, have resulted in a complex gold distribution. In the original discovery pit, the majority of the placer gold was recovered from an alpine till deposit, which appeared to have eroded a local source of mineralized bedrock and reworked an interglacial stream deposit that was likely also enriched in gold. These two contributing sources resulted in the alpine till deposit containing profitable concentrations of gold. Thick sequences of glaciofluvial gravel deposited during the advance stages of the last glaciation were also found to contain low-concentrations of gold scattered throughout the unit. Using high-capacity wash plants to process these glaciofluvial gravel deposits makes them economic to mine, or at least offset the cost of stripping down to the more profitable layers. Since placer gold was discovered on Granite Creek, a host of glacial and non-glacial gravel units have been exposed and tested for their placer gold concentration. The stratigraphy of these deposits and their relative gold concentrations were detailed by Steinke et al. (2022). Her research provides a template for exploring alpine glaciated environments for placer gold.

In 2022, mining was initiated on the right limit, downstream from a large moraine, and where economic placer deposits were discovered in a cut in 2013. The pay unit consisted of brown oxidized till on bedrock and where exposed, was 13 m (43 ft) thick and overlain by 7 m (23 ft) of unoxidized grey gravel.

Bedrock geology

Bedrock is mapped as shale and quartzite (Yukon Geological Survey, 2022a).

Gold characteristics

Gold grains are highly crystalline to subcrystalline and slightly rounded. Two distinct grain size populations were recovered: 60% at -4 mesh (<4.8 mm) and 40% at +4 mesh (>4.8 mm).

Granite Creek, a tributary of Roop Lakes

105M/14 2021: 63°51'06"N, 135°03'34"W

Earth & Iron Mines Inc., 2018–2021

Water license: PM17-014 (active 06/2027)
Water license: PM17-009 (active 05/2027)
Water license: PM16-081-1 (active 03/2027)

Active producer (2021) **Operation no. 159**

Location

Granite Creek, headwaters.

Work history and mining cuts

In 2021, Earth & Iron Mines Inc. operated under an option agreement with Davies Contracting and focused their efforts on two large cuts on the left limit of Granite Creek. Their primary focus for that season was on one of the two cuts that measured 80 by 130 m (262 × 427 ft), and had a depth of 33.5 m (110 ft) at its deepest point. In 2022, they ended the option agreement and sold their claims on Granite, Faith and Allen creeks to Metallic Minerals.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 355 excavator
- Caterpillar 345B excavator
- Caterpillar 988F wheel loader
- three Caterpillar 740 rock trucks

The wash plant consisted of a grizzly-conveyor feeder and a double screen deck. The sluice box consisted of an initial 1.2 m (4 ft)-wide section of angle iron and boil box that subsequently fanned to a 3.7 m (12 ft)-wide section consisting of an initial slick plate, followed by expanded metal, hydraulic riffles, boil box, angle iron and additional expanded metal. The total length of the sluice box was 10.4 m (34 ft). The plant was capable of processing material at a rate of 92 to 115 m^3 (120–150 yd^3)/hr. Out-of-stream settling facilities consisted of a series of four initial settling ponds, which drained into a former mine cut. Coarse tailings were used to filter wastewater prior to discharging into the former mine cut. Pumps were located at the far end of the mine cut for recirculation back to the plant.



Drone image from 2021, taken from the Granite Creek valley looking into the headwaters of the drainage or to the northwest. All three operations that were active in 2021 are labeled.

Surficial geology and stratigraphy

The primary cut in 2021 exposed a complex stratigraphy of interglacial and glacial sediments containing economic concentrations of gold in three different units. The stratigraphy varied in the cut and therefore was described at multiple locations. The base of the cut only exposed bedrock in the northwest corner whereas the remainder of the cut floor was on a basal till interpreted as alpine till (unit 1) from the Reid glaciation (Steinke et al., 2022).

A section exposed on the northeast corner of the cut was documented by Steinke et. al. (2022) and consisted of eight units. Unit 1, from 0 to 1.5 m (0–4.9 ft) is a consolidated beige-coloured till containing abundant subrounded to rounded clasts. The matrix consists of silty sand and accounts for 65% of the material. Clasts within the unit account for 35% of the deposit and consist of 75% cobbles, 20% pebbles and 5% boulders. Clast fabric suggests the till was emplaced by an alpine glacier that accumulated and flowed from the Granite Creek cirque during the Reid glaciation (130 thousand years ago). Although this unit contains low concentrations of gold, it was processed as pay. Unit 2, from 1.5 to 2.5 m (4.9–8.2 ft) is a coarsening upward sequence of horizontally bedded sand and gravel. This unit contains moderate concentrations of placer gold and is interpreted as a glaciofluvial gravel deposited during the advance of ice from Granite Creek cirque during the Gladstone glaciation (~70 000 years ago). Unit 3, from 2.5 to 6.0 m (8.2–19.7 ft) is an oxidized till from the Gladstone glacial advance. The till contains 65% matrix of silty fine sand. The framework consists of 35% clasts (45% pebbles, 40% cobbles and 15% boulders). This unit was processed for pay and contains variable concentrations of gold. Unit 4, from 6 to 10 m (19.7–32.8 ft) is a coarsening upward unit of sand to very coarse, oxidized and manganese-stained gravel. The gravel is clast supported with 15% matrix of medium to coarse sand. The framework consists of 85% clasts of 40% cobbles, 30% pebbles and 30% boulders. This unit is interpreted as an interglacial deposit, which is discontinuous and only exposed in the northeast corner of the cut. It contains high concentrations of placer gold and is considered a high priority target for future exploration. Unit 5 consists of 15 m (49 ft) of coarse gravel that is interpreted as advance glaciofluvial gravel from the Granite Creek alpine glacier during the last (McConnell) glaciation 20 000 years ago. This unit is processed for pay. A glaciolacustrine silt that is 2 m (6 ft) thick overlies unit 5 and formed when the Cordilleran Ice Sheet advanced up lower Granite Creek, blocked the drainage, and formed a glacial lake in the valley (unit 6). Alpine glaciers advanced into the glacial lake and deposited 5 m (16 ft) of till (unit 7). Low concentrations of placer gold are found within the McConnell alpine till. When the alpine glacier retreated, an additional 2 m (6 ft) of glaciolacustrine silt was deposited. The section is capped with 1 m (6 ft) of loess (wind-blown silt) that was deposited after the ice retreated, the glacial lake drained, and the landscape was unvegetated.

The west side of the large 2021 cut has higher concentrations of gold at the top of the section and lower grades at the bottom of the section, which is the opposite of the east side that is described above. This variation is due to changes in the stratigraphy within the cut and is detailed in Steinke et al. (2022). The west side of the cut intersected modern Granite Creek alluvial gravel at the top, which has reworked glacial sediments and concentrated gold on a false bedrock of low-grade glaciofluvial gravel.

Bedrock geology

Bedrock is Keno Hill quartzite and schist.

Gold characteristics

Gold grains are highly crystalline to subcrystalline and rounded. Gold grain-size distribution is 60% –4 mesh (<4.8 mm) and 40% +4 mesh (>4.8 mm). More fine gold was recovered in 2021 compared to 2020. In 2021, approximately 5% of the gold recovered was coarse grained compared to 10–20% coarse gold recovered in 2021.

Granite Creek, a tributary of Roop Lakes

105M/14 2021: 63°50'50"N, 135°03'37"W

Dulac Mining, 2020–2021

Water license: PM20-064 (active 08/2032)
Water license: PM12-012-3 (expired 07/2022)

Active producer (2021) **Operation no. 160**

Location

Granite Creek, 1.6 km downstream from its headwaters.

Work history and mining cuts

In 2021, Dulac Mining continued to option ground on the right limit of Granite Creek from J. Davies. They operated a daily 12-hour shift with a crew of eight people. In 2022, Dulac Mining moved out of Granite Creek and focused their efforts on Keystone Creek.

Equipment and water treatment

The following equipment was used on site:

- John Deere 800C excavator
- Hitachi Zaxis 450LC excavator
- Caterpillar 980 wheel loader

- Caterpillar D7 bulldozer
- two Caterpillar 769B rock trucks

A Derocker was used to process material at a rate of up to 46 m^3 (60 yd^3)/hr. Settling facilities were located out-of-stream, and consisted of three ponds.

Surficial geology and stratigraphy

A section at Dulac Mining's cut in 2021, documented by Steinke et al. (2022), consisted of eight units. The mining cut did not reach bedrock. Unit 1, from 0 to 1.5 m (0–4.9 ft), is a consolidated beige-coloured till containing abundant subrounded to rounded clasts. The matrix consists of silty sand and accounts for 65% of the unit. The framework, which makes up 35% of the unit, consists of 75% cobbles, 20% pebbles and 5% boulders. Clast fabric suggests the till was deposited by an alpine glacier sourced from the Granite Creek cirque during the Reid glaciation (130 thousand years ago). This unit was processed for pay, although it contains low concentrations of gold. Unit 2, from 1.5 to 8.5 m (4.9–27.9 ft), is an oxidized till. The matrix accounts for 65% and consists of silty fine sand. The framework makes up 35% and consists of 45% pebbles, 40% cobbles and 15% boulders. This till unit was deposited by an alpine glacier flowing from the Granite Creek cirque during the Gladstone glaciation (60 000 years ago). It was processed for pay and contains variable concentrations of gold. Unit 3, from 8.5 to 10 m (27.9–32.8 ft), is a coarse, poorly sorted gravel with a sandy matrix. Clasts consist of 45% cobbles, 40% boulders and 15% pebbles. This unit is interpreted as retreat glaciofluvial gravel deposited off the Granite Creek alpine glacier at the end of the Gladstone glaciation and contains moderate amounts of placer gold. Unit 4, from 10 to 11.5 m (32.8–37.7 ft), contains a variably oxidized deposit of loess, and a paleosol. This unit is interpreted as loess deposited at the end of the Gladstone glaciation and paleosol development during the subsequent interstadial (warm period). Paleosol development records the non-glacial conditions associated with the interstadial that occurred between 55 000 and 30 000 years ago. Unit 5, from 11.5 to 13 m (37.7–42.7 ft), is a coarse gravel that fines upward into interbedded sand and gravel. It is a laterally continuous unit, which thickens considerably at the Earth & Iron Mines Inc. cut, and is interpreted as glaciofluvial gravel associated with the advance of the Granite Creek alpine glacier during the onset of the most recent McConnell glaciation (24 000–11 000 years ago). It contains low concentrations of placer gold. Unit 6, from 13 to 16.5 m (42.7–54.1 ft), is horizontally bedded silt and sand, which is locally deformed. This unit is found near the top of most excavations located in the Granite–Keystone pass area, and is interpreted as glacial lake sediment deposited when the Cordilleran Ice Sheet advanced up lower Granite Creek and blocked the drainage. Unit 7, from 16.5 to 20.5 m (54.1–67.3 ft), is a dark grey till. Clasts are local lithologies and consist of quartzite and phyllite. This unit was deposited by the most recent advance of ice from Albert Creek during the McConnell glaciation and contains low concentrations of placer gold. Unit 8, from 20.5 to 22 m (67.3–72.2 ft), is a coarse, moderately sorted, clast-supported glaciofluvial gravel. The framework makes up 75% of the unit and consists of 45% pebbles, 35% cobbles and 20% boulders. The matrix (25%) consists of medium-grained sand. This unit was deposited by meltwater draining off the alpine glacier as it retreated back toward the Granite Creek cirque at the end of the McConnell glaciation.

Bedrock geology

Bedrock is Keno Hill quartzite and schist.

Gold characteristics

Gold grain-size distribution is 60% -4 mesh (<4.8 mm) and 40% +4 mesh (>4.8 mm).

Keystone Creek, a tributary of Mayo Lake

105M/14 2022: 63°47'34"N, 135°12'37"W

Dulac Mining, 2022

Water license: PM18-007-1 (active 07/2028)

Active producer (2022) **Operation no. 161**

Location

Keystone Creek, 0.9 km upstream from its outlet at Mayo Lake.

Work history and mining cuts

Dulac Mining was active in 2022 on Keystone Creek, a tributary of Mayo Lake, where they focused mining at the apex of a fan delta landform. This was the first year of mechanized mining in the drainage after leasing the claims from Earth & Iron Mines Inc.

Equipment and water treatment

The following equipment was used on site:

- John Deere 800C excavator
- Hitachi Zaxis 450LC excavator
- Caterpillar 980 wheel loader
- Caterpillar D7 bulldozer
- two Caterpillar 769B rock trucks

A Derocker was used to process material at a rate of up to 46 m^3 (60 yd^3)/hr. Settling facilities were located out-of-stream, and consisted of three ponds. The initial



Aerial photo of Dulac Mining actively sluicing on Keystone Creek in 2021. Mayo Lake is visible in the background.



Exposure of the coarse, high-energy pay gravel on Keystone Creek in 2021. A pick for scale measures 0.6 m (2 ft).

pond captured the coarse sluice tailings (sand and pebbles), which was excavated and used as a substrate in the nearby camp. The second pond captured sand and silt, and the third (larger u-shaped) pond settled silt and clay. Water was recirculated back to the plant from the third pond.

Surficial geology and stratigraphy

Keystone Creek has a complex stratigraphy due to the influence of glaciers that once flowed westward in the Mayo Lake valley, which damned tributary valleys such as Keystone Creek. As the operator progressed upstream into the confines of the Keystone Creek valley, the stratigraphy became more predictable as the surficial material reflected the local alpine glaciation. Interglacial gravel was intersected; however, the bedrock surface was not reached on the right limit. Near-surface deposits consist of a very high-energy boulder gravel unit up to 4 m (13 ft) thick, which was deposited during a deglacial reworking (flush) event.

Bedrock geology

Bedrock is mapped as chlorite schist (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Davidson Creek, a tributary of Mayo River

105M/11 2022: 63°43'07"N, 135°23'43"W

535785 Yukon Inc., 2018–2023

Water license: PM15-056 (active 08/2026)
Water license: PM14-005-1 (active 05/2024)

Active producer (2021–2023) **Operation no. 162**

Location

Davidson Creek, approximately 6.6 km upstream from its confluence with the Mayo River.

Work history and mining cuts

In recent years, the operator has mainly focused on the lower reaches of Davidson Creek and upstream from a lowermost canyon in the drainage. In 2021, the operator moved further upstream, just below a second canyon. A crew of two people continued mining upstream throughout 2022 and 2023, toward the mouth of the second canyon.

Equipment and water treatment

The following equipment was used on site:

- John Deere 330LC excavator
- Doosan DX420LC excavator
- Hitachi EX330LC excavator
- two Caterpillar D400E rock trucks
- Caterpillar D6 bulldozer

An oscillating screen deck was used to process pay, and consisted of two split runs, each measuring 2.0 m (6.6 ft) in width by 3.8 m (12.5 ft) in length; both runs included 1½" and ⅜" screens. The run configuration included a 0.3 m (1 ft) slick plate, a boil box, and 1.0 m (3.4 ft) of expanded metal lined with 3M™-backed vortex matting. Water was supplied to the plant using a 6" pump at a flow rate of 9464 LPM (2500 GPM). The plant processed between 76 and 92 m³ (100 and 120 yd³)/hr, depending on the material. Clean-ups were conducted every 20 hours using a jig, screens, demagnetizer and pan. Water was 100% recycled.

Surficial geology and stratigraphy

Davidson Creek is partially within the McConnell glacial limit, whereby glacial ice created a diversion above a canyon in the upper reach of the creek. Prior to the last glaciation, upper Davidson Creek flowed south to Janet Lake. During the McConnell glaciation, meltwater was diverted northward into the Mayo River valley, which formed a canyon in Davidson Creek and diverted its flow to the north. Glacial outwash deposits blanket upper Davidson Creek near the diversion. The source of gold recovered in lower Davidson Creek below the canyon is unknown, but the gold grain morphology is flat suggesting a moderate amount of travel. If placer gold is found near the diversion point inside the canyon, it would indicate an upstream source. Typically, placer gold does not originate in meltwater channels without prior interglacial stream occupation (LeBarge et al., 2002).

Bedrock geology

Bedrock is weathered schist.

Gold characteristics

Gold particles are coarse grained, and fineness ranges from 830 to 840.



Aerial view of 535785 Yukon Inc. stripping their cut in 2022 on Davidson Creek.

Owl Creek, a tributary of Mayo Lake

105M/11 and 105M/14 2023: 63°44'56"N, 135°07'36"W

Dulac Mining, 2023
Barchen, R., 2001–2006

Water license: PM22-014 (active 03/2033)

Active producer (2023) **Operation no. 163**

Location

Owl Creek, 0.7 km upstream from its outlet at Mayo Lake.

Work history and mining cuts

Owl Creek is a tributary on the south side of Mayo Lake that has not been mined since 2006 (formerly mined by R. Barchen). The initial discovery of Owl Creek (historically referred to as Gull Creek) was in October 1909 by A. Hester and J. Philip. Extensive activity occurred on the creek from 1910 to 1917, where four individuals conducted shaft and drift work, sinking five shafts and driving a total of 45 m (150 ft) of drift from four of the shafts. They also ground-sluiced 1987 m^3 (2600 yd^3) of gravel (Yukon Geological Survey, 2010). In 2023, Dulac Mining mobilized to the site and began mining on the lower reach of the drainage, immediately above the fan apex and on the right limit.

Equipment and water treatment

The following equipment was used on site:

- Hitachi Zaxis 450LC excavator
- excavator
- three Caterpillar 769 rock trucks
- wheel loader
- Derocker

Surficial geology and stratigraphy

Most of the prospects remaining in the drainage consist of side pay deposits and potential pay streaks extending out onto the fan delta. Pay gravel is overlain by a layer of glaciolacustrine silt, glacial outwash gravel and till. The pay gravel is a poorly sorted, clast-supported gravel. Clasts are angular and consist of lithologies derived from local bedrock. This deposit is indicative of a high-energy flow, which occurred prior to the last glaciation.

Bedrock geology

Bedrock is mapped as phyllite, shale, sandstone, grit and conglomerate (Yukon Geological Survey, 2022a).

Gold characteristics

Gold particles are typically coarse grained.



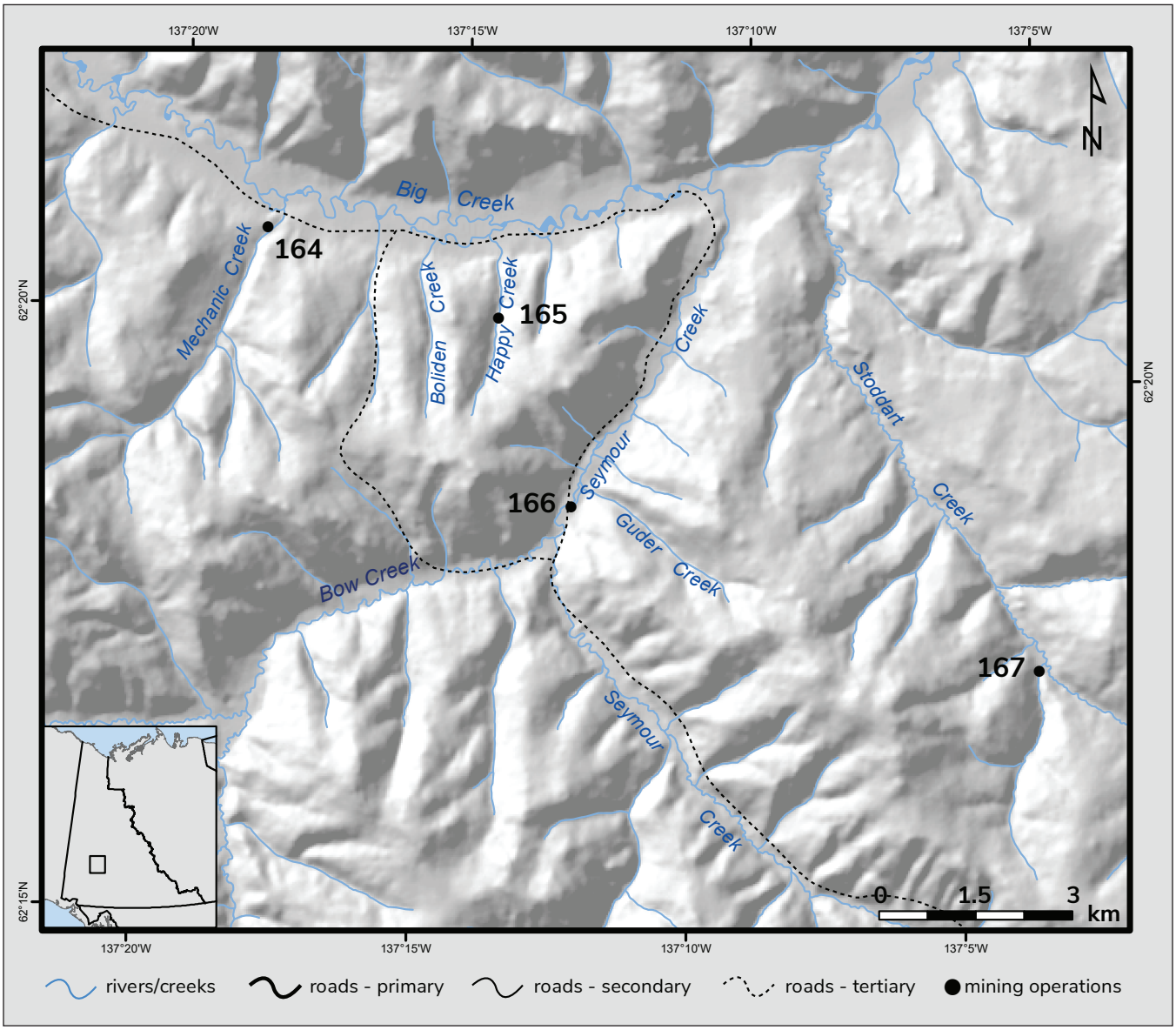
Aerial view of lower Owl Creek where Dulac Mining operated in 2023. The view is looking upstream or to the south. (Photo credit: J. Bond, Mammoth Terrain Inc.)



The poorly sorted, pay gravel rich in locally derived angular clasts is indicative of a high-energy flow deposit. The oxidized gravel in the background is the outwash gravel that underlies a frozen till unit. A pick for scale measures 0.6 m (2 ft). (Photo credit: J. Bond, Mammoth Terrain Inc.)

Big Creek
placer mining area

Sites 164–167



Legend

164. Right Fork Mining
165. 641166 Alberta Ltd.
166. Dodge, D.
167. 40056 Yukon Inc.

Mechanic Creek, a tributary of Big Creek

115I/06 2023: 62°20'45"N, 137°18'25"W

Right Fork Mining, 2000–2023

Water license: PM14-008-2 (active 07/2024)
Water license: PM24-023 (renewal)

Active producer (2021–2023) **Operation no. 164**

Location

Mechanic Creek, 260 m upstream from its confluence with Big Creek.

Work history and mining cuts

From 2021 to 2023, Right Fork Mining focused its efforts on the Mechanic Creek fluvial fan, located at the confluence with Big Creek. B. Gow of Right Fork Mining primarily operated solo and sluiced approximately 7646 m³ (10 000 yd³) of material per season. In 2023, a cut measuring 38 by 63 m (125 × 208 ft) was completed on the far, right limit of the fluvial fan.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 235 excavator
- Hitachi UH172 excavator
- Caterpillar D7E and D9L bulldozer
- dump truck
- Caterpillar 980B wheel loader

A vibrating triple screen deck was used to process material at a rate of up to 45 m³ (60 yd³)/hr. The initial deck screened to 4", the subsequent deck screened to 2", and the third and final deck used a 5/8" screen. The minus 5/8" sediment was fed into multiple sluice runs with a combined width of 3 m (10 ft). Sediment that is less than 51 mm (2 in) but greater than 16 mm (5/8 in) passes over a second 2" screen and is fed into the lower parts of the sluice runs. The lower sluice runs have an increased slope angle to handle the larger clast size. A series of nine settling ponds were present in the Mechanic Creek drainage, mostly occupying previously mined areas. Water was 100% recycled. Clean-ups were conducted using a jig and an XTruder 255 shaker table.

Surficial geology and stratigraphy

At the mouth of Mechanic Creek, mining activity has focused on excavating a series of coarse, boulder channel deposits. The deposits are derived from Mechanic Creek and are incised into a bench on Big Creek. These coarse deposits were preserved by the Big Creek bench



Aerial view of Right Fork Mining's operation at the mouth of Mechanic Creek. The 2023 cut, delineated with a dashed white line, is situated on the Mechanic Creek fluvial fan. The view is looking upstream or to the south



Gravel exposed on the downstream end of the cut in 2023. An ice axe for scale measures 0.9 m (3 ft).

deposits, after incision of Big Creek following the end of the last glacial period. This pay unit overlies a frozen silt unit, which acts as a false bedrock. Each channel is up to 1.8 m (6 ft) thick.

Bedrock geology

Bedrock is a partially decomposed quartz-feldspar porphyry containing abundant quartz veinlets.

Gold characteristics

Placer gold has variable shapes including wire textures, subrounded grains, and larger particles with rounded edges and crystalline pockets. Magnetite is attached to some pieces. The fineness ranges from 870 to 920.

Happy Creek, a tributary of Big Creek

115I/06 2021: 62°20'09"N, 137°14'10"W

641166 Alberta Ltd., 2017–2023

Water license: PM17-026-1 (active 04/2027)

Active producer (2021–2023) **Operation no. 165**

Location

Happy Creek, 1.3 km from its confluence with Big Creek.

Work history and mining cuts

Operating primarily as a two to three-person crew, the Von Hartens of 641166 Alberta Ltd. have been active in the drainage from 2021 to 2023, primarily in the form of exploration. The last major mining effort took place in 2020, targeting a pingo and the right limit of the creek. For the past several seasons, they have been operating on a different drainage in the district.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 235 excavator
- Caterpillar 966G wheel loader

The wash plant consisted of a track-mounted Terex Finlay Hydrascreen deck with a 1" punch plate and a stacker conveyor. The sluice box was 0.9 m (3 ft) wide and comprised three sections of differing length: the upper section was 4.9 m (16 ft) of expanded metal at a 2:1 slope; the middle section measured 1.2 m (4 ft) with no riffles; and the lower section was 3.0 m (10 ft) with angle iron riffles at a 3:1 slope. The plant was able to process up to 24 m³ (32 yd³)/hr. Water from the sluice plant was settled in-stream using a series of eight ponds, and the water was 100% recirculated. Locally, the pay was frozen, and hydraulic stripping was used



View looking south across the Big Creek valley to Happy Creek in 2021. The operator's camp is located at the mouth of Happy Creek, and a pingo excavated in 2020 is outlined by the white dashed line.

to liberate the gravel for the excavator to deliver to the plant. Clean-ups were completed using a Gold Hog long tom and a wheel.

Surficial geology and stratigraphy

The general stratigraphy of Happy Creek consists of up to 1.2 m (4 ft) of gravel, overlain by 1.8 m (6 ft) of colluvium containing minor organics. The lower part of the gravel tends to be oxidized, and clasts throughout the gravel range from angular to subangular. All of the gravel is processed for placer gold.

Bedrock geology

The bedrock surface is undulating, and is predominately decomposed schist.

Gold characteristics

Gold is 60% fine flour gold and 40% is coarse grained. The fineness varies from mid to upper 800s. An abundance of scheelite is recovered in the concentrate.

Seymour Creek, a tributary of Big Creek

115I/06 2023: 62°18'37"N, 137°12'37"W

Dodge, D., 1982–2023

Water license: PM20-023-1 (active 09/2030)
Water license: PM14-075-2 (active 05/2025)
Water license: PM12-024-1 (expired 10/2022)

Active producer (2021–2023) **Operation no. 166**

Location

Seymour Creek, 550 m downstream from the mouth of Bow Creek.

Work history and mining cuts

D. Dodge has been active in the Seymour Creek drainage for four decades. Since 2021, he has focused his mining activity on modern valley deposits near the confluence with Bow Creek, as well as downstream on a high-level bench near the confluence of Seymour



Active cut in 2023 on Seymour Creek at D. Dodge's operation.

Creek with Bow Creek. In 2022, a variety of targets were evaluated through drilling using a sonic drill rig, and by sluicing 306 m^3 (400 yd^3) of bulk samples. The drilling program identified a buried channel deposit on the left limit of Seymour Creek. Additionally, several terraces on lower Seymour Creek were tested through drilling. Dodge, and his crew of three, completed five weeks of sluicing on Seymour Creek, immediately upstream from the confluence with Bow Creek. They processed right-limit side pay along with some bedrock in a previous cut located downstream from the mouth of Bow Creek. In 2023, mining activity shifted to targeting modern Seymour Creek gravel on the right limit downstream from the mouth of Bow Creek.

Equipment and water treatment

The following equipment was used on site:

- Volvo EC700CL excavator
- Komatsu PC228 excavator
- Volvo L180E wheel loader
- two Volvo A40G articulated haul trucks
- Boart Longyear track mounted mini sonic LS250 drill
- Komatsu PC 400LC excavator
- Komatsu 328 excavator
- Hitachi excavator
- Caterpillar D8L bulldozer

The wash plant consisted of two Derockers situated side by side. They had 2" openings that fed two sluice runs lined with expanded metal and angle iron riffles. The sluice runs measured 1 by 7.6 m (3 × 25 ft). Each Derocker had a processing capacity of 54 m^3 (70 yd^3)/hr, and water volumetric flow rate requirements of 2728–3182 LPM (600–700 IGPM).

Surficial geology and stratigraphy

Two placer settings are present in Seymour Creek: the modern valley-bottom deposits and terrace deposits. Several terrace levels border the lower Seymour Creek



Old terrace gravel containing a well-developed paleosol exposed in 2022 on lower Seymour Creek. A pick for scale measures 0.6 m (2 ft) in length.

drainage, and consist of a partially preserved lower terrace, a mid-level terrace, and a high-level terrace.

The general stratigraphy of modern Seymour Creek is a braided river sequence, characterized by coarse, poorly sorted gravel. The gravel consists of angular to subangular clasts of varying sizes (pebbles to cobbles), in a sandy matrix. The clasts are randomly oriented, indicating rapid deposition from high-energy flows typical of braided river channels. There is little evidence of reworking of the gravel.

A section through a mid-level terrace on lower Seymour Creek reveals a gravel unit containing a well-developed paleosol (unit 1). Unit 1 is a coarse, poorly sorted gravel with angular to subangular clasts in a sandy matrix. The paleosol is evident in the upper 0.7 m (2.3 ft) of the gravel unit, indicating a period of landscape stability and soil formation during a warmer climate compared to present day.

Bedrock geology

Bedrock is oxidized and weathered granodiorite.

Gold characteristics

Two populations of gold grains were observed: a population of coarser, subangular to subrounded grains, that is characteristic of Seymour Creek; and a population consisting of flat fine grains that likely originated from Bow Creek.

Stoddart Creek, a tributary of Big Creek

115I/06 2023: 62°17'32"N, 137°04'00"W

40056 Yukon Inc., 2019–2023

Water license: PM20-024 (active 08/2030)

Active producer (2021–2023) **Operation no. 167**

Location

Stoddart Creek, approximately 9 km upstream from its confluence with Big Creek.

Work history and mining cuts

Since 40056 Yukon Inc. first staked their claims in 2017, operations on Stoddart Creek have been steadily expanding. Ground preparation marked the sole activity in 2021, and sluicing commenced in 2022. A two-person crew reported sluicing for a total of 20 days in 2022. Mining activities in 2023 included exploration, as well as ground preparation and settling pond development; a total of 40 hours of sluicing was reported in 2023.

Equipment and water treatment

The following equipment was used on site:

- Link-Belt 160 excavator
- two Kubota 8T mini excavators

A screen deck with a single sluice run was used to process material at a rate of 15 m^3 (20 yd^3)/hr.

Surficial geology and stratigraphy

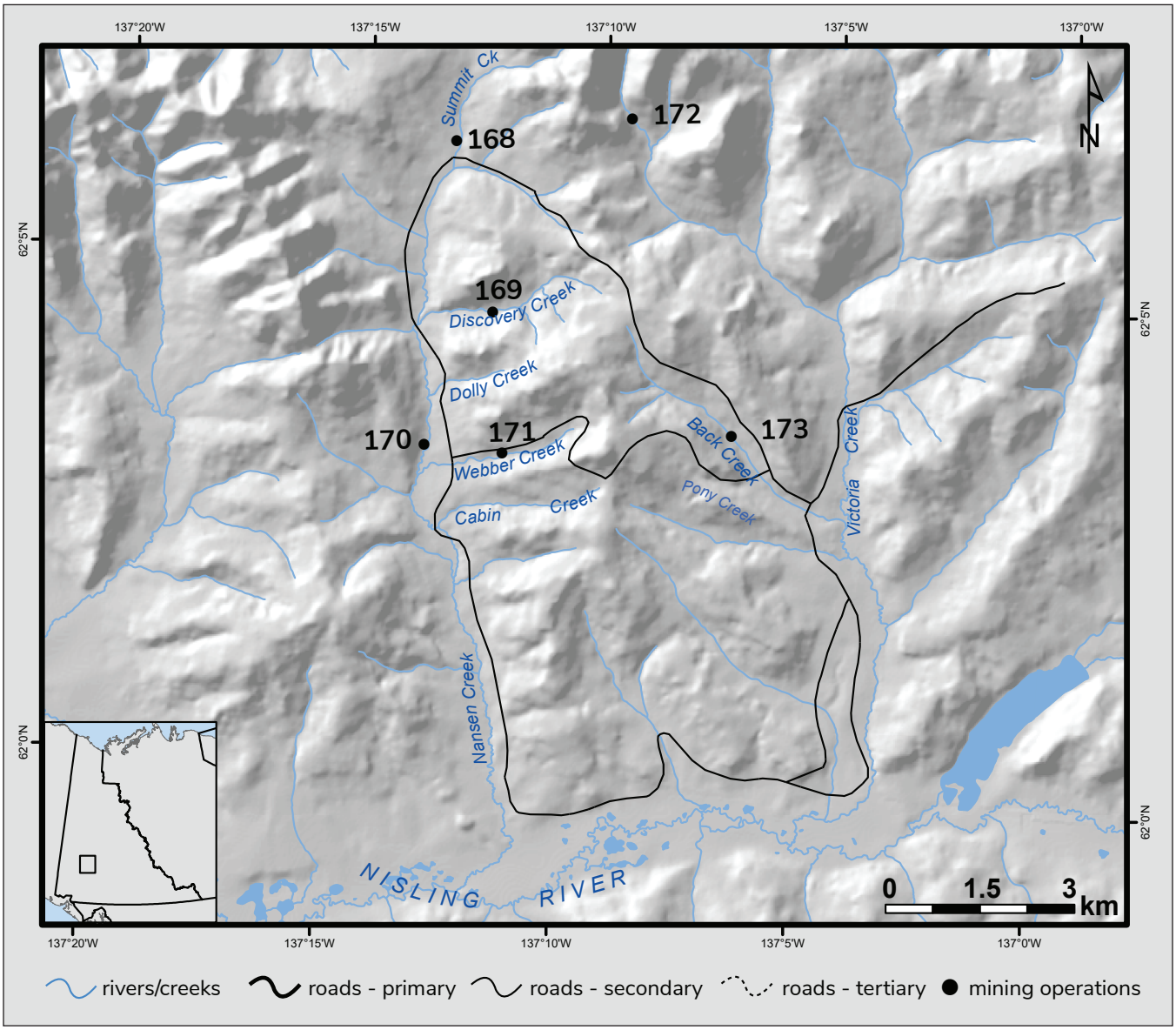
Stoddart Creek valley is an incised drainage, bounded by steep hillsides. Placer settings in the drainage include valley-bottom gravel deposits, intermediate benches up to 30 m (98 ft) above the valley bottom, and high-level benches up to 985 m (3231 ft) above the valley bottom (Yukon Geological Survey, 2010).

Bedrock geology

Bedrock is mapped as granodiorite (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.



Legend

168. Pishon Gold Resources Inc.
169. Rock Bottom Mining
170. Chaschin, K. and M.
171. Capital Gold Mining Corporation
172. 12567 Yukon Inc.
173. 38857 Yukon Inc.

Summit Creek, a tributary of Nansen Creek

115I/03 2023: 62°06'17"N, 137°13'07"W

Pishon Gold Resources Inc., 2010–2019, 2022–2023

Water license: PM16-074 (active 05/2027)

Active producer (2022–2023) **Operation no. 168**

Location

Summit Creek, 0.5 km upstream from its confluence with upper Nansen Creek.

Work history and mining cuts

Pishon Gold Resources Inc. has held the claims on upper Nansen Creek and Summit Creek since 2010. In recent years, Pishon had lease agreements with Okanagan Contracting Services (2017), J. and T. Barnes (2018), and Glacier Drilling (2019). No activity occurred in 2021, and a work program in 2022 involved stripping a 150 by 250 m (492 × 820 ft) area at the mouth, and immediately upstream of Summit Creek. Work was also completed on the far, right limit of Summit Creek on claim P 50118. In 2023, Ruby Gold mobilized to the site and conducted three weeks of test sluicing using a small trommel.

Equipment and water treatment

Not reported.

Surficial geology and stratigraphy

A gold-silver-lead-zinc hardrock deposit known as the Klaza Project is situated at the headwaters of Summit Creek. There has been extensive exploration over recent years, which has identified a significant mineral resource estimate. A multi-year Yukon Geological Survey field program led by Patrick Sack is currently studying Late Cretaceous (ca. 80 to 66 Ma) magmatic rocks and associated porphyry systems in Yukon. The highest density of mineral occurrences of probable Late Cretaceous age in Yukon are found in the Freegold and Nansen districts, which includes the Klaza property.

The Nansen placer district has proven local sources of gold that originate from gold-bearing veins in host rocks. Placer gold in Summit Creek is closely associated with bedrock exposures of vein and breccia bodies in the headwaters of the drainage. These gold-bearing veins have been weathered and subsequently reworked into colluvial deposits that blanket the hillsides and side limits of these drainages. Creeks draining to the northwest report similar gold characteristics and fineness.

Bedrock geology

The lower reaches of the drainage are underlain by Whitehorse suite granodiorite. Gold is likely associated with Casino suite dikes and plugs related to the Kelly porphyry occurrence (MINFILE 115I 156; Yukon Geological Survey, 2022b). Mount Nansen andesite is mapped at the headwaters of the creek and contains gold-bearing veins. The andesites are 110–115 Ma and the veins are 109 Ma.

Gold characteristics

Summit Creek gold is very fine grained and significantly smaller than 35 mesh (0.5 mm). Fineness ranges from 800 to 820.

Discovery Creek, a tributary of Nansen Creek

115I/03 2023: 62°04'37"N, 137°12'04"W

Rock Bottom Mining, 2022–2023
536214 Yukon Inc., 2017–2021
Johnson Exploration, 1994–2016

Water license: PM15-002-1 (active 07/2025)

Active producer (2021–2023) **Operation no. 169**

Location

Discovery Creek, 1.5 km upstream from its confluence with Nansen Creek.

Work history and mining cuts

The company 536214 Yukon Inc. has been mining consistently on Discovery Creek and intermittently on Nansen Creek since they began operating in 2018. No specific work history is known for 2021. In 2022, they sluiced for a total of 577 hours and completed reclamation of their 2020 cut at the mouth of Discovery Creek, on the left limit of Nansen Creek. In 2023, Rock Bottom Mining purchased the ground, and a crew of seven mined a 32 by 91 m (105 × 300 ft) cut on upper Discovery Creek, 1.5 km upstream from its confluence with Nansen Creek. They also conducted an extensive drill program on Nansen Creek to prospect the deep, valley-bottom deposits.

Equipment and water treatment

The following equipment was used on site:

- three Caterpillar excavators
- two Caterpillar bulldozers
- two Caterpillar wheel loaders
- two Volvo rock trucks

The wash plant featured a grizzly dump box with 9" spacing, and a 9 m (30 ft)-long trommel including 2 m (6 ft) of 1" square screen. The wash plant had two 1 by 11 m (3 × 36 ft) sluice runs, each including two 3 m (10 ft) 'live bottom' boxes. The sluice runs were lined with 2" expanded metal, angle iron and Nomad matting. The trommel could process material at a rate of up to 76 m³ (100 yd³)/hr.

Surficial geology and stratigraphy

The primary focus of mining on Discovery Creek was on the left limit of the valley. Modern downcutting by the creek is concentrated on the right limit, driven by an influx of resedimented aeolian sand. This process redirects the creek toward the north side (right limit) of the valley. These high rates of sand deposition off the southern slopes are prevalent in the Nansen area, causing similar redirections in Dolly and Webber creeks. The aeolian accumulation of sand is associated with the reworking of glacial lake sediments, whereby sand is redeposited and accumulates in sheltered valleys or leeward slopes. Consequently, mining efforts tend to target the left limit to access the paleo channels that are buried and preserved underneath the resedimented aeolian sand. The general stratigraphy of Discovery Creek is characterized by three units. Unit 1, from 0 to 2 m (0–6.5 ft), comprises poorly sorted cobble–pebble gravel with a silty sand matrix; it is crudely imbricated. Rare erratics (rounded, foreign clasts) within this unit suggest reworking of a glacial deposit. Clasts range from angular to subangular. Unit 2, from 2 to 5.5 m (6.5–18 ft), consists of interbedded sand and gravel. Unit 3, extending from 5.5 to 21 m (18–67 ft), is a planar-bedded sand deposit containing occasional pebbly to cobbly beds, marked by erosive lower contacts. The clasts within this unit are predominantly angular and include few erratics.

Bedrock geology

Bedrock underlying these drainages is interpreted to primarily be granodiorite of the Whitehorse plutonic suite (Sack et al., 2021). From the perspective of placer gold, it is notable that the headwaters of these drainages are underlain by a composite Casino and Prospector Mountain suite plug with associated porphyry occurrences (Kelly and Kelly South [MINFILE 115I 157], Cyprus [MINFILE 115I 066], Cyprus South [MINFILE 115I 140]; Sack et al., 2021; Yukon Geological Survey, 2022b). This magmatic and hydrothermal centre has been interpreted by some to be the heart of mineralization in the Klaza area (Sawyer and Dickinson, 1976).

Gold characteristics

Not reported.



Aerial view of a cut on Discovery Pup in 2023; view is to the east. The contacts between the three units are delineated by white dashed lines.

Nansen Creek, a tributary of Nisling River

115I/03 2021: 62°03'14"N, 137°13'20"W

Chaschin, K. and M., 2014–2023

Water license: PM17-087-2 (active 06/2028)

Active producer (2021–2023) **Operation no. 170**

Location

Nansen Creek, approximately 9.5 km upstream from Nisling River.

Work history and mining cuts

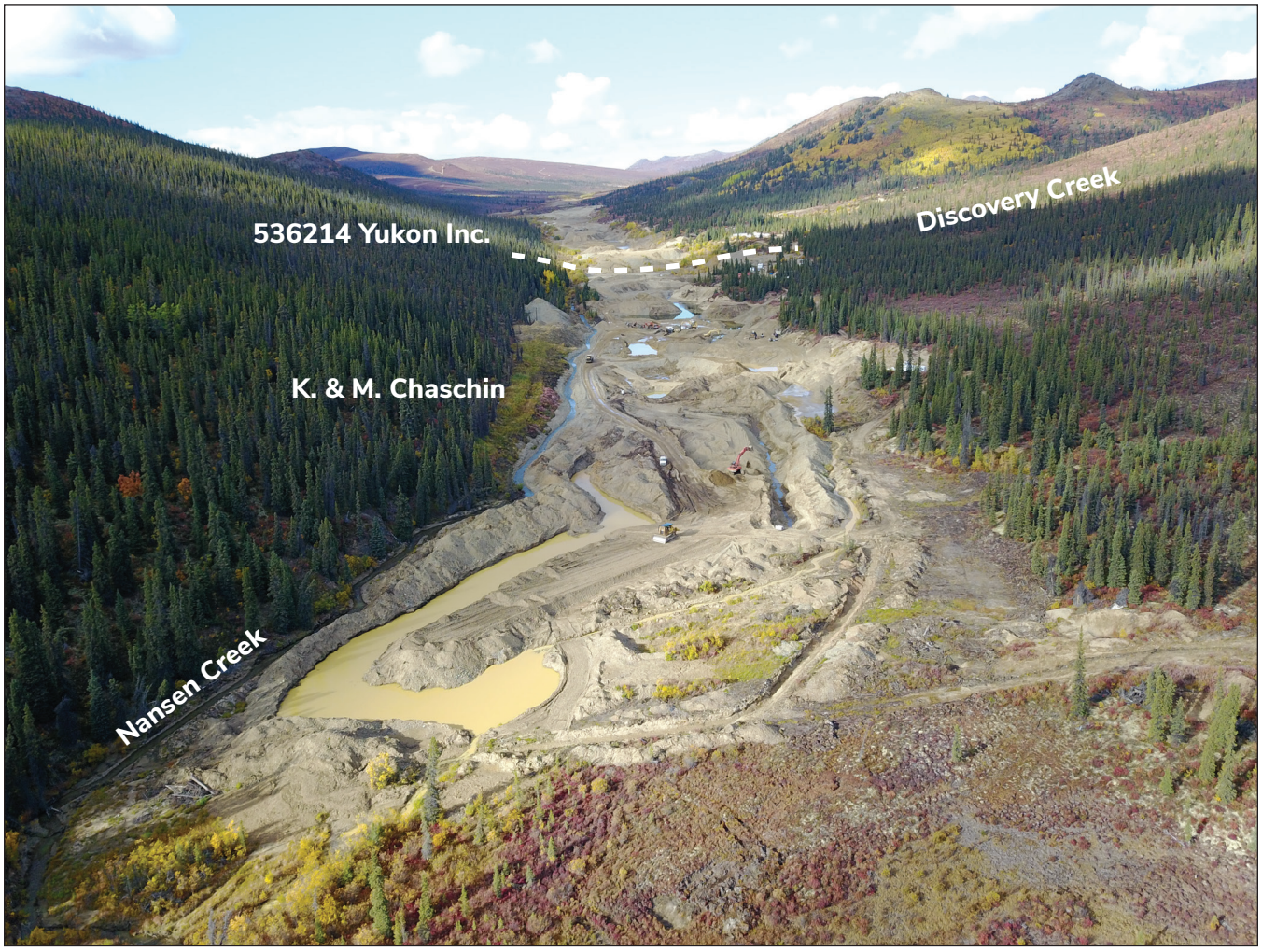
K. and M. Chaschin have been mining on lower Nansen Creek since 2014, starting at their uppermost claim and progressively mining downstream over the years. Primarily operating as a two to three-person crew, they sluiced material from the modern channel deposits of Nansen Creek.

Equipment and water treatment

The following equipment was used on site:

- Hitachi EX550LC excavator
- Daewoo 280 excavator
- Hyundai HL780-9 wheel loader
- Caterpillar 980B wheel loader
- Caterpillar D9 bulldozer
- Caterpillar D6 bulldozer

The wash plant consisted of a 2.4 by 3.2 m (8 × 10 ft) hopper with a 9" spaced grizzly that fed a 1.8 by 6 m (6 × 20 ft) non-chain driven spiral trommel; material was classified to 1/4". The spirals provided 30.48 m (100 feet) of travel within the trommel. Two, 2.0 by 3.6 m (7 × 12 ft) sluice runs were equipped with hydraulic vibrating riffles. The trommel tailings were then fed into a 7.6 m (25 ft) conveyor, allowing the plant to process material at a rate of 27 to 31 m³ (35–40 yd³)/hr. Water was supplied to the plant using a 4" pump, and effluent



Drone image from 2021 showing K. and M. Chaschin's operation on lower Nansen Creek in the foreground, and 536214 Yukon Inc.'s operation visible in the background. The dashed white line delineates the border between the two operations.

was settled in two ponds. Clean-ups were completed using a jig, power classifier, and a magnetic wheel and table.

Surficial geology and stratigraphy

The left-limit cut in 2021 exposed four stratigraphic units. The lowermost unit 1 is a deposit of glacial till that acts as a false bedrock. Clasts are smooth and rounded, and are pebble to cobble in size. Unit 2 is a poorly exposed, coarse gravel deposit. It is matrix-supported and contains a mix of angular and subangular clasts ranging in size from boulder to pebble; the matrix consists of silt to medium grained sand. Unit 2 is compact, and partly cemented. Unit 3 consists of a weakly stratified and cross-bedded, angular cobble gravel, containing discrete lenses of interbedded sand and silt. This unit is interpreted as a deposit formed by periods of cut and fill sedimentation in a braided river system. Unit 4 consists of overbank and floodplain deposits composed of silt and fine sand.

Bedrock geology

This section of the drainage is near a contact between older country rocks of the Finlayson assemblage (composed primarily of mafic schist), which have been intruded by younger granodiorite of the Whitehorse suite (Sack et al., 2021).

Gold characteristics

The gold is fairly coarse grained. The fineness primarily ranges from 790 to 800, and the highest fineness was recorded at 810.

Webber Creek, a tributary of Nansen Creek

115I/03 2022: 62°03'13"N, 137°11'40"W

Capital Gold Mining Corporation, 2021–2022

Water license: PM18-057-2 (active 02/2029)

Active producer (2021–2022) **Operation no. 171**

Location

Webber Creek, 1.7 km upstream from its confluence with Nansen Creek.

Work history and mining cuts

Webber Creek, a left-limit tributary of lower Nansen Creek, was prospected and held by Eugene Curley, a well-known Yukon prospector, from 1994 to 2020. In late 2020, Curley sold the claims to Capital Gold Mining Corporation, which led to the first serious mechanized mining efforts on Webber Creek during the 2021 season. They stripped two claims throughout the



Left-limit exposure in K. and M. Chaschin's cut on lower Nansen Creek in 2021. Unit 1 is not visible in the photo. The contacts between units 2, 3 and 4 are outlined with a white dashed line, and the solid white lines highlight the discontinuous lenses of finer sediments within unit 3. Total thickness of the exposure is approximately 4.9 m (16 ft).



Drone image of Webber Creek in 2022 looking upstream (to the east). Capital Gold Mining Corporation's active cut was located 1.7 km upstream from the confluence with Nansen Creek.

season, but no further work history is known. In 2022, Capital Gold Mining completed their second season in the drainage. Operating with a two-person crew, the first half of the season involved stripping, testing, and constructing settling ponds. By the end of July, they had identified a pay streak and commenced mining, sluicing between 4 to 6 hours per day. The operation was not active in 2023.

Equipment and water treatment

The following equipment was used on site:

- Komatsu PC 400 LC excavator
- Hitachi 470 excavator
- Hitachi excavator
- Hitachi loader
- Caterpillar D9R bulldozer
- Caterpillar bulldozer
- Caterpillar rock truck

The wash plant consisted of a hopper with a grizzly that fed a screen deck. Effluent was settled in a series of three ponds and water was 100% recycled. Clean-ups were conducted using a Devon Gold vortex table and an XTruder 255 shaker table.

Surficial geology and stratigraphy

Webber Creek is a large tributary to Nansen Creek that contains a thick accumulation of resedimented aeolian sand at the base of the north facing slope. The sand poses a challenge when mining, as it is a significant thickness of fine-grained material to strip and store for



Gold recovered from Webber Creek. (Photo credit: Glen Neufeld of Capital Gold Mining Corporation.)

use in future reclamation. The pay gravel consists of an angular, oxidized, cobble gravel with a silty matrix. The unit is also manganese stained.

Bedrock geology

The bedrock is mapped as amphibolite (Yukon Geological Survey, 2022a).

Gold characteristics

Gold grains have a very rough surface texture.

Victoria Creek, a tributary of Nisling River

115I/03 2021: 62°06'38"N, 137°09'25"W

12567 Yukon Inc., 2021–2022
Mario, L., 2016–2020

Water license: PM16-076-1 (active 04/2027)

Active explorer (2021–2022) **Operation no. 172**

Location

Victoria Creek, headwaters.

Work history and mining cuts

The headwaters of Victoria Creek were staked by B. Davis in 2006. He held the ground until 2008, at which time ownership was transferred to La Tierra Resources Limited; they owned the property until 2014. In fall 2014, ownership changed to L. Mario, who completed various test pits in 2016. In winter 2021, claim ownership was transferred to 12567 Yukon Inc. In 2021, the operators reported the completion of a 7.6 by 18.3 m (25 × 60 ft) test pit that varied from 1.8 to 3.7 m (6–12 ft) in depth. In 2022, 5464 m^3 (7147 yd^3) of material were processed.

Equipment and water treatment

The following equipment was used on site:

- John Deere 330 excavator
- tandem dump truck

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as granodiorite, granite, quartz diorite and diorite (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Back Creek, a tributary of Victoria Creek

115I/03 2023: 62°03'33"N, 137°06'50"W

38857 Yukon Inc., 2018–2023
A-1 Cats, 2014–2017
38857 Yukon Inc., 2006–2013

Water license: PM19-056 (active 08/2030)

Active producer (2021–2023) **Operation no. 173**

Location

Back Creek, 2.9 km upstream from its confluence with Victoria Creek.

Work history and mining cuts

Activity on Back Creek has shifted focus over the past three seasons, and a significant emphasis has been put toward reclamation efforts. From 2021 to 2023, 38857 Yukon Inc. has been operating with a one to two-person crew. In 2021, a total of 12 days of sluicing was completed, along with reclamation on claim P 22803. In 2022 they completed test pits and continued reclamation on claim P 22803. In 2023, a test pit was completed on P 46762, and reclamation efforts resumed on claim P 22803.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 235C excavator
- Caterpillar 320CL excavator
- Kenworth dump truck
- Caterpillar 966C wheel loader
- Caterpillar D7 bulldozer

A 1.2 by 9.1 m (4 × 30 ft) trommel was used to process material at a rate of 27 m^3 (35 yd^3)/hr. This included a single sluice run that measured 1.2 m (4 ft) in width and 9.1 m (30 ft) in length. It consisted of 0.3 m (1 ft) of expanded metal, 0.6 m (2 ft) of hydraulic riffles, 0.3 m (1 ft) of slick plate with two boil boxes, another 0.3 m (1 ft) of slick plate, 1.2 m (4 ft) of hydraulic riffles, 2.4 m (8 ft) of expanded metal, and 2.4 m (8 ft) of slick plate. A 4" pump supplied water to the plant, powered by a 4" flight pump. The water was 100% recycled.

Surficial geology and stratigraphy

Investigations of Back Creek by Englehardt et al. (2016) revealed that early Pleistocene glaciations significantly impacted the placer gold deposits in the drainage. Stratigraphic evidence revealed two major glaciations during the Pleistocene: the Nansen glaciation (<1.60 Ma), which was highly erosive and

reworked most of the placer gold deposits, and the Klaza glaciation (1.0–0.8 Ma), which was less erosive and preserved interglacial gold deposits. Previous mining of lower Back Creek revealed exposures of recent gravel deposits overlying Klaza till. The pay unit underlies the till and consists of a slightly oxidized gravel (yellow in colour) with a silt-rich matrix. Further details on the local surficial geology and glacial history can be found in Englehardt et al. (2016).

Bedrock geology

This drainage is primarily underlain by granodiorite and quartz diorite of the Minto and Whitehorse plutonic suites, respectively (Sack et al., 2021).

Gold characteristics

The gold is coarse grained. Nuggets weigh up to 5–6 grams and have a fineness of 815 to 850. Garnet and pyrite are also abundant in the heavy mineral fraction that is recovered.



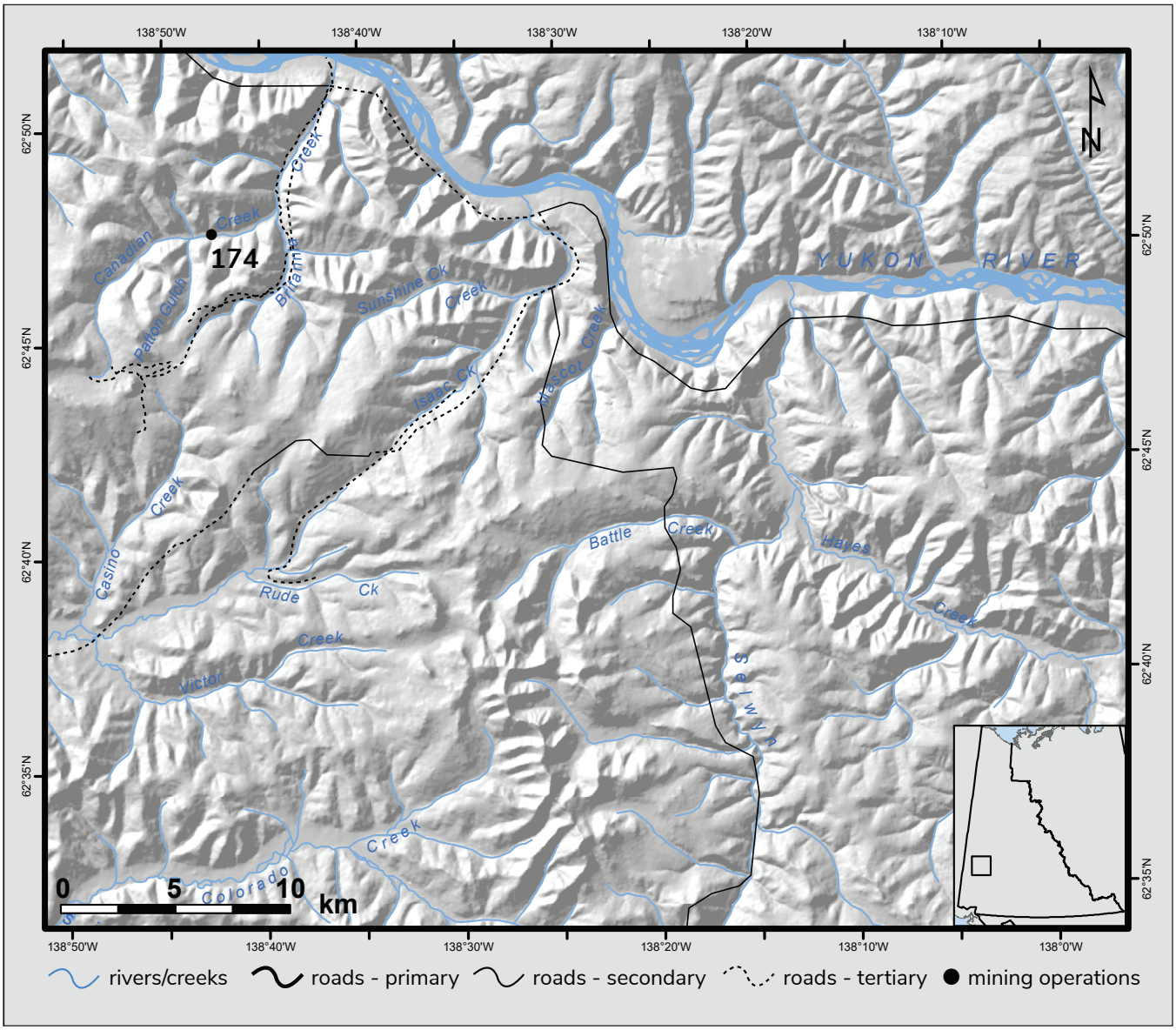
Photo of 38857 Yukon Inc.'s trommel and sluice system on Back Creek in 2021.



Aerial view of reclamation on the left limit of Back Creek on claim P 22803 in 2021. The view is looking upstream or to the northwest.

Hayes-Canadian
placer mining area

Site 174



Legend

174. 2001 Yukon Inc.

Canadian Creek, a tributary of Britannia Creek

115J/10 2023: 62°48'02"N, 138°46'27"W

2001 Yukon Ltd., 2018–2023

Water license: PM16-037-2 (active 09/2026)

Active producer (2021–2023) **Operation no. 174**

Location

Canadian Creek, 3.3 km upstream from its confluence with Britannia Creek.

Work history and mining cuts

In 2021, 2001 Yukon Ltd. continued mining at the upper end of Canadian Creek, marking their third season of sluicing. They employed up to four workers and processed 61 164 m³ (80 000 yd³) of material over approximately 1000 hours of sluicing. Mining activities focused on two placer settings: a low-level, right-limit bench of Canadian Creek, and modern fluvial deposits in the valley-bottom of Patton Gulch, a right-limit tributary to Canadian Creek. In 2022 and 2023, the company continued operations in the same location, approximately 3.3 km upstream from the mouth of Britannia Creek. In 2022, they sluiced for a total of 972 hours. There was no specific activity reported for 2023.

Equipment and water treatment

The following equipment was used on site:

- two Hitachi Zaxis 290LC excavators
- Caterpillar 349 excavator
- Caterpillar D10N bulldozer

A screen deck measuring 1.2 by 4.9 m (4 × 16 ft) with a 5/8" screen and two side runs was used to process material at a rate of up to 92 m³ (120 yd³)/hr. The sluice runs were configured with two sections of hydraulic riffles, expanded metal and a boil box. Water was supplied to the plant using an 8" pump, and water was recycled. Clean-ups were completed on a long tom, with the final concentrate tabled in town.



Active cuts on upper Canadian Creek in 2021. The view is looking downstream on Canadian Creek at the confluence with Patton Gulch (to the northeast).

Surficial geology and stratigraphy

In the upper reaches of Canadian Creek, the general stratigraphy consists of up to 0.6 m (2 ft) of muck and organics overlying 1.8 to 6.0 m (6–20 ft) of gravel; the average thickness of gravel is 2.5 m (8 ft). The clasts are rounded and generally under 0.3 m (1 ft) in diameter, although some larger boulders are present. These deposits are typically frozen. In the lower reaches of the creek, deposits range from 4.2 to 5.8 m (14–19 ft) thick, and some sections are up to 6.8 m (22 ft) thick (Yukon Geological Survey, 2010).

Bedrock geology

Bedrock is mapped as monzogranite and augen gneiss (Yukon Geological Survey, 2022a).

Gold characteristics

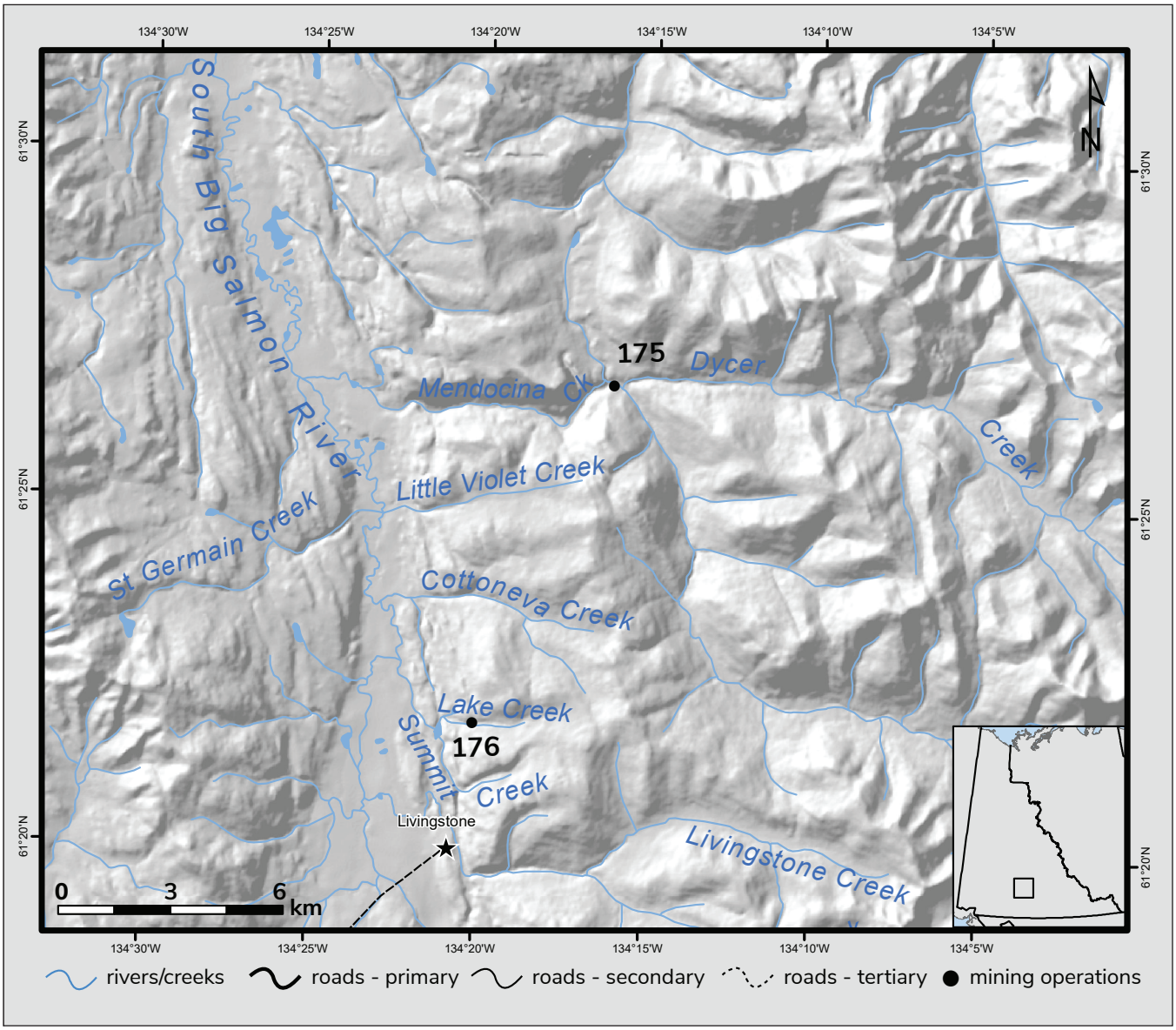
The fineness is 876. Gold in the upper part of the drainage is likely sourced locally from mineralized bedrock mapped at the Casino Project, which is situated in its headwaters. This deposit contains economic concentrations of copper, gold, molybdenum and silver.



Aerial view from 2022 of 2001 Yukon Ltd.'s operation on the middle reach of Canadian Creek. The view is looking upstream or to the southwest.

Livingstone
placer mining area

Sites 175–176



Legend

175. 0877617 BC Ltd.
176. Lake Creek Placers

Dycer Creek, a tributary of Mendocina Creek

105E/08 2023: 61°26'44"N, 134°16'07"W

0877617 BC Ltd., 1993–2023

Water license: PM18-014 (active 10/2028)

Active producer (2021–2023) **Operation no. 175**

Location

Dycer Creek, approximately 140 m upstream from its confluence with Mendocina Creek.

Work history and mining cuts

For the past three seasons, S. Swaim with 0877617 BC Ltd. has concentrated his mining activity immediately upstream of the confluence with Mendocina Creek. Operating solo in 2021, Swaim sluiced for 3.5 days during his month-long season. A cut was completed in 2022 and extended throughout the 2023 season.

Equipment and water treatment

The following equipment was used on site:

- Komatsu 300HD excavator
- Caterpillar D25B rock truck
- Caterpillar D5 bulldozer
- trommel



Aerial view in the fall of 2023 of S. Swaim's operation (0877617 BC Ltd.) on Dycer Creek. The view is looking upstream or to the east.

Surficial geology and stratigraphy

A 2023 cut exposed a section of surficial material up to 21 m (70 ft) thick; the total section thickness likely decreased as S. Swaim progressively mined upstream. Currently, mining activities are focused at the mouth of Dycer Creek or at the confluence with Mendocina Creek. At this location, Dycer Creek intersects a thick package of glaciofluvial deposits that are preserved from a lateral meltwater channel that flowed south along the Mendocina Creek valley during the last glaciation. The gravel pay unit is situated on bedrock, and is overlain by glaciofluvial and glaciolacustrine deposits.

Bedrock geology

Bedrock is decomposed quartz-muscovite schist.

Gold characteristics

Gold is very fine grained and has a fineness of 860.

Lake Creek, a tributary of South Big Salmon River

105E/08 2023: 61°21'49"N, 134°20'06"W

Lake Creek Placers, 2021–2023

Water license: PM20-053 (active 02/2031)

Active producer (2021–2023) **Operation no. 176**

Location

Lake Creek, 4.5 km upstream from its confluence with the South Big Salmon River.

Work history and mining cuts

Lake Creek was initially prospected and staked during the 1898 goldrush in the Livingstone Creek area. The area was known as the 'Livingstone placer gold camp' (Yukon Geological Survey, 2010). No specific work history is known between 1898 and 1972. Mining activities were consistent between 1973 and 1997 and included the following operators: Ames & Hill, Asuchak, Carrell, and Kosmenko (Yukon Geological Survey, 2010). Since 2021, Lake Creek Placers has been actively developing their mining operation on Lake Creek. The licensee, K. Potter, has been overseeing operations and A. and B. Sternbergh have been the operators. In 2021, a total of 125 hours of sluicing took place, where they focused on the mid to right limit of the drainage. In 2022, the emphasis shifted toward exploration and test pitting in the same area that was sluiced in 2021. The bulk of the 2023 season was dedicated to site preparation and overburden removal, and sluicing commenced in September.



Aerial view of Lake Creek Placers' operation in 2023. The airstrip and camp are shown, and the active cut is delineated with a white dashed line.

Equipment and water treatment

The following equipment was used on site:

- John Deere 270D excavator
- trommel
- Terex rock truck

Surficial geology and stratigraphy

Lake Creek meanders through a narrow valley. Its upper course flows westward and gradually transitions to a southerly flow as it approaches its confluence with the Big Salmon River.

Surficial deposits in Lake Creek range from 4.5 to 10 m (14.7–32.8 ft) thick and consist of two distinct units. Unit 1, ranges in thickness from 1.8 to 3.6 m (5.9–11.8 ft) and is a cobble gravel that consists of angular, locally derived clasts, believed to be preglacial in origin. Unit 2, ranges in thickness from 2.5 to 7.3 m (8.2–23.9 ft) and consists of a till deposit (Yukon Geological Survey, 2010).

Bedrock geology

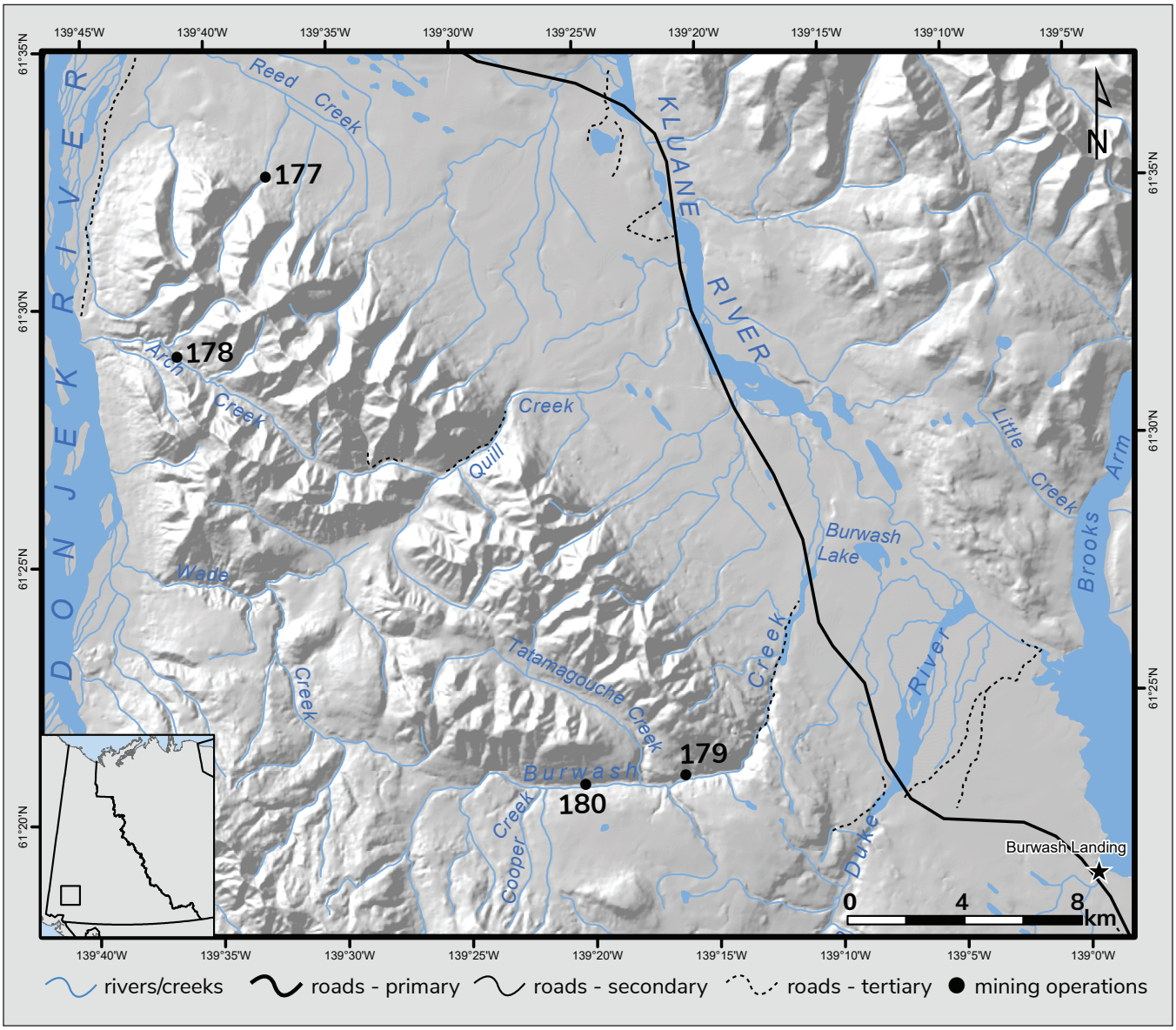
Bedrock is mapped as quartzite and quartz-muscovite-biotite-schist (Yukon Geological Survey, 2022a).

Gold characteristics

Fineness is 895.

Kluane
placer mining area

Sites 177–180



Legend

177. Stanley, K.
178. Nelson, R.
179. Johnson, S.L.
180. Aurem Alliance Ltd.

Unnamed left-limit tributary to Reed Creek, a tributary of Donjek River

115G/12 2023: 61°33'05"N, 139°36'51"W

Stanley, K., 2022–2023

Water license: PM20-017-1 (active 11/2025)

Active producer (2022–2023) **Operation no. 177**

Location

Unnamed left-limit tributary to Reed Creek, 3.2 km upstream from its confluence with Reed Creek.

Work history and mining cuts

K. Stanley acquired the claims from F. Erler in October 2021. Due to challenging conditions with access, the operator's first year of mining did not commence until 2022. Operating solo, Stanley engaged in sluicing activities for a total of 20 days, averaging approximately three hours per day. The majority of the season was dedicated to exploration, cut development and upgrades to access. Eight test pits were completed, each measuring 6 by 6 by 6 m (20 × 20 × 20 ft). In 2023, sluicing took place over 15 days, maintaining an average of three hours per day. Additionally, three test pits, each measuring 6 by 6 by 6 m (20 × 20 × 20 ft), were completed, and tailings from the wash plant were used to reclaim both current and past test pits.



An exposure at K. Stanley's test pit on the unnamed tributary to Reed Creek in 2023. (Photo credit: K. Stanley.)

Equipment and water treatment

The following equipment was used on site:

- two Case 590 backhoes
- Case CX55 excavator
- Caterpillar D5C bulldozer
- International dump truck

A shaker deck was used to process material at a rate of up to 7.6 m³ (10 yd³)/hr.

Surficial geology and stratigraphy

Reed Creek is located in the Shakwak Trench, where major ice sheets advanced northwest along the trench during the last ice age. Although glacial erosion was significant on the valley floor, some older glacial deposits may be preserved on the lee side of bedrock ridges or in the deeply incised channel of the upper reaches of Reed Creek. Postglacial re-establishment of the unnamed left-limit tributary has produced a high-energy fan on the valley floor. Mining was focused on stream channel, bench and fan deposits at the mouth of the unnamed creek.

A 2023 mining cut exposed a cobble gravel 0.6 to 0.9 m (2–3 ft) thick overlain by 3 to 3.7 m (10–12 ft) of overburden (K. Stanley, pers. comm., 2024).



Gold recovered from a low-level bench in 2023 at K. Stanley's property. (Photo credit: K. Stanley.)

Bedrock geology

Bedrock is mapped as volcanic breccia (Yukon Geological Survey, 2022a).

Gold characteristics

Gold is mostly coarse grained. The largest nugget recovered weighed 14.2 g (1/2 oz).

Arch Creek, a tributary of Donjek River

115G/05 2021: 61°29'25"N, 139°39'36"W

Nelson, R., 2010–2022

Water license: PM15-020 (active 06/2025)
Water license: PM13-028-1 (expired 11/2023)

Active producer (2021–2022) **Operation no. 178**

Location

Arch Creek, above canyon approximately 4 km from its confluence with Donjek River.

Work history and mining cuts

In 2021, R. Nelson mined on claim P 50432, focusing work on the left limit of the drainage. Upon completion of a cut, another location 300 m downstream on claim P 50430 was prepared for mining. High water in 2022 hindered operations, resulting in a season consumed with road maintenance and site stabilization. Extensive reclamation to the cut and restoration of the camp was also conducted throughout the season. No activity occurred in 2023.

Equipment and water treatment

The following equipment was used on site:

- Komatsu 500 wheel loader
- John Deere 700J XLT crawler tractor
- Caterpillar 235C excavator

A Derocker wash plant was initially used for material processing, and was later replaced by a 1.1 by 6.7 m (3.5 × 22 ft) trommel. Water was supplied to the plant by a 10" Cornell pump, and effluent was settled in a series of two settling ponds before discharge into Arch Creek. A jig, long tom and wheel were used for clean-ups.



Aerial view looking downstream (to the west) on Arch Creek; the Donjek River valley can be seen in the background. The focal point is of R. Nelson's 2022 mining activities.

Surficial geology and stratigraphy

Arch Creek is a steep, high-energy stream draining the western Kluane Ranges. Multiple advances of the Donjek Glacier have flowed up-valley on Arch Creek during the Quaternary (last 1.6 million years), resulting in thick deposits of glaciogenic materials that have subsequently been incised by repeated re-establishment of the Arch Creek drainage (Kennedy and van Loon, 2017). Preglacial and interglacial gold-bearing gravel may occur in paleochannels that have been buried by glaciofluvial deposits but have also been reconcentrated in modern channel deposits. Enrichment in modern channel deposits may occur where the modern channel alignment intersects paleo-alignments or has incised through older stream gravel. Arch Creek is subject to flash flooding due to its narrow, steep valley, as well as its large catchment area at its headwaters. As a result, the distribution of gold within the modern channel deposits can change from year to year as bedload is redistributed during high-energy events. Alluvial placer deposits in Arch Creek are variably reworked depending on the season's precipitation events.

Bedrock geology

Bedrock is mapped as volcanic breccia (Yukon Geological Survey, 2022a).

Gold characteristics

Gold particle grain size is 80% coarse and 20% fine. It ranges from polished and bright, to rough and angular, and has a fineness of 879. Occasional discoveries of copper, platinum and silver nuggets have been made in Arch Creek.

Burwash Creek, a tributary of Kluane River

115G/06 2023: 61°22'24"N, 139°17'08"W

Johnson, S.L., 1993–2002, 2004–2023

Water license: PM17-001 (active 06/2027)

Active producer (2023) **Operation no. 179**

Location

Burwash Creek, approximately 0.8 km downstream from the mouth of Tatamagouche Creek.

Work history and mining cuts

S.L. Johnson remains active in Burwash Creek, holding claims in the middle reaches of the drainage and extending up Tatamagouche Creek (a left-limit tributary



Aerial view looking downstream along Burwash Creek (to the east) in July 2023. Recent testing is visible along the right limit.

of Burwash Creek). In 2023, the operation was scaled down and Johnson focused mainly on exploration. A series of bulk samples were collected from test pits to determine the extent of buried, low-level bench deposits that are variably preserved on the right limit of Burwash Creek. Johnson plans to continue with exploration in 2024 by completing a drill program to define additional targets for future mining. No work history is known for 2021 or 2022.

Equipment and water treatment

The following equipment was used on site:

- Link-Belt 330LX excavator
- Komatsu WA500 wheel loader
- Caterpillar 977 bulldozer
- Caterpillar D8 bulldozer
- Link-Belt 2800 excavator
- Case Drott excavator
- Caterpillar 420D backhoe

Up to three different wash plants were used to process pay: a New Zealand-style floating plant, which processed material at a rate of 130 to 153 m^3 (170–200 yd^3)/hr; a floating shaker plant, which processed material at a rate of 130 to 153 loose m^3 (170–200 loose yd^3)/hr; and a land-based oscillating plant, which processed material at a rate of 68 m^3 (90 yd^3)/hr. Each floating plant acquired water using a 6" pump, whereas a 4" pump supplied water to the land-based plant. Water was 100% recycled. Clean-ups were conducted using a hand sluice, jig and wheel.

Surficial geology and stratigraphy

Burwash Creek originates from the Burwash Glacier and flows north. It cuts across the gently rolling terrain of the Burwash Uplands before becoming entrenched along an east-west structural feature. Much of the modern course of Burwash Creek is incised into a narrow, fault-controlled valley between the uplifted Kluane Ranges to the north, and the adjacent low-relief Burwash Uplands to the south. The Burwash Creek valley reaches depths of up to 100 m (328 ft), and commonly measures between 30 to 130 m (98–427 ft) in width, although it narrows to as little as 9 m (30 ft) in canyons in its lower reaches. The Burwash Creek valley is asymmetric, with steep rock walls on the left limit, and stepped benches descending into the valley from the Burwash Upland on the right limit.

Although most mining in Burwash Creek has occurred in valley-bottom channel deposits, gold-bearing gravel also occurs in bench deposits along the right margin of the creek. Mining these bench deposits can be challenging due to thick blankets of colluvial and glaciogenic overburden, which is commonly frozen. Right-limit benches gradually decrease in elevation from 13 m (43 ft) to 3 m (10 ft) above the modern channel.

Bedrock geology

Bedrock is mapped as volcanic breccia and volcaniclastic units (Yukon Geological Survey, 2022a).

Gold characteristics

Gold particles in the bench deposits are flat and coarse grained, and include some nuggets. The gold has a fineness of 860. Along with gold, an abundance of copper nuggets have been recovered.

Burwash Creek, a tributary of Kluane River

115G/06 2023: 61°22'00"N, 139°21'09"W

Aurem Alliance Ltd., 2006–2023

Water license: PM19-066 (active 02/2030)

Active producer (2021–2023) **Operation no. 180**

Location

Burwash Creek, approximately 2 km upstream from the mouth of Tatamagouche Creek.

Work history and mining cuts

Aurem Alliance Ltd. has divided its operations between its claims on Burwash Creek and Nines Creek. In 2021, no sluicing took place, and mining efforts focused on ground preparation by stripping 5473 m^3 (7158 yd^3) over three claims. The work history for 2022 is unknown. In 2023, sluicing occurred for one day, and again the focus was on stripping an 80 by 18 m (262 × 59 ft) cut on the right limit of the drainage.

Equipment and water treatment

The following equipment was used on site:

- Hitachi 700 excavator
- Caterpillar 345 excavator
- Caterpillar D7E bulldozer
- Caterpillar D9L bulldozer
- rock truck
- Caterpillar 365B excavator
- Caterpillar 980 wheel loader
- Caterpillar 988 wheel loader
- John Deere 310G backhoe

A Derocker was used to process and classify material to minus 2". Water was brought to the wash plant using an 8" pump, and the plant processed material at a rate of up to 76 loose m^3 (100 loose yd^3)/hr. Sluice runs were 1.5 by 9.1 m (5 × 30 ft) and consisted of boil boxes, hydraulic riffles and expanded metal, all lined with unbacked miner's moss. Water was pumped from Burwash Creek, and effluent was settled in a series of three settling ponds prior to discharge back into Burwash Creek.

Surficial geology and stratigraphy

A series of discontinuous right-limit benches are present along Burwash Creek and are difficult to identify due to thick blankets of colluvial cover. Despite this challenge, Aurem Alliance Ltd. continues to explore for these benches upstream of the confluence of Burwash and Tatamagouche creeks. In some cases, meltwater channels derived from the Burwash Uplands, above the right limit, have dissected and reworked these low bench deposits, resulting in discontinuous preservation of this landform.

Bedrock geology

Bedrock is weathered phyllite.

Gold characteristics

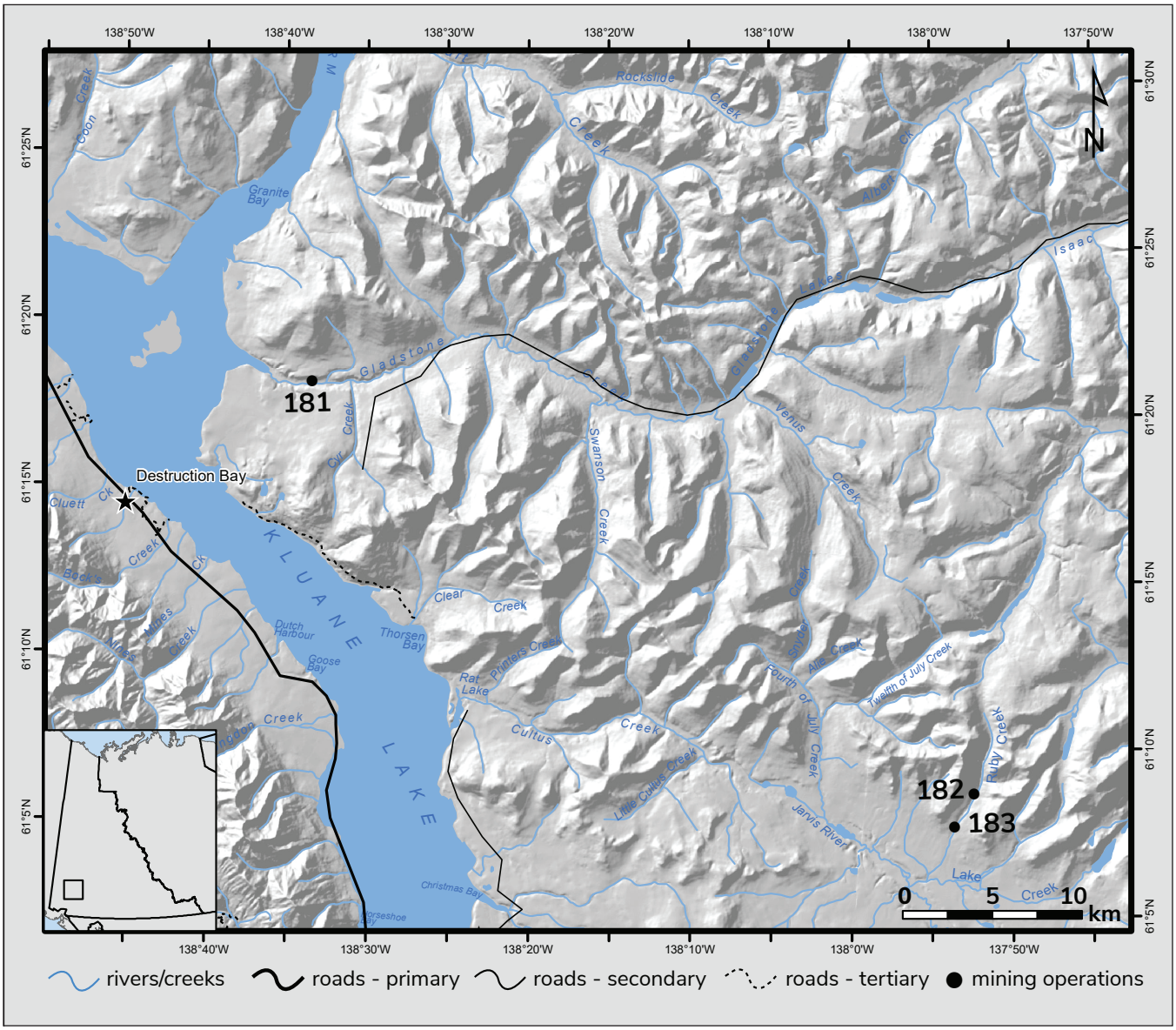
Gold varies greatly in size and shape from flat and coarse grained, to some rounded nuggets. Fineness is 867.



Aerial view of Aurem Alliance Ltd.'s operation on Burwash Creek in 2023. The view is looking upstream, or to the west toward the Donjek Range.

Ruby Range
placer mining area

Site 181–183



Legend

181. TIC Exploration Ltd.
182. Brewster, D.
183. MacKinnon, B.

Gladstone Creek, a tributary of Kluane Lake

115G/07 2023: 61°18'49"N, 138°36'33"W

TIC Exploration Ltd., 1992–2010, 2012–2013, 2015–2023

Water license: PM15-068 (active 03/2026)

Active producer (2021–2023) **Operation no. 181**

Location

Gladstone Creek, 2.5 km upstream from Kluane Lake.

Work history and mining cuts

TIC Exploration Ltd. has been mining on Gladstone Creek since 1992. In 2021 and 2022, activities were concentrated on the right limit, approximately 1.2 km upstream from the confluence of Cyr Creek. In 2023, operations expanded to two locations on the right limit of Gladstone Creek: 1.5 km upstream from the confluence of Cyr Creek, and 2.5 km upstream from Kluane Lake. Early season efforts focused on the right limit below camp, against the valley side. At this location, previous mining in the middle of the valley used a floating plant for processing, and left a strip of unmined ground along the valley side. This ground is slightly elevated above the previously mined active floodplain. Typical cut areas measured 30 by 100 m (98 × 328 ft). A team of five people worked daily 12-hour shifts. Mining operations continued intermittently into the winter months when temperatures were above -15°C (5°F). Sluicing in these temperatures was made possible by using groundwater sources instead of surface water.

Equipment and water treatment

The following equipment was used on site:

- three Caterpillar 330 excavators
- Caterpillar 345C excavator
- Caterpillar 966 wheel loader
- Caterpillar 325 excavator
- two Caterpillar D9H bulldozers

Two wash plants were used. One wash plant consisted of a 1.5 m (5 ft)-diameter trommel with a 1.8 by 1.8 m (6 × 6 ft) sluice run, and a 0.7 m (2.5 ft)-wide tailings conveyor. The other wash plant was a 1.8 m (6 ft)-diameter floating trommel with a 2.7 by 1.8 m (9 × 6 ft) sluice run, and a 0.9 m (3 ft)-wide tailings conveyor. Each sluice run contained hydraulic riffles. Each plant processed material at a rate of 96 m^3 (125 yd^3)/hr. Water was pumped from Gladstone Creek and settled out of



Processing pay at TIC Exploration Ltd.'s operation in 2023.

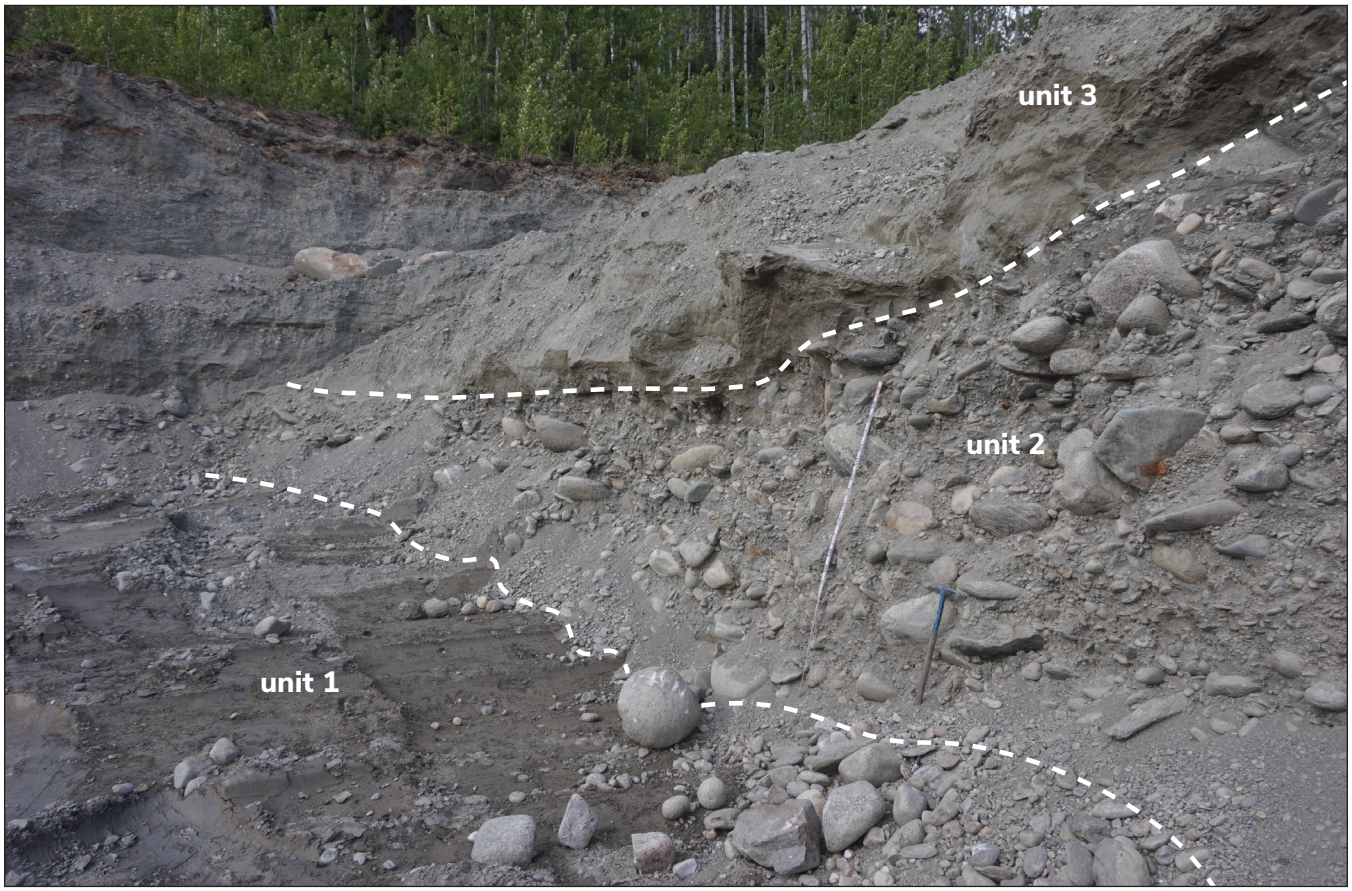
stream on the right limit. A ‘gold bowl’ that classified concentrates to 1/4", along with a gold wheel, were used for clean-ups.

Surficial geology and stratigraphy

The right-limit cut below camp is situated on a low fluvial terrace of Gladstone Creek. This terrace formed during post-glacial downcutting of the creek, which reworked a significant amount of glacial sediment, including 20 m (66 ft) of glaciofluvial gravel. During the reworking period, Gladstone Creek concentrated placer gold onto a false bedrock surface of glacial lake sediments. The origin of the lake sediments is uncertain, but likely originated from the Gladstone glaciation, which occurred 60 000 years ago.

The stratigraphy of the 2023 cut consisted of three units. Unit 1 at the base of the cut acts as a false bedrock and is composed of medium-grained sand that grades upward into laminated silt. This unit is interpreted as glacial lake sediment, possibly from the Gladstone glaciation. Unit 2 is a clast-supported gravel with a sharp, erosive lower contact. It is 3.5 m (11.5 ft) thick and thins toward the right limit under a colluvial deposit where it is 1 m (3.2 ft) thick. Clasts are imbricated and consist of 50% pebbles, 30% cobbles and 20% boulders that are up to 1.5 m (4.9 ft) in length. The matrix is composed of coarse sand. This unit is interpreted as a post-glacial fluvial gravel associated with downcutting after the last glaciation. All of unit 2 was processed for placer gold. Unit 3 is a stratified deposit of colluvium and associated overbank sediments. The colluvium is derived from gullies and forms a wedged-shaped landform, or apron, against the valley side. At the 2023 cut, the colluvium was 4 m (13 ft) thick against the hillside, and tapered to 0 m in the middle of the cut.

The colluvial sedimentation from these gullies has affected gold concentrations in the underlying fluvial pay gravel by limiting the duration in which Gladstone Creek has flowed against the hillside. The colluvial apron effectively diverts the creek away from the hillside resulting in a thinner, less-developed gravel containing less concentrated gold below the colluvial apron. Where the colluvial apron is thinner, the creek gravel is thicker as there has been more incision into the underlying false bedrock. Gold concentrations are higher in these locations compared to gravel underlying the colluvial apron.



Exposure in 2023 on the right-limit cut below camp. It consists of three units, each of which are labeled and delineated by the white dashed lines.

Bedrock geology

Bedrock is mapped as muscovite schist (Yukon Geological Survey, 2022a).

Gold characteristics

In the right-limit cut below camp, gold is generally fine grained and weighs less than a gram. Across the width of the valley, the best grades and the coarser gold are typically found on the left limit of the creek (south side of the valley).

Ruby Creek, a tributary of Lake Creek

115H/04 2023: 61°08'15"N, 137°53'10"W

Brewster, D., 1998–2023

Water license: PM21-040 (active 05/2032)
Water license: PM11-046 (expired 03/2022)

Active producer (2021–2023) **Operation no. 182**

Location

Ruby Creek, upper reach, 5.6 km upstream from its confluence with Lake Creek.

Work history and mining cuts

Since 1998, D. Brewster has been actively mining eight claims on the upper reaches of Ruby Creek. No specific work history is known for 2021 or 2022. Mining was carried out on the left limit of the drainage.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar excavator

The wash plant consisted of a 1.2 by 1.8 m (4 x 6 ft) Clemro vibrating grizzly wash plant with a 3/4" screen. The sluice run consisted of 3 m (10 ft) of punch plate and a 0.4 by 0.9 m (16 x 36") riffle run. The wash plant processed material at a rate of 30 m^3 (40 yd^3)/hour, and pumped water from Ruby Creek at a rate of 600 GPM using a 6" pump. A series of three settling ponds were located downstream. Clean-ups were completed using a long tom.

Surficial geology and stratigraphy

Previous work revealed three distinct units on upper Ruby Creek. Unit 1, is a compact olive-green till, acting as a false bedrock. Unit 2, the target pay material, is 1 m (3 ft) thick and consists of a cobble-pebble gravel



Aerial view looking upstream (to the north) of D. Brewster sluicing on the left limit of Ruby Creek in 2023.



D. Brewster sluicing on Ruby Creek in 2023. The coarseness of the gravel in the drainage is evident from the boulder on the left hand side of the photo.

containing a silty to sandy matrix. Unit 3, which is 2.5 m (8.2 ft) thick, is a clast-supported, crudely imbricated, boulder gravel containing 80% clasts. The clasts consist of 40% boulders, 40% cobbles and 20% pebbles, and they are mostly subangular to subrounded. The matrix is composed of coarse sand. Many of the clasts are disk-shaped and composed of schist; the largest clast is 1.4 m (4.6 ft) in size.

Bedrock geology

Bedrock is mapped as muscovite schist (Yukon Geological Survey, 2022a).

Gold characteristics

Three different types of gold were recovered from upper Ruby Creek.

Ruby Creek, a tributary of Lake Creek

115H/04 2023: 61°07'12"N, 137°54'10"W

MacKinnon, B., 1998–2023

Water license: PM19-043 (active 05/2030)

Active producer (2021–2023 **Operation no. 183**

Location

Ruby Creek, mid reach, 3.5 km upstream from its confluence with Lake Creek.

Work history and mining cuts

B. MacKinnon has been actively mining the Ruby Creek drainage for several decades. Operating solo, MacKinnon sluiced between 150 and 215 hours each season. For the past three seasons, his activities were

focused on the left limit of the lowermost claims on his property (P 41451, P 41452 and P 41453). Progressive reclamation was also completed each season.

Equipment and water treatment

The following equipment was used on site:

- John Deere 790-LC excavator
- John Deere 544B loader
- Hitachi 250 excavator
- John Deere 750 bulldozer

The wash plant consisted of a 1.5 m (5 ft)-diameter chain-driven trommel that screened to 3/4" and had a single 1.2 by 1.8 m (4 × 6 ft) sluice run lined with two boil boxes, expanded metal and hydraulic riffles. A 6" pump was used to supply water to the plant, which allowed it to process material at a rate of 23 m^3 (30 yd^3)/hr.

Surficial geology and stratigraphy

Exposures near MacKinnon's camp consist of several units: a lowermost impermeable clay-rich unit (till) overlain by 3.0 m (10 ft) of a coarse, boulder-cobble gravel with a sandy matrix, and capped by 0.6 to 0.9 m (2–3 ft) of sand. The coarse gravel is siltier near the base of the unit, which is likely due to erosion and downcutting into the underlying till deposit. Up to 3.0 m (10 ft) of gravel was sluiced, and the highest grades were from clay-rich zone at the base of the unit. The lowermost till unit acts as a false bedrock.

Bedrock geology

Bedrock is mapped as muscovite schist (Yukon Geological Survey, 2022a).

Gold characteristics

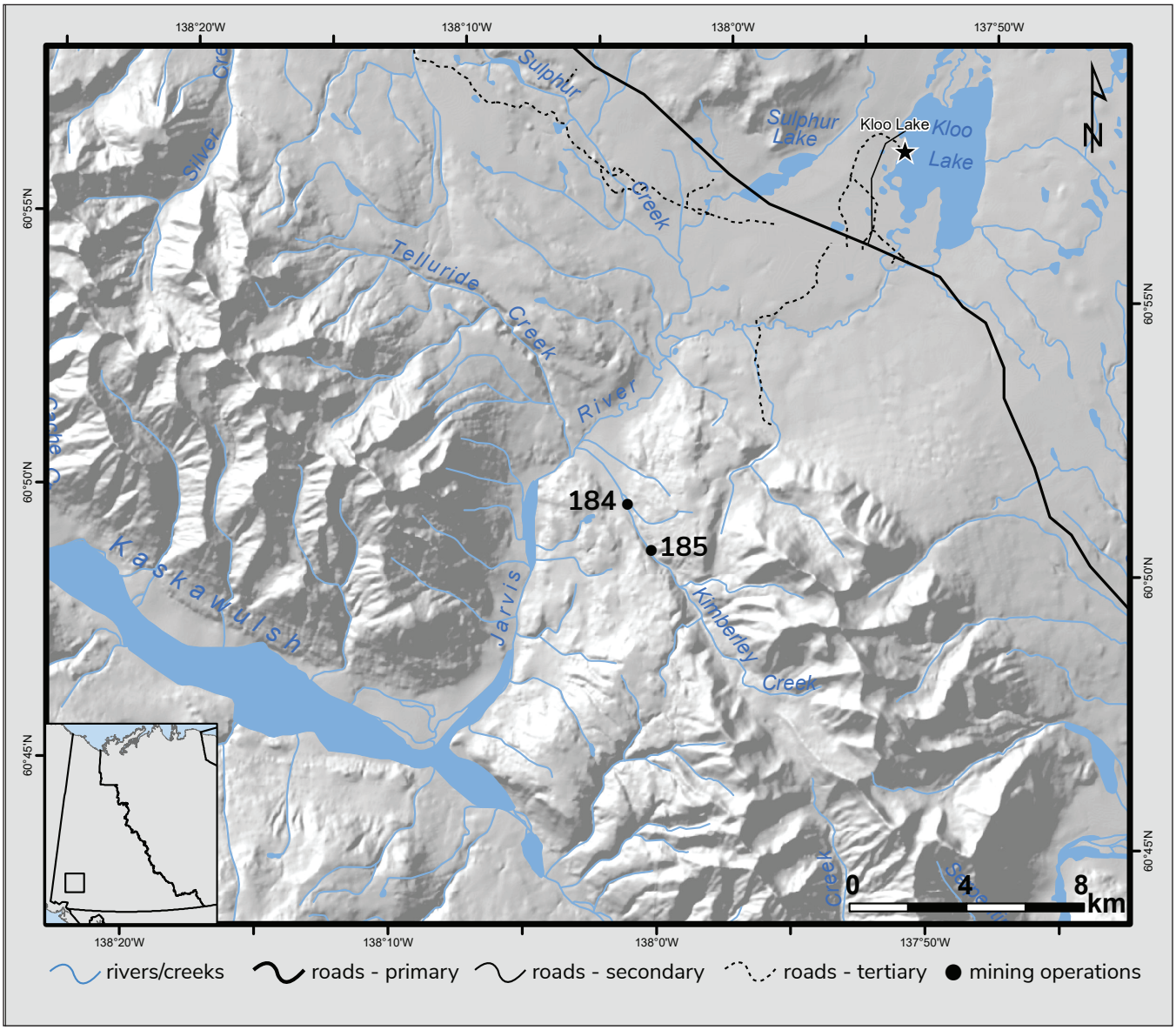
Gold is 5% jewelry grade, and rare nuggets averaged 5 to 6 g in weight. The fineness is 845.



Photo taken in August 2023, looking downstream (to the southwest) along Ruby Creek. All of D. MacKinnon's recent mining activity can be seen on the left limit of the creek in the foreground of the photo.

Kimberley
placer mining area

Sites 184–185



Legend

184. Kimberly Creek Minerals Ltd.
185. Brueckner, M.

Kimberley Creek, a tributary of Jarvis River

115B/16 2023: 60°50'33"N, 138°02'27"W

Kimberly Creek Minerals Ltd., 2013–2023
Sawyer, P. and C., 1980–2011

Water license: PM20-059 (active 03/2031)
Water license: PM09-648 (expired 09/2020)

Active producer (2021–2023) **Operation no. 184**

Location

Kimberley Creek, approximately 4.2 km above its confluence with the Jarvis River.

Work history and mining cuts

Kimberly Creek Minerals Ltd. owns 18 claims on Kimberley Creek, beginning at its confluence with Jarvis River and continuing 4.4 km upstream. Mining took place from 2021 to 2023, although no detailed work history was reported.

Equipment and water treatment

The following equipment was used on site:

- Komatsu PC350LC excavator
- trommel

Surficial geology and stratigraphy

The general stratigraphy on Kimberley Creek includes modern floodplain and low-level terrace deposits. Most sluicing material consists of alluvial gravel from within the floodplain. Additionally, sluicing material is sourced from small, low-level benches immediately adjacent to the floodplain. These bench deposits contain less than 0.5 m (1.6 ft) of overburden.

Bedrock geology

Bedrock is mapped as basalt, and meta-siltstone/mudstone and sandstone (Yukon Geological Survey, 2022a).

Gold characteristics

Gold has a fineness of 860.



Kimberly Creek Minerals Ltd.'s operation on Kimberley Creek in 2022. The view is looking upstream or to the southwest.

Kimberley Creek, a tributary of Jarvis River

115B/16 and 115A/13 2023: 60°49'45"N, 138°01'23"W

Brueckner, M., 2011–2020, 2022–2023

Water license: PM15-015 (active 05/2025)

Active producer (2022–2023) **Operation no. 185**

Location

Kimberley Creek, approximately 4.6 km above its confluence with the Jarvis River.

Work history and mining cuts

M. Brueckner has owned six placer claims on Kimberley Creek since 2010. The first year of work was conducted in 2011. Since then, activity on the property has been fairly consistent; however, there was no activity in 2021. Operating solo in 2022, Brueckner focused on the two lowermost claims, processing 229 m^3 (300 yd^3) of material. The same location was targeted in 2023, and a total of 150 hours of sluicing was completed. One test hole was reclaimed immediately upstream from the area of active mining.

Equipment and water treatment

The following equipment was used on site:

- Samsung SE350 excavator
- tracked backhoe loader
- Samsung SE130LC excavator

Material was processed using a 1.5 by 3.6 m (5 × 12 ft) trommel with a 1" screen and a single sluice run 1.8 m (6 ft) in length. The trommel was able to process material at a rate of up to 15 m^3 (20 yd^3)/hr. Water was pumped from Kimberley Creek and settled in a series of ponds immediately downstream on the right limit. Clean-ups were completed using a high banker.

Surficial geology and stratigraphy

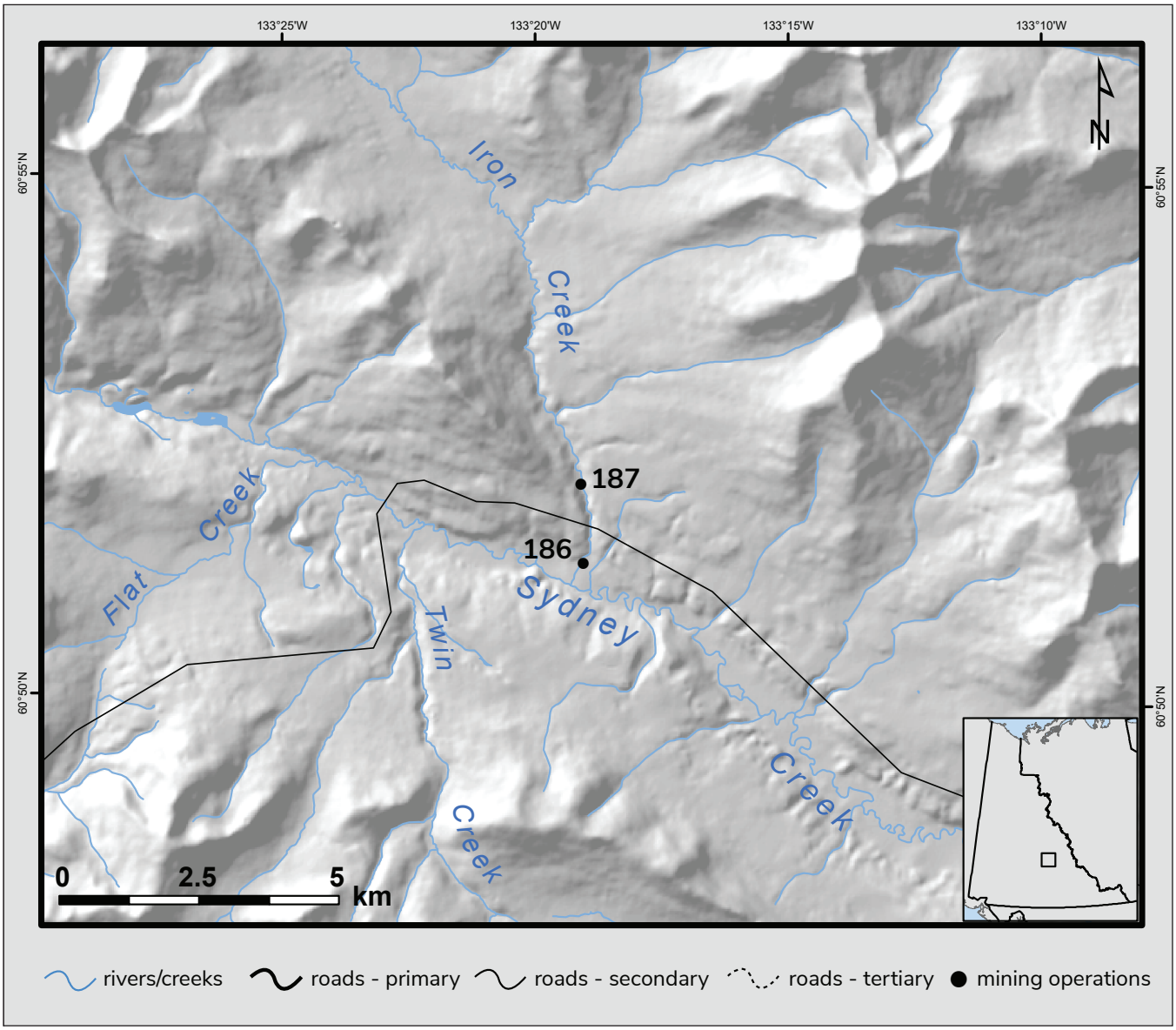
The stratigraphy of Kimberley Creek consists of 3 m (9.8 ft) of cobble-boulder gravel (boulders up to 1 m [3.3 ft] in diameter) with a sandy to silty matrix, and minor lenses of coarse sand to grit. This gravel unit is overlain by 1 m (3.3 ft) of overburden.

Bedrock geology

Bedrock is mapped as conglomerate (Yukon Geological Survey, 2022a).

Gold characteristics

Kimberley Creek gold has a fineness ranging from 850 to 860. A nugget analyzed by M. Brueckner determined a gold chemistry containing 84.75% gold, 14.60% silver and 0.65% copper.



Legend

186. Borofka, P.
187. Cartwheel Mining

Iron Creek, a tributary of Sydney Creek

105C/14 2023: 60°51'19"N, 133°18'55"W

Borofka, P., 2022
R&M Mining, 2020–2021

Water license: PM18-031-3 (active 11/2025)

Active producer (2022) **Operation no. 186**

Location

Iron Creek, approximately 0.5 km upstream from its confluence with Sydney Creek.

Work history and mining cuts

R. Manary of R&M Mining was active on Iron Creek in 2021, completing test pits and sluicing for a total of 90 hours. In June 2022, P. Borofka became the new claim holder when R&M Mining transferred the water license and land use permit. Borofka arrived on site in mid-June 2022 and sluiced for 60 hours from late June to late August. Additionally, exploration activities including resistivity geophysics and test pitting were completed. In 2023, a total of 150 hours of sluicing was completed, and all mining activity focused on lower Iron Creek near its confluence with Sydney Creek.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 325B excavator
- skid steer

A screen deck was used to process pay.



Processing of material at P. Borofka's screen deck operation on Iron Creek, August 2022.

Surficial geology and stratigraphy

The primary mining target on Iron Creek has been an alluvial fan deposit near the confluence of Iron and Sydney creeks. As is typical of fan deposits, the sediment package is thin and coarse at the apex, and gradually fines and thickens at the toe of the fan. Bedding is absent at the top of the fan deposit, and there is weakly to moderately developed cross-bedding in the lower sections. Large, angular cobbles and boulders are present throughout, indicating the material is locally derived.

Bedrock geology

Bedrock is mapped as intermediate to mafic volcanic and volcaniclastic rocks (Yukon Geological Survey, 2022a).

Gold characteristics

Gold fineness is 850.

Iron Creek, a tributary of Sydney Creek

105C/14 2023: 60°52'05"N, 133°18'59"W

Cartwheel Mining, 2013–2014, 2016–2023

Water license: PM16-050 (active 05/2027)

Active producer (2021–2023) **Operation no. 187**

Location

Iron Creek, 1.9 km upstream from its confluence with Sydney Creek.

Work history and mining cuts

Operating solo, J. Dunne of Cartwheel Mining carried out 110 hours of sluicing in 2021, and successfully completed a cut on the right limit of Iron Creek. In 2022, Dunne continued working on the right-limit cut, completing the cut by the end of the season. In 2023, significant reclamation efforts were made, including the filling and re-contouring of the settling pond.

Equipment and water treatment

The following equipment was used on site:

- Caterpillar 320C excavator
- Caterpillar 966C wheel loader
- Caterpillar D6C bulldozer

A vibrating screen deck was used to process material, classifying it to 3/4". A 0.6 by 4.9 m (2 × 16 ft) sluice run was configured with 1.2 m (4 ft) of expanded metal and 3.7 m (12 ft) of angle iron. A 4" pump supplied water

to the plant, enabling it to process material at a rate of up to 14 m³ (18 yd³)/hr. The water was 100% recycled. Clean-ups were completed using a long tom and a gold wheel.

Surficial geology and stratigraphy

Iron Creek has experienced less erosion and colluviation on the valley sides compared with Sydney Creek, preserving low-level benches in the drainage. Although discontinuous, these benches are preserved on both limits of the creek, and are situated about 1 m (3 ft) above the modern valley floor. Dunne has been targeting these low-level benches, most recently on the right limit. The gravel within the bench deposits is slightly coarser than the modern alluvial deposits in the valley bottom, and suggests a higher-energy flow in the paleo stream deposits that formed the benches. The main pay zone is located at the bedrock contact.

Bedrock geology

Bedrock is quartzite and quartz-muscovite schist.

Gold characteristics

Gold is bright and has a rough surface texture. It is predominantly coarse grained, and the largest nugget recovered weighed 7.1 g (1/4 oz). The fineness is 864.



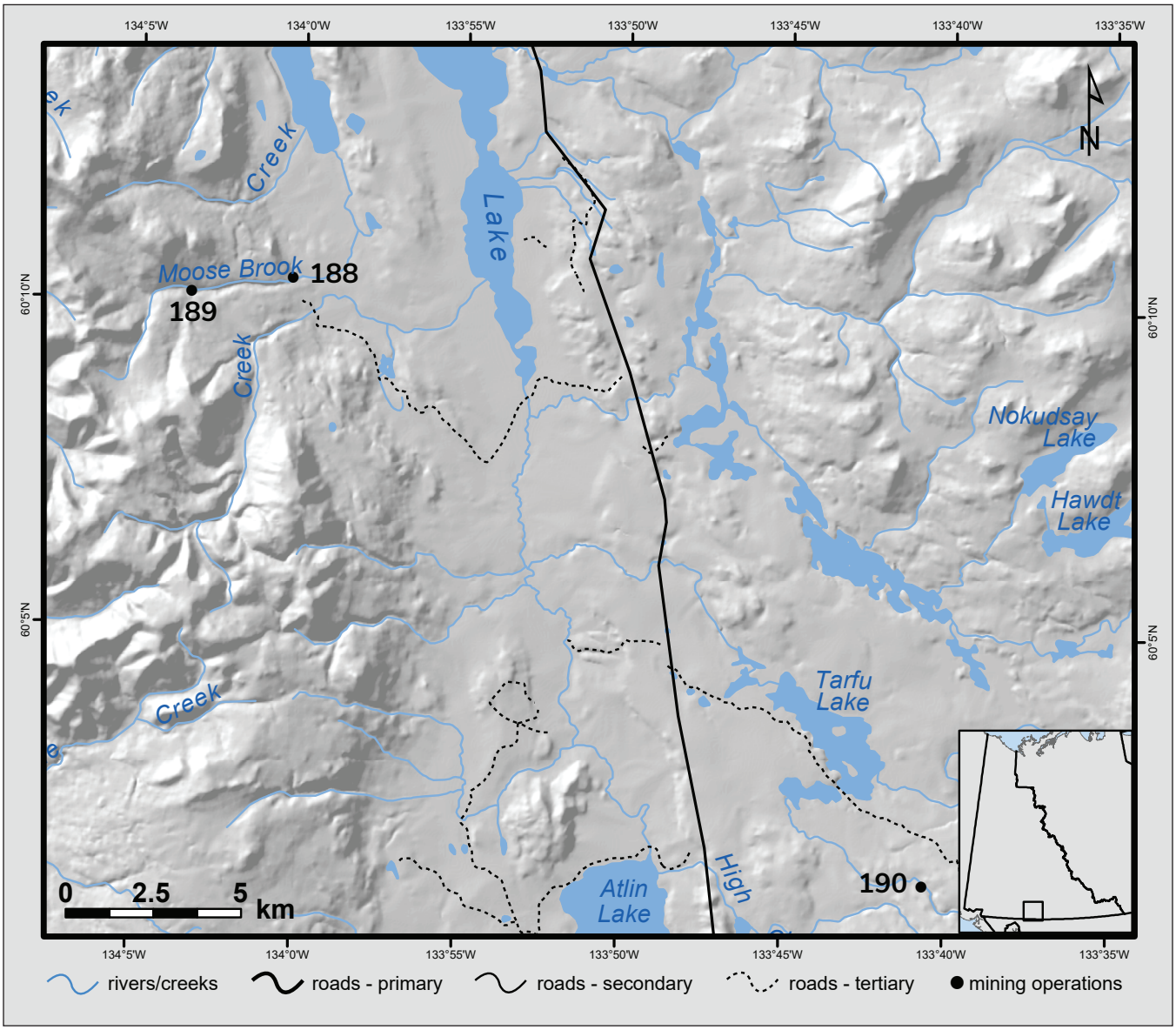
Screen deck at Cartwheel Mining's 2022 operation.



Cartwheel Mining's 2022 operation on the right limit of Iron Creek.

Whitehorse South
placer mining area

Sites 188–190



Legend

188. 46007 Yukon Inc.
189. Kabanak, T.
190. Black Mountain Mining

Moose Brook Creek, a tributary of Little Atlin Lake

105D/01 2022: 60°10'21"N, 134°00'17"W

46007 Yukon Inc., 2015–2023

Water license: PM15-018 (active 07/2025)

Active producer (2021–2023) **Operation no. 188**

Location

Moose Brook Creek, southeastern side of Jubilee Mountain, a tributary of Little Atlin Lake.

Work history and mining cuts

J. Gilbert and 46007 Yukon Inc. have maintained a lease agreement since 2015. Sluicing activities took place in 2021 and 2022, although specific details are not available. In 2023, 11 days of sluicing was carried out on the property, and reclamation was successfully completed on two claims.

Equipment and water treatment

The following equipment was used on site:

- Mitsubishi 450 backhoe
- rock truck
- Terex 72-51 wheel loader

A gravity-fed sluice plant with a dump box and a 1/4" and 3/4" punch plate was used to process pay material. The sluice run was 7.3 m (24 ft) long and had three separate runs: two outer runs that were 0.8 m (2.5 ft) wide, and a middle run 0.6 m (2 ft) wide consisting of expanded metal. Water was supplied to the plant using a 6" pump, which enabled the processing of up to 27 m^3 (35 yd^3)/hr depending on the material. Water was pumped out of Moose Brook Creek and discharged out-of-stream into a series of two ponds. Final clean-ups were completed using a long tom and a gold wheel.

Surficial geology and stratigraphy

Moose Brook Creek is a deeply incised drainage having a width of up to 135 m (443 ft). The modern creek valley is filled with glacial material from the McConnell glaciation, including glaciofluvial deposits. The thickness of surficial material on the right limit is 12 m (40 ft), which is substantially thicker than the surficial deposits on the left limit, which are 8 m (25 ft). This asymmetrical preservation could be due to modern Moose Brook Creek being perched on the left limit, or it may indicate the presence of a bedrock high on the left limit.

Bedrock geology

Bedrock is mapped as limestone (Yukon Geological Survey, 2022a).

Gold characteristics

Gold is very fine grained and has a fineness of 830.

Moose Brook Creek, a tributary of Little Atlin Lake

105D/01 2022: 60°10'06"N, 134°03'22"W

Kabanak, T., 2013–2019, 2022

Water license: PM12-019 (expired 08/2023)

Active producer (2022) **Operation no. 189**

Location

Moose Brook Creek, upper reach, tributary of Little Atlin Lake.

Work history and mining cuts

T. Kabanak and family have experienced fluctuating levels of activity over the past few seasons. There was no mining activity in 2021 or 2023. However, in 2022, two areas on the left limit were stripped and prepared for mining, and a test pit was completed on the left limit.

Equipment and water treatment

The following equipment was used on site:

- rubber-tired backhoe
- screen deck
- small bulldozer

Surficial geology and stratigraphy

Not reported.

Bedrock geology

Bedrock is mapped as limestone (Yukon Geological Survey, 2022a).

Gold characteristics

Not reported.

Unnamed creek, a tributary of Tarfu Lake

105C/04 2021: 60°01'11"N, 133°40'38"W

Black Mountain Mining, 2010–2021

Water license: Class 1 (P 2022-0184)

Active producer (2021) **Operation no. 190**

Location

Unnamed tributary at the south end of Tarfu Lake, 5.2 km from the confluence with Tarfu Lake.

Work history and mining cuts

Black Mountain Mining, has a Class 1 license, and has been exploring the placer potential of the unnamed Tarfu Lake tributary since 2010. In 2021, approximately 38 m^3 (50 yd^3) of material was sluiced from the discovery claim (P 528070). Work history is unknown for 2022 and 2023.

Equipment and water treatment

The following equipment was used on site:

- Kubota excavator

A screen deck, with a 1" screen was used to process material at a rate of up to 23 m^3 (30 yd^3)/hr. The upper sluice was 1.2 by 2.1 m (4 x 7 ft) with 3/4" riffles. A two-run secondary sluice, each 0.6 m (2 ft) wide by 3.0 m (10 ft) long, consisted of 3/4" riffles, expanded metal and Hog matting. Water was obtained from the drainage under a Schedule 3 permit and was ground discharged. Clean-ups were completed using a gold cube after the concentrate was screened to 10 mesh (2 mm).

Surficial geology and stratigraphy

The tributary that Black Mountain Mining has been exploring is located in a deep valley that was carved by a glacial meltwater channel at the end of the last glaciation. High-energy meltwater streams were able to erode and rework materials more efficiently, and in some cases, reconcentrate placer gold more effectively compared with modern streams. Prospective depositional environments (channels and bars) in glaciated terrain are often related to former streams draining ice sheets, particularly if they are dominantly erosional. Glaciofluvial deposits at the mine consist of massive to weakly bedded, clast-supported gravel with a sandy matrix. They contain a wide range of clast sizes, and boulders are common. Where mining has occurred on this tributary, up to 4 m (13 ft) of these glaciofluvial deposits have been exposed.

Bedrock geology

Bedrock is mapped as shale, chert and sandstone (Yukon Geological Survey, 2022a).

Gold characteristics

Gold grains vary from subrounded to subangular, and are between 40 and 60 mesh (0.4–0.25 mm); rare larger grains are up to 6 and 8 mesh (3.36–2.38 mm). Bismuth was also recovered in the heavy mineral fraction.

References

Bond, J.D., 2016. The Paradise gravel: Evidence for a pre-White Channel Gravel in the Klondike. In: Yukon Exploration and Geology 2015, K.E. MacFarlane and M.G. Nordling (eds.), Yukon Geological Survey, p. 29–42.

Duk-Rodkin, A., 1999. Glacial Limits Map of Yukon. Indian and Northern Affairs Canada/Department of Indian and Northern Development: Exploration and Geological Services Division, Geoscience Map 1999-2, 1: 1 000 000 scale.

Englehardt, P.O., Ward, B.C., Bond, J.D. and Coleman, M.J., 2016. Early Pleistocene glaciation and implications for placer gold deposits in Back Creek, Mount Nansen area, Yukon. In: Yukon Exploration and Geology 2015, K.E. MacFarlane and M.G. Nordling (eds.), Yukon Geological Survey, p. 111–129.

Ferry, D.H., 1909. Yukon Gold Company Dredge No. 6 and No. 3, May 15, 1909. Accession Number: 1993.67.1.110-COM, Dawson City Museum, Dawson City, YT. https://dawsonmuseum.ca/products/1993-67-1-110?variant=39471433810112

Froese, D.G., Enkin, R.J. and Smith, D.G., 2001. Placer depositional settings and their ages along Dominion Creek, Klondike area, Yukon. In: Yukon Exploration and Geology 2000, D.S. Emond and L.H. Weston (eds.), Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p. 159–169.

Green, L., 1977. The Gold Hustlers. Alaska Northwest Publishing Company, Anchorage, AK, 339 p.

Hegg, E.A., 1948. No 17 Eldorado Looking Up French Gulch, c1900. Accession Number: 1962.7.23, Dawson City Museum, Dawson City, YT. https://dawsonmuseum.ca/products/1962-7-23?_pos=1&_sid=1e0e12785&_ss=r

Huscroft, C.A., Elliot, B.T. and Lipovsky, P.S., 2017. Yukon Landform Atlas: Permafrost and other periglacial landforms. Yukon Geological Survey, https://yukon.maps.arcgis.com/apps/MapSeries/index.html?appid=8deacc9f1da84690aebce3dfd11c2958 [accessed 2024/06].

Kennedy, K.E. and van Loon, S., 2017. Preliminary investigations of placer gold settings in Arch Creek, Kluane district, southwestern Yukon. In: Yukon Exploration and Geology 2016, K.E. MacFarlane and L.H. Weston (eds.), Yukon Geological Survey, p. 103–115.

LeBarge, W.P., Bond, J.D. and Hein, F.J., 2002. Placer gold deposits of the Mayo area, central Yukon. Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Bulletin 13, 209 p.

McKenna, K.M. and Lipovsky, P.S., 2014. Surficial geology, Dawson Region, Yukon, parts of NTS 115O/14 & 15 and 116B/1, 2, 3 & 4. Yukon Geological Survey, Open File 2014-12, 1:25 000 scale.

Sack, P., Eriks, N. and van Loon, S., 2021. Revised geological map of Mount Nansen area (NTS 115I/3 and part of 115I/2). Yukon Geological Survey, Open File 2021-2, two maps, scale 1:50 000 and 1:20 000.

Sawyer, J.P.B. and Dickinson, R.A., 1976. Mount Nansen. In: Porphyry deposits of the Canadian Cordillera, S.A. Brown (ed.), The Canadian Institute of Mining and Metallurgy, Special Volume 15, p. 79–82.

Steinke, J.L., Bond, J.D. and Ward, B.C., 2022. Placer gold settings within an alpine glaciated environment, Granite Creek, Yukon (NTS 105M/14). In: Yukon Exploration and Geology 2021, K.E. MacFarlane (ed.), Yukon Geological Survey, p. 51–82.

Yukon Consolidated Gold Corp., undated. Plan of Creek Claims from No. 61 Below to 105 Below Discovery on Bonanza Creek, YCGC26018; Archives Canada file number e011156297.

Yukon Geological Survey, 2010. Yukon Placer Database – Geology and mining activity of placer occurrences. Yukon Geological Survey, CD-ROM.

Yukon Geological Survey, 2022a. Yukon digital bedrock geology. Yukon Geological Survey, https://data.geology.gov.yk.ca/Compilation/3 [accessed 2024/08].

Yukon Geological Survey, 2022b. Yukon MINFILE, a database of mineral occurrences. Yukon Geological Survey, https://data.geology.gov.yk.ca/Occurrences/ [accessed 2024/08].

Yukon Water Board, 2025. WATERLINE. Yukon Water Board, https://apps.gov.yk.ca/waterline/f?p=127:1:::::: [accessed 2024].

Fineness of Yukon placer gold

Gold fineness is an expression of the purity of gold in parts per 1000; the remainder is usually silver and minor amounts of base metals. The following list was compiled from Geological Survey of Canada reports, gold-buyer's lists and personal communications with placer miners. Although by no means exhaustive, this compilation includes gold fineness from hundreds of creeks from across the Yukon. The following list is broken down by mining districts: Dawson, Mayo and Whitehorse. No data was available from the Watson Lake Mining District.

Dawson Mining District	Fineness (historic)	Fineness (recent)
5 Above Pup		680-832
7 Pup		790-860
8 Above Pup		680-700
15 Pup	700	675-700
24 Pup		827-850
27 Pup	845	
27 Gulch	750	
49 Pup		780
65 Pup	960	
Adams Gulch	615-750	750
Allgold Creek	858-860	870, 820-870, 890
American Hill (Bonanza)	864	800
Anderson Creek (Fortymile area)	720-728	
Australia Creek		850-860
Australian Hill (Hunker)	850-860	860
Ballarat Creek	852-860	850
Barker Creek	793-900	
Barlow Creek	853	
Barney Pup		820-860
Bear Creek	644-746	
Bedrock Creek	820	830
Big Gold Creek	847-854	720-870
Black Hills Creek	730-855	660-855
Blueberry Creek	880	880
Bonanza Creek (upper)	809-827	750-780, 830-850
Bonanza Creek (middle)	781	
Bonanza Creek (lower)	739-798	
Bow Pup Creek		889-900
Brewer Creek	830-890	
Brimstone Gulch	830	
Browns Creek	800	800
Bruin Creek	800	750
Canyon Creek		820-850, 805
Caribou Creek	816-840	670-692
Carmack Fork		
Cheechako Hill	750-785	740-750, 734

Dawson Mining District	Fineness (historic)	Fineness (recent)
Childs Gulch	750	784-860, 889
Clear Creek	820-860	
Clear Creek (left fork)	730	
Clear Creek (right fork)	720-740	
Dago Gulch		780-920, 700-790
Dago Hill (Hunker)	798-859	760
Dawson Hill (Klondike)	790-825	
Discovery Pup	700	690-700
Dome Creek		750
Dominion Creek (upper)	805-832	770-790
Dominion Creek (middle)	817-849	825-860
Dominion Creek (lower)	790-840	865
Eighty Pup	797	
Eldorado Creek	733	703-803
Eureka Creek	677-745	620-690, 670
Fiftymile Creek		890-910
Fortymile River	814-845	
French Gulch	631-750	625-760
Friday Gulch	790-804	790-810
Gauvin Gulch	664	663, 660-675
Gay Gulch	780-790	
Glacier Creek	830-860	820-860
Gold Bottom Creek	780-800	820
Gold Hill	768	
Gold Run Creek	830-878	840-850
Goring Creek	738	730
Green Gulch		750-830
Groetschier Bench	790-825	
Hattie Gulch		710-770
Henderson Creek	720-760	700-750, 800
Henry Gulch	605-650	650-700
Hester Creek	850	650-720, 820
Homestake Gulch	660-750	
Hunker Creek (upper)	798-859	790
Hunker Creek (middle)	725-820	800-870
Hunker Creek (lower)	701-726	699-770, 780, 800

Dawson Mining District	Fineness (historic)	Fineness (recent)
Independence Creek	780-794	708-817, 820
Indian River	780-843	850
Irish Gulch	624-742	650,750
Jackson Gulch	829-842	
Jackson Hill (Klondike)	835	790
Kentucky Creek		800-825
King Solomon Hill (Bonanza)	785-800	
Kirkman Creek		860-896, 840, 900
Klondike City	780-790	
Klondike River		790-825, 780, 850
Lake Creek		895
Last Chance Creek	683-832	680
Lindow Creek		650-658, 640
Little Blanche Creek	650-710	640, 700-720
Little Gold Creek	860	780
Lombarde Pup	860	800,850
Lousetown Bench (Klondike)		800-830, 842
Lovett Gulch	860	795-860
Lulu Creek		860-880
Maisy May Creek	780-782	770-860
Mariposa Creek	895-900	
Matson Creek	776-893	
McCrimmon Creek		780
Miller Creek	827-857	710-820
Mint Gulch	820-851	
Montana Creek	770	790
Monte Cristo Gulch	784-796	
Moose Creek	855	840-850
Moosehorn Creek		790-820
Nugget Hill (Hunker)		820-910
Oro Grande Gulch	775	730-740, 720
Paradise Hill (Hunker)	735-802	810-840
Poker Creek		873
Portland Creek		820-835
Quartz Creek	732-800	670-750, 820
Ready Bullion Creek	710-717	800
Rosebute Creek	800-810	
Scroggie Creek	895-905	890
Sestak Creek	810-815	
Sixty Mile River	810-840	860
Skookum Gulch		630-660
Soap Creek		763-766

Dawson Mining District	Fineness (historic)	Fineness (recent)
Sparkling Creek	880	
Squaw Creek		870-920
Stewart River	837-850	780-850
Stowe Creek		770
Sulphur Creek	790-832	780-840
Ten Mile Creek	830-845	860
Thistle Creek	848-895	800-860
Toronto Creek		890
Touleary Creek		
Trail Gulch		820
Trail Hill (Bonanza)	800-805	
Treasure Hill		700
Victoria Gulch	807-820	800-860, 760-820
Wounded Moose		820-840, 856

Mayo Mining District	Fineness (historic)	Fineness (recent)
15 Pup		876-890
Anderson Creek	870	840, 890-910
Boulder Creek	800	
Canyon Creek	825	
Davidson Creek	840	820-860
Dublin Gulch	860-923	
Duncan Creek		788-830, 760
Empire Creek	910	910-915
Fisher Gulch	900	895
Gem Gulch	895	880-895
Gill Gulch	870	
Goodman Creek		820
Haggart Creek	885-895	870
Highet Creek	820-845	800
Johnson Creek	760-820	830
Ledge Creek	805-825	790-800
Lightning Creek	830	
McLagan Creek		820-850
McNeil Creek		760
McQuesten River	870	
Minto Creek	826-835	845
Morrison Creek		815-840
Murphy's Pup	800-900	
Owl Creek		840-870
Partridge Creek		845-850
Rudolph Gulch		830

Mayo Mining District	Fineness (historic)	Fineness (recent)
Russell Creek	850	
Sabbath Creek		800
Seattle Creek		820
Steep Creek	931-946	890-910
Swede Creek	895	880,750
Thunder Gulch	790-825	
Upper Duncan Creek		810,792
Van Bibber Creek		840-860
Vancouver Creek		800

Whitehorse Mining District	Fineness (historic)	Fineness (recent)
Arch Creek	870	
Back Creek	760-836	
Boliden Creek	890	870-890
Bullion Creek	871	
Burwash Creek	860-876	850-860, 740
Canadian Creek	864-883	
Cottoneva Creek	830	
Discovery Creek	820-850	
Dollis Creek		834-960
East Fork Nansen Creek		800, 790-860
Eva Creek	790	
Fourth of July Creek	800-810	820
Gladstone Creek	820	767-820, 839
Great Bear Creek		820-825
Guder Creek	838	
Hayes Creek	860-880	
Iron Creek		850
Kate Creek	800-820	
Kenyon Creek	750	800-820
Kimberley Creek	850-860	
Klaza River (unnamed tributaries)	760-830	
Lake Creek	895	
Little Violet Creek	866	870-900
Livingstone Creek	880	
Martin Creek	870	
May Creek	892	
Mechanic Creek	880-910	870
Moose Brooks Creek	820-837	793-900
Nansen Creek	800	805-820, 790
Quill Creek	878	870

Whitehorse Mining District	Fineness (historic)	Fineness (recent)
Reed Creek	889-896	
Revenue Creek	860-880	890-920
Ruby Creek		835-845
Rude Creek	840-850	860
Rusk Creek	830	
Seymour Creek	860	840-870
Slate Creek	800	
Soya Creek		800
Summit Creek		860-900
Swamp Creek	800	840
Tatamagouche Creek		860
Tatshenshini River	850-866	
Twelfth of July Creek		810
Victoria Creek	720-730	780, 790-810
Wade Creek	900-930	

Conversions and equivalents

Length	
1 centimetre (cm)	= 0.394 in
1 metre (m)	= 39.4 in = 1.094 yd
1 kilometre (km)	= 0.6214 (5/8) mile
1 inch (in)	= 2.54 cm
1 foot (ft)	= 30.48 cm
1 yard (yd)	= 0.914 m = 3 ft
1 mile	= 1.609 km = 1760 yd

Area	
1 hectare	= 2.471 acres
1 acre	= 0.405 hectare = 4840 yd^2
1 square yard	= 0.836 m^2

Volume	
1 litre (L)	= 1000 millilitres (mL) = 1000 litres = 0.21998 gallon (Imp.) = 0.26417 gallon (US)
1 gallon (Imp.)	= 4.5459 L
1 gallon (US)	= 3.785 L
1 cubic yard	= 0.764 m^3

Weight per volume	
1 ounce/cubic yard	= 40.68 g/m^3
1 ounce/ton	= 34.2848 g/tonne

Weight	
1 troy pound	= 12 troy ounce
1 troy ounce	= 31.1035 g = 20 pennyweights = 480 grains
1 pennyweight	= 24 grains
1 grain	= 0.06479 g
1 gram (g)	= 15.43 grains
1 kilogram (kg)	= 32.15 troy ounce = 1 000 g = 2.205 pounds (lbs)
1 long ton	= 2240 lbs
1 short ton	= 2000 lbs
1 tonne	= 1.102 short tons = 2204.62 lbs

Gold purity		
pure gold	= 24 karats	= 1000 fine
91.6%	= 22 karats	= 916 fine
90%	= 21.6 karats	= 900 fine
75%	= 18 karats	= 750 fine
58.3%	= 14 karats	= 583 fine
41.6%	= 10 karats	= 416 fine

Temperature
°C = (°F – 32) × 0.555
°F = (°C × 1.8) + 32

Grain size (average diameter)	
boulders	greater than 256 mm
cobbles	64 mm to 256 mm
pebbles	4 mm to 64 mm
gravel	greater than 2 mm
sand	2 mm to 1/16 mm
silt	1/16 mm to 1/256 mm
clay	less than 1/256 mm

Sieve tips (mesh # = number of openings/inch)	
10 mesh	2 mm opening
18 mesh	1 mm opening
35 mesh	0.5 mm opening
60 mesh	0.25 mm opening
120 mesh	0.125 mm opening

Other useful conversions	
1 troy ounce	= 31.1035 grams
1 cubic millimetre of gold	= 0.019 grams
1 cubic centimetre of gold	= 19.3 grams
1 cubic yard	= 0.765 cubic metres
1 cubic metre	= 1.307 cubic yards
1 cubic metre	= 200 standard (16") gold pans
1 cubic yard	= 153 standard (16") gold pans
5 gallon pail	= 18.9 litres

Miscellaneous

The following measures are not absolute values but are used by many miners to make working estimates:

1 standard gold pan	= 16 inch diameter top = 10 inch diameter bottom = 2.5 inch depth holds 0.007 yd^3 or 0.005 m^3 weighs approximately 21 lbs (ordinary gravel)
1 cubic yard	= approximately 153 standard gold pans
Weight of ordinary gravel in place	= 2500 to 3000 lbs/yd^3
specific gravity of ordinary gravel in place	= 1.48 to 1.78 g/cm^3

specific gravity of:	
gold	= 15.6 to 19.3
garnet	= 3.56 to 4.32
magnetite	= 4.9 to 5.2
pyrite	= 4.0 to 5.2
quartz	= 2.6

1 ounce gold/ton ordinary gravel	= 1.25 to 1.50 ounces/cubic yard
1 gram gold/tonne ordinary gravel	= 1.48 to 1.78 grams/cubic metre
swell factor of ordinary gravel	= 20 to 30% increase in volume

Index

Operation	Placer area	Number	Page
0869809 B.C. Ltd.	Indian	78	108
0877617 BC Ltd.*	Livingstone	175	235
12567 Yukon Inc.*	Nansen	172	228
16406 Yukon Inc.*	Bonanza-Hunker	25	41
2001 Yukon Ltd.*	Hayes-Canadian	174	231
2074098 Alberta Ltd.	South Klondike	93	125
38857 Yukon Inc.	Nansen	173	228
40056 Yukon Inc.*	Big Creek	167	221
44830 Yukon Inc.	Clear Creek-McQuesten	144	191
46007 Yukon Inc.*	Whitehorse South	188	259
532 Placer Mining*	Mayo	145	195
535584 Yukon Inc.	Bonanza-Hunker	45	64
535785 Yukon Inc.	Mayo	148	199
535785 Yukon Inc.	Keno	162	199
535901 Yukon Inc.	Bonanza-Hunker	36	53
535901 Yukon Inc.*	Indian	80	53
536784 Yukon Inc.	Dominion-Sulphur	67	94
5582 Yukon Ltd.*	Indian	79	109
641166 Alberta Ltd.*	Big Creek	165	218
836470 Yukon Inc.	Sixty Mile	120	159
837482 Yukon Inc.*	Dominion-Sulphur	55	76
Ace Placer Mining Ltd.	Bonanza-Hunker	33	49
Ace Placer Mining Ltd.	Dominion-Sulphur	64	49
Adams, N.*	South Klondike	102	136
Ahnert, G. and E.*	Bonanza-Hunker	48	68
Algotsson, H.*	Bonanza-Hunker	4	18
Alluvium Gold Mining Inc.	Indian	85	115
Andre, L.	Mayo	147	197
Anglerock LLC*	Bonanza-Hunker	23	40
Aquila Mining and Exploration Ltd.	South Klondike	111	145
Aurem Alliance Ltd.*	Kluane	180	242
Barchen, R.*	Mayo	152	202
Bardusan Placers Ltd.	Keno	157	207
Bear Creek Logging	Bonanza-Hunker	19	35
Bedrock Mining Company Inc.	South Klondike	103	137
Bellavance, O.	Clear Creek-McQuesten	137	182
Berglund, R. and D. Trudeau	Bonanza-Hunker	10	24
Beron Placers Co. Ltd.	Bonanza-Hunker	13	28
Bidrman, Z.	South Klondike	110	144
Big Valley Mining*	Bonanza-Hunker	52	71
Black Mountain Mining*	Whitehorse South	190	260
Blackstone Placer Mining Ltd.*	Clear Creek-McQuesten	141	187
Bondarchuk, V.	Fortymile	118	153
Borofka, P.*	Nisutlin-Pelly	186	255
Brewster, D.*	Ruby Range	182	247
Brong, R. and E. Dotzler	Bonanza-Hunker	51	71
Brown, D. and T.	Bonanza-Hunker	54	73
Brueckner, M.*	Kimberley	185	252
C+C Placers*	Bonanza-Hunker	12	27
Capital Gold Mining Corporation	Nansen	171	226
Cartwheel Mining*	Nisutlin-Pelly	187	255
CG Mining and Equipment Services	Bonanza-Hunker	47	67
Chaschin, K. and M.	Nansen	170	225
Chrysos Mining Ltd.	Fortymile	117	152
Cissell, M.*	Bonanza-Hunker	17	33
Cope, M.*	Sixty Mile	123	162
D.C. Klippert Exploration	Dominion-Sulphur	57	77
Daunt, K.	Bonanza-Hunker	14	30
Daval Mining	Bonanza-Hunker	39	56
de Windt, S. and B. Schmid	Sixty Mile	130	169
Dillman, K. and S.	South Klondike	94	126
Dodge, D.	Big Creek	166	219
Dulac Mining	Bonanza-Hunker	53	72
Dulac Mining	Keno	160	72

* This operation was not visited by staff of the Yukon Geological Survey during the reporting period. Data and operational details were compiled from multiple sources including WATERLINE (Yukon Water Board, 2025) and the Yukon placer database (Yukon Geological Survey, 2010), as well as unpublished data from the Yukon Mining Recorder and inspection reports from Natural Resources Officers .

Operation	Placer area	Number	Page
Dulac Mining	Keno	161	72
Dulac Mining	Keno	163	72
Dulac, J.	Bonanza-Hunker	15	31
Earth & Iron Mines Inc.	Keno	159	210
Favron Enterprises Ltd.*	Sixty Mile	125	48
Favron Enterprises Ltd.	Bonanza-Hunker	32	48
Favron Enterprises Ltd.	**Dominion-Sulphur**	**61**	**48**
Fellhawk Enterprises Ltd.	Bonanza-Hunker	11	26
Fellhawk Enterprises Ltd.	South Klondike	101	26
Fellhawk Enterprises Ltd.	South Klondike	107	26
Fine Gold Resources Ltd.	Indian	81	111
Fortymile Placers*	Fortymile	113	148
Fraser, I.	Bonanza-Hunker	40	57
Fraughton, M.	Bonanza-Hunker	1	14
FTG Exploration Ltd.	Keno	155	206
Gatenby Enterprises Ltd.*	Dominion-Sulphur	73	100
Gillespie, R.*	Bonanza-Hunker	31	47
Gimlex Enterprises Ltd.	Dominion-Sulphur	72	99
Golden Wrench Mining Ltd.	Bonanza-Hunker	35	52
Ground Resources Ltd.	Sixty Mile	124	162
Gwilliam, W. and B.	Dominion-Sulphur	63	87
H.C. Mining Ltd.	South Klondike	100	133
Hardclay Resource Services Ltd.*	Sixty Mile	128	167
Hawk Mining Ltd.	Sixty Mile	121	159
Hawker, F.*	Bonanza-Hunker	28	44
Hawkes, L.	Bonanza-Hunker	2	15
Henry Gulch Explorations Ltd.	Bonanza-Hunker	30	46
Hollis Mining & Exploration Ltd.	Dominion-Sulphur	65	90
Hollis, A.	Bonanza-Hunker	9	23
Hughes, S.	South Klondike	95	127
Humrickhouse, L.	Keno	154	205
Hunter, T. and B. Lammers	Bonanza-Hunker	49	69
Husky Wood and Exploration Ltd.	Fortymile	114	149
Jackson, D.*	Bonanza-Hunker	16	32
Jardine, E.*	Mayo	149	199
Joe's Own Enterprise	Bonanza-Hunker	7	21
Johnson, S.L.	Kluane	179	241
K-1 Mining & Services	Sixty Mile	127	165
Kabanak, T.*	Whitehorse South	189	259
Kimberly Creek Minerals Ltd.*	Kimberley	184	251
Kohlman Explorations Ltd.	Bonanza-Hunker	22	39
Kowalski Trucking Ltd.*	Clear Creek-McQuesten	138	183
Kreft, B.*	Bonanza-Hunker	38	55
KT Mining	Bonanza-Hunker	43	62
L&M Mining Ltd.	Dominion-Sulphur	68	95
Lake Creek Placers*	Livingstone	176	235
Lewes River Mining	Bonanza-Hunker	8	22
Little Flake Mine ULC*	Indian	86	91
Little Flake Mine ULC	Indian	88	91
Little Flake Mine ULC	Dominion-Sulphur	66	91
Lonesome Dove Mining ULC	Indian	87	117
Lovett Hill Corp.	Bonanza-Hunker	3	16
Lucky Dog Mining Inc.	Dominion-Sulphur	56	76
M. Tatlow and Sons Ltd.	Indian	89	119
M2 Gold Mines Ltd.	Sixty Mile	119	158
MacDonald, B.*	Fortymile	112	148
MacKinnon, B.*	Ruby Range	183	248
McGuffie, J.	Dominion-Sulphur	71	98
McKort Mining Co.	Bonanza-Hunker	24	40
McMahon, T.	Bonanza-Hunker	21	38
MDB Northern Mining and Exploration Inc.	Keno	158	209
Miller Creek Mining Company Ltd.*	Sixty Mile	122	161
Mogul Gold	Bonanza-Hunker	42	60
Moonlight Mining Ltd.	Clear Creek-McQuesten	135	180

* This operation was not visited by staff of the Yukon Geological Survey during the reporting period. Data and operational details were compiled from multiple sources including WATERLINE (Yukon Water Board, 2025) and the Yukon placer database (Yukon Geological Survey, 2010), as well as unpublished data from the Yukon Mining Recorder and inspection reports from Natural Resources Officers.

Operation	Placer area	Number	Page
Moosehorn Exploration (Kate Creek)*	Moosehorn	132	174
Moosehorn Exploration (Kenyon Creek)*	Moosehorn	133	175
NBC Contracting	Dominion-Sulphur	70	97
NBC Contracting	South Klondike	99	97
Nelson, R.	Kluane	178	240
Nicolas, D.	Bonanza-Hunker	6	19
No Name Resources Inc.	Sixty Mile	131	170
Nordling, R. and A. Rudis*	Sixty Mile	129	168
Northern Exposures Inc.	Indian	75	103
Northern Gold Resources LLC	South Klondike	98	130
P.A.P. Enterprises Ltd.*	Bonanza-Hunker	37	54
Palagian, L. and S.	Bonanza-Hunker	50	70
Paydirt Holdings (1982) Ltd.	South Klondike	91	123
Phillips, P.	Clear Creek-McQuesten	140	186
Pishon Gold Resources Inc.*	Nansen	168	223
Putnaerglis, D.	Bonanza-Hunker	5	18
R. Smith Placer Mining	South Klondike	90	122
Radford, A. and A. Durr*	Indian	83	114
Rally! Mining ULC	Keno	156	206
Right Fork Mining	Big Creek	164	217
Roberts, W.	Bonanza-Hunker	46	66
Rock Bottom Mining	Nansen	169	223
Rodal Placers	Bonanza-Hunker	18	34
Sager, C.*	South Klondike	104	138
Sager, M. and R.	South Klondike	106	139
Schmidt Mining Corp. and Nevada Zinc Corp.	Clear Creek-McQuesten	143	190
Schmidt Mining Corp. and Yukon Exploration Green Gold Inc.	Clear Creek-McQuesten	142	188
Schmidt Mining Corp.	Indian	76	80
Schmidt Mining Corp.*	Dominion-Sulphur	59	80
Schmidt Mining Corp.*	South Klondike	105	80
Scott and Son Mining	Clear Creek-McQuesten	139	184
Sight Unseen Mining Company	Indian	77	106
Slate River Mining	Indian	74	102
Slonski, G. and K. Elgie	Bonanza-Hunker	29	45
Stanley, K.*	Kluane	177	239
Steppler Mining Co.	Mayo	151	201
Stuart Placers Ltd.	South Klondike	96	128
T.D. Oilfield Services Ltd.	Dominion-Sulphur	58	79
T.D. Oilfield Services Ltd.	Dominion-Sulphur	62	79
T.D. Oilfield Services Ltd.	Dominion-Sulphur	69	79
Tatra Ventures Ltd.	Bonanza-Hunker	20	37
Tatra Ventures Ltd.	Bonanza-Hunker	27	37
Tatra Ventures Ltd.	Bonanza-Hunker	34	37
Them R Gold Ltd.*	Indian	84	115
Thomas, C.*	Mayo	153	203
TIC Exploration Ltd.	Ruby Range	181	245
Tim Coles Enterprises Ltd.	Bonanza-Hunker	41	59
Trautwein, A.*	Sixty Mile	126	164
Treadstone Gold	Indian	82	113
True North Gold Ltd.	South Klondike	109	142
Ungar, R.*	Fortymile	115	150
Van Der Woude, D.*	Fortymile	116	151
Vincent, M. and S. Larose	South Klondike	97	130
Wasylenko, W.	Clear Creek-McQuesten	136	181
Weatherly, D.	South Klondike	92	125
Weber, B.	South Klondike	108	141
Whiskey Hill Mining	Bonanza-Hunker	44	63
Wilson, K. and J.	Mayo	150	200
Wolf Head Discovery and Mining LLC*	Clear Creek-McQuesten	134	179
Yukon Alpine Heliski Ltd.	Dominion-Sulphur	60	81
Yukon Mining Ventures Ltd.	Mayo	146	196
Yukon Strike Mining	Bonanza-Hunker	26	41

* This operation was not visited by staff of the Yukon Geological Survey during the reporting period. Data and operational details were compiled from multiple sources including WATERLINE (Yukon Water Board, 2025) and the Yukon placer database (Yukon Geological Survey, 2010), as well as unpublished data from the Yukon Mining Recorder and inspection reports from Natural Resources Officers.



Glacial limits map of the Yukon (after Duk-Rodkin, 1999).

Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon



Yukon