YUKON WATER BOARD

Pursuant to the *Waters Act* and *Regulation*, the Yukon Water Board hereby issues a water licence to:

LICENSEE:	Aurem Alliance Ltd.
CONTACT INFORMATION:	7165 Sunset Blvd. Los Angeles, CA 90046 E-mail: auremalliance@hotmail.com
LICENCE NUMBER:	PM19-066 **APPROVAL NUMBER:** AP19066
LICENCE TYPE:	B **UNDERTAKING:** Placer Mining
WATERSHED:	White River
WATER MANAGEMENT AREA:	02 Yukon
HABITAT CLASSIFICATION:	Low, Moderate-Low, Moderate- Moderate
LOCATION:	Latitude: 61° 20' 52" N Longitude: 139° 27' 55" W
WATER SOURCE:	Burwash Creek, a tributary of Kluane River
MAXIMUM QUANTITY:	8,728 cubic metres of water per day
EFFECTIVE DATE:	The effective date of this licence is the date on which the signature of the Chairperson of the Yukon Water Board is affixed.
EXPIRY DATE:	The expiry date of this licence is the earlier of: a) February 14, 2030; or b) The date that any of the grants in appendix A2 (grants that overlap Settlement Land) expire.

This licence is subject to the restrictions and conditions contained herein, and to the restrictions and conditions contained in the *Waters Act* and *Regulation*.

Dated this 27th day of February, 2020

Approved by:

C Wilcox
Witness

Chairperson
Yukon Water Board

YUKON WATER BOARD

Pursuant to the *Waters Act* and *Waters Regulation*, the Yukon Water Board hereby grants a Type B water licence for a placer mining undertaking to:

Aurem Alliance Ltd.
7165 Sunset Blvd.
Los Angeles, California
USA 90046

LICENCE NUMBER:	PM18-017	**APPROVAL NUMBER:**	AP18017
LICENCE TYPE:	B	**UNDERTAKING:**	Placer Mining
WATERSHED:	White River		
WATER MANAGEMENT AREA:	02 Yukon		
HABITAT CLASSIFICATION:	Moderate-Low		
LOCATION:	Latitude: 61° 09' 33" N Longitude: 138° 45' 21" W		
WATER SOURCE:	Nines Creek, a tributary of Kluane Lake		
MAXIMUM QUANTITY:	5,455 cubic metres of water per day		
EFFECTIVE DATE:	The effective date of this licence shall be the date on which the signature of the Chairperson of the Yukon Water Board is affixed.		
EXPIRY DATE:	June 6, 2028		

This licence shall be subject to the restrictions and conditions contained herein, and to the restrictions and conditions contained in the *Waters Act* and the *Waters Regulation* made thereunder.

Dated this 15 day of June, 2018

Approved by:

Witness

Vice-Chairperson
Yukon Water Board

places shallow, and are generally somewhat coarse. Along Burwash creek they are coarser, in most places, near the surface and also as the right bank of the valley is approached, most of the large boulders having rolled down from the hill side on the right bank of the stream. The bench gravels remain frozen throughout the year; but the creek gravels are only frozen in winter, and even then are in few places if anywhere frozen down to bedrock, remaining unfrozen at most points below a depth of 10 or 11 feet. This condition makes prospecting in the creek very difficult, owing to the difficulty of handling the water coming into the bottoms of the shafts.

From a mining standpoint, Burwash has been much the most important of the Kluane creeks, as more gold is believed to have come from the gravels of this stream than from all the other creeks of the district combined. Coarse gold has been found from the foot of the lower canyon upstream for a distance of 8 miles or more, but it is impossible to ascertain the exact amount of gold that has been mined. From all the information available it seems probable that in all between $30,000 and $40,000 in gold has been obtained; and an additional amount of approximately $2,000 has come from Tetamagouche creek. The gold is characteristically very flat and well worn, that obtained from the benches being mostly coarse, and that from the creek much finer, and in places quite fine. Nuggets worth as much as $25 or $30 have frequently been found, but the largest known to have come from Burwash creek was found on claim No. 65 above Discovery. This nugget weighed 5 ounces, including less than one ounce of quartz and rock. The gold from this creek is all very pure, assaying generally from $18 to $18.10 per ounce.

About 40 claims were held on Burwash creek in the spring of 1914, and when visited by the writer, early in August, 14 men were working along the stream. The creek has been more or less prospected and mined from the lower end of the lower canyon up to No. 66 above Discovery. Above No. 66, one shaft was sunk to a depth of 21 feet, but with this exception practically no work has been done in the creek gravels, and there has been very little prospecting of the benches. The gravels of Burwash creek along the present stream have at a number of points yielded very satisfactory returns, and the channels along the right bank of the creek have been proved to contain gold in important amounts at several points.

The creek gravels, particularly above the mouth of Tetamagouche creek, certainly warrant further exploitation, and the old channels on the right bench deserve careful investigation. It would seem highly probable that there is still much gold along this creek, that can be mined at a profit. Mining operations to be successful, however, must be prosecuted carefully and under skilled and experienced management.

The gold that has been obtained from Tetamagouche creek has practically all been found below the canyon, and appears to be everywhere very 'spotted' or unevenly distributed throughout the gravel. There are a number of points below the canyon where sluicing will still yield about $3 per day per shovel, an amount, however, that is considerably below the wage rate of the district.

Arch Creek. Arch creek lies to the northwest of Burwash creek, and joins Donjek river from the right about 28 miles above the mouth of the Kluane river. It is a typical, swift, mountain stream comparable in length and volume of water with Sheep creek, and in many ways much resembling that stream.

MAYO DISTRICT

There was one new placer claim issued in the Mayo District during 1953, and 72 claims were renewed. Placer mining activity continued at a low level through the year. Approximately 1,059 ounces of gold were recovered. Little prospecting was done.

Ballarat Mines, Limited did not resume work on the Middlecoff ground on Highet Creek. The tests given the ground during 1952 indicated that it was too deep for the type of equipment owned by the company, and that there was insufficient virgin ground to warrant purchase of suitable machinery.

Waddco Placers, Limited worked on the Barker ground on Haggart Creek for a short test period during the summer, with encouraging results. They recovered 334.78 fine ounces of gold.

Fred Taylor resumed mining on his Dublin Gulch property after a shutdown of several years. He worked his ground alone, using a bulldozer. Production amounted to 549.18 fine ounces of gold. The concentrates from this creek contained commercial quantities of scheelite. They were being accummulated with the object of shipment when a sufficient amount was on hand.

Clifford Greig spent some time prospecting his ground on Bawn Boy Gulch, but had negative results.

WHITEHORSE DISTRICT

Placer prospecting in the Whitehorse District remained dormant during the year. There were eight new claims, and 72 renewals issued during 1953. Placer leases covering 34 miles were issued, and leases covering eight miles were renewed.

Established operators continued to mine, and their total production increased from 2,817.00 ounces in 1952 to 4,038.75 ounces in 1953. Recoveries from the various creeks were as follows.

Gladstone Creek	2,352.20 oz.
Burwash Creek	1,590.50 oz.
Sheep Creek	53.50 oz.
Miscellaneous	42.55 oz.
Total	4,038.75 oz.

There was very little snowfall during the winter of 1952-1953, and little rain prior to June 20th. Heavy general rains occurred in the latter part of June, and cool, cloudy weather with frequent showers continued through July and August.

Burwash Mining Company, Limited experienced further difficulties at its Burwash Creek operation due to road washouts. The company was forced to construct an alternative road over higher ground from the Duke River. Gold recovered from their mining operations totalled 1,338.23 fine ounces.

Kluane Dredging Company also experienced some difficulty at its Gladstone Creek operation due to washouts, but recovered 1,903.39 fine ounces of gold during the 1953 mining season.

Messrs. O. Medby and J. Lamontagne worked Hydraulic Lease #46 on Miller Creek from April 6th to September 30th. With two employees, they used one D-4 and three D-6 Caterpillar bulldozers, one G.M.C. pump, and sluices, and recovered gold valued at between $30,000.00 and $40,000.00. One month of the season was spent preparing ground for 1956 operations.

A few individual miners, including a few of the pioneer miners of 1898, were scattered across the Klondike district engaged in small, hand mining operations. The production of these miners was small.

MAYO DISTRICT

Ten new placer claims were issued in the Mayo District during 1955, and 67 claims were renewed. There were 79 claims in good standing at the end of the fiscal year. Placer mining activity remained at a low level during the year, although the largest operation doubled its production. Approximately 5,125 ounces of gold were recovered in the district during the year.

Waddco Placers, Limited continued mining on Haggart Creek, with a crew of 5 to 6 men. A dragline was used to stack tailings at the operation. There were 4,490.85 ounces of gold recovered.

Fred Taylor operated during part of the season on his Dublin Gulch property, and recovered 433.45 ounces of gold.

Clifford Greig purchased approximately half of the Taylor ground on Dublin Gulch. He worked part of the season, using a D-2 Caterpillar tractor with highlift shovel and rock bucket. He recovered 176.95 ounces of gold.

WHITEHORSE DISTRICT

There were 9 new placer claims issued, and 58 claims were renewed during the year. Twelve prospecting leases covering 37 miles were issued, and eight leases covering 12 miles were renewed. Prospecting and mining activity in the district remained at approximately the same level as in 1954. Gold recovery for the year decreased by more than 1,000 ounces to 1,745.57 ounces.

Burwash Mining Company continued work on Burwash Creek, and recovered 442.91 fine ounces of gold. Kluane Dredging Company continued work on Gladstone Creek. Production from both operations was lower than in previous years. Activity was renewed at Canadian Creek, and small operations were carried out on Sugden and Bullion Creeks. Recoveries from the various creeks were as follows.

Burwash Creek	587.56 oz.
Gladstone Creek	795.30 oz.
Canadian Creek	207.76 oz.
Sugden Creek	122.95 oz.
Bullion Creek	13.85 oz.
Miscellaneous	18.15 oz.
Total	1,745.57 oz.

pillar bulldozer. There were 1,459.72 fine ounces of gold, and 308.63 fine ounces of silver with a gross value of $50,976.56 recovered. The recovery was three times that of 1955, when the operation was in its experimental stage. The wet, rainy season did not help the operation, as it was pumping water from the Klondike River and would have had a plentiful supply in any case. Ballarat Mines, Limited had four employees during 1956.

J. Lacross and F. Whitehead moved into the Klondike from Alaska in 1956 with two TD-18 International bulldozers, a dragline, a placer drill, hydraulic equipment, and other miscellaneous equipment. From June 15th to August 31st they carried out a drilling and open cut prospecting programme on ground leased on Black Hills Creek, employing three men, but dropped the proposition as unprofitable. They also prospected on Hunker Creek. They produced no gold in 1956.

Having dropped their holdings on Scroggie Creek, George Fant and Ivor Norbeck mined in 1956 on ground on the Left Fork of Clear Creek, optioned from Clear Creek Placers, Limited. They operated from June 30th to September 24th, using one TD-18 International bulldozer and sluices, and recovered 289.49 fine ounces of gold.

Messrs. O. Medby and J.A. Lamontagne continued to work on Hydraulic Lease #46 on Miller Creek and #45 on Bedrock Creek during 1956. They operated from May 1st to September 25th. Mr. Medby and one employee mined on Miller Creek using two D-6 Caterpillar bulldozers and sluices. They mined and processed 50,000 cubic yards of material, and recovered approximately 725 fine ounces of gold valued at $25,000. Mr. J.A. Lamontagne and one employee mined on Bedrock Creek using two D-6 Caterpillar bulldozers and sluices. They also mined and processed 50,000 cubic yards of material, and recovered gold valued at $25,000.00. There were approximately 0.017 crude ounces of gold valued at 50 cents recovered from each cubic yard of material processed at both operations.

Mr. J. Sestak and six employees mined on Ten Mile Creek near the mouth of the Sixtymile River, using two D-6 Caterpillar bulldozers, and sluices. They operated from April 1st to October 8th, and recovered 837.01 fine ounces of gold valued at $30,000.00. Water on the creek was very high in 1956, and caused washouts at times.

MAYO DISTRICT

Three new placer claims were issued in the Mayo District during 1956, and 74 claims were renewed. There were 79 claims in good standing at the end of the fiscal year. Placer mining activity remained at the level of 1955. There were 4,280.6 ounces of gold recovered in the district during 1956, a decrease of 844.3 ounces from 1955.

Waddco Placers, Limited continued mining on Haggart Creek with a crew of 5 to 6 employees. They recovered 3,494.30 ounces of gold.

Fred Taylor again operated for only part of the season in 1956. He recovered 637.10 ounces of gold from his property on Dublin Gulch.

Clifford Greig also operated for part of the season on ground on Dublin Gulch purchased from Mr. Taylor. He recovered 123.34 fine ounces of gold.

K. Djukastein and J. Sandanger prospected a placer lease on Johnson Creek with apparently negative results.

WHITEHORSE DISTRICT

There were 12 new placer claims issued, and 50 claims were renewed during the year. Seven prospecting leases covering 9 miles were issued, and three leases covering 5 miles were renewed. There was very little placer prospecting in the Whitehorse District during the year. One large, and one small mining operation did not resume work during 1956. Gold recovered in the district during the year totalled 1,066.48 ounces, significantly less than the 1955 production of 1,745.57 ounces. Royalty was paid in Whitehorse on a few ounces of gold from Ballarat Creek and Dublin Gulch, in the Dawson and Mayo Districts.

Burwash Mining Company continued work on Burwash Creek during 1956, and recovered 724.88 fine ounces of gold. Kluane Dredging Company did not resume its operation on Gladstone Creek. Work at Canadian Creek was also not resumed in 1956. The Versluce operation on Sugden Creek was active during the year, and a new operation was started on ground held by T. Kabanak on lower Burwash Creek. Gold shipments made through the Whitehorse Mining Recorders' Office in 1956 were as follows.

Burwash Creek	865.48 ozs.
Sugden Creek	173.20 ozs.
Bullion Creek	10.90 ozs.
Dezadeash River	6.45 ozs.
Ballarat Creek (Dawson District)	3.25 ozs.
Dublin Gulch (Mayo District)	.70 ozs.
Miscellaneous	10.45 ozs.
Total	1,070.43 ozs.

Mr. J. Sestak and 5 employees mined on Ten Mile Creek, near the mouth of the Sixtymile River, using three D-6 Caterpillar bulldozers, sluices, and two small pumps. They operated from April 11th to October 5th, and recovered 223.43 fine ounces of gold valued at approximately $8,000.00. Water was so plentiful during the season that the operation was hampered at times by flooding.

MAYO DISTRICT

Placer mining activity in the Mayo District decreased in 1958, when the district's largest placer mining operation did not resume its activities during the summer. Placer production during 1958 was 1,015.6 ounces, or less than half the 1957 production of 2,193.2 ounces. Four new claims were staked in the district in 1958, and 72 claims were renewed. There were 86 claims in good standing at the end of the fiscal year.

Waddco Placers Limited did not operate on Haggart Creek during 1958, after having a less than successful season in 1957. The company moved its equipment out of the Mayo District during 1958.

Fred Taylor recovered 340.25 fine ounces of gold from his Dublin Gulch property in 1958. He considered this recovery poor, but expected his gold recoveries to increase as his operations moved upstream over the years.

Clifford Greig mined on his own ground on Dublin Gulch during 1958, after working in previous years on ground leased from Mr. Taylor. He recovered 268.55 fine ounces of gold, which he also considered poor.

Mr. E.C. Bleiler began operations on Highet Creek during the summer, and recovered 83.20 fine ounces of gold. Mining was done by hydraulic methods. Mr. Bleiler was required to do considerable preparatory work prior to commencing mining.

K. Djukastein worked on placer leases held by himself and J. Sandanger on Johnson Creek, and recovered 248.31 fine ounces of gold.

F. Taylor prospected a lease on Duncan Creek. Other work was done on Duncan Creek by several United Keno Hill Mines, Limited employees who were no doubt inspired by an article in the Saturday Evening Post describing placer mining as a hobby in California. To their surprise, they recovered several ounces of gold. Several claims were staked, and some of the Sunday miners planned further work in 1959.

WHITEHORSE DISTRICT

There was a continued interest in placer mining and prospecting throughout the Whitehorse District during 1958. Eleven new placer claims were staked, and 89 claims were renewed.

Gold recovered in the district increased from 1,635.83 ounces during 1957 to 2,608.17 ounces during 1958.

Burwash Mining Company continued their operations on Burwash Creek, and recovered 1,334.02 fine ounces of gold. Other operations were active on Bullion and Shorty Creeks. Gold production was as follows.

Burwash Creek	2,057.90 ounces
Bullion Creek	393.23 ounces
Shorty Creek	13.31 ounces
Miscellaneous	142.73 ounces
Total	2,608.17 ounces

WHITEHORSE DISTRICT

Interest in placer prospecting and mining continued during 1959. Ten new claims were staked, and 118 claims were renewed. There were also 16 leases covering 29 miles in good standing. There was considerable talk of re-opening old workings.

Gold recovered increased significantly from 2,608.2 ounces in 1958 to 4,467.5 ounces in 1959. The increase in production came from the new operation of Action Mining Company on Bullion Creek.

Messrs. P. Rojcewicz and J. LaCross of Alaska operated under the unincorporated name of Action Mining Company on Bullion Creek. Using a D-9 Caterpillar bulldozer, they recovered 2,938.95 ounces of gold during 1959.

Mr. H. Besner continued operating the Burwash Mining Company on Burwash Creek during the year. Mining with heavy equipment, the company recovered 953.24 fine ounces of gold.

Mr. W. Drury recovered 206.6 ounces from a trial mining run on his lease at Arch Creek.

Production from the various creeks is summarized below.

Arch Creek	206.60 ounces
Bullion Creek	2938.95 ounces
Burwash Creek	1231.55 ounces
Sheep Creek	1.15 ounces
Miscellaneous	89.27 ounces
Total	4467.52 ounces

operation was approximately 430 ounces. The water supply was plentiful in the spring, and poor during the rest of the season on Hunker Creek, and poor all season on Gold Bottom Creek.

Adolphe and Alcide Coulombe did not mine during 1957.

Ballarat Mines, Limited carried out some stripping on their property on "Groetcher Bench" on Klondike Hill opposite Dawson in 1957. They did no mining during the year, however.

Mr. L. Ross, with one hired man, mined on property on Kirkman Creek under agreement with the owners, Ballarat Mines, Limited from May 15th to October 7th. Two TD-18 Caterpillar bulldozers, sluices and a pump were used. There were 467.51 fine ounces of gold recovered. Ten days were spent stripping ground in preparation for mining in 1958. The water supply on Kirkman Creek was fair all season.

J.P. Lacross, no longer in partnership with F. Whitehead, mined on Quartz Creek with one employee from May 1st to October 15th. They used two TD-18 International bulldozers and sluices. Prospecting with a drill was done during May and June. The balance of the season was mainly taken up with stripping and preparing ground for 1958 mining. Although the water supply was very poor all season, 288.95 fine ounces of gold were recovered by the small amount of sluicing done.

Mr. O. Lunde acquired several placer claims on Dominion Creek in the spring of 1957. From June 15th to October 31st, he operated alone, using one D-6 Caterpillar bulldozer and sluices. He recovered 122.38 fine ounces of gold. His water supply was poor early in the season, and fair during the fall.

George Fant and Ivor Norbeck, who had previously worked on Scroggie Creek, mined on the Left Fork of Clear Creek during 1957 on a few claims of their own, and on ground leased from Clear Creek Placers, Limited. They operated from April 20th to October 1st, using one TD-18 International bulldozer and sluices. They recovered 376.84 fine ounces of gold. Some ground was stripped in preparation for mining operations in 1958. The water supply at Clear Creek was good all season.

Messrs. O. Medby and J. Lamontagne continued to work on Hydraulic Lease # 46 on Miller Creek, and # 45 on Bedrock Creek during 1957. Mr. Medby and one employee worked from May 15th to September 30th on Miller Creek, using two D-6 Caterpillar bulldozers and sluices. They mined approximately 50,000 cubic yards of material, and recovered 600 ounces of gold. Their recovery rate was 0.012 ounces of gold per cubic yard of material processed. Mr. Lamontagne and one employee worked from May 15th to September 15th on Bedrock Creek with one employee. They also used two D-6 Caterpillar bulldozers, and sluices. They mined approximately 50,000 cubic yards of material, and recovered 1,000 ounces of gold. Their recovery rate was 0.02 ounces of gold per cubic yard of material processed. The water supply on Miller Creek was poor all season, and on Bedrock Creek it was fair all season.

Mr. J. Sestak and 6 employees mined on Ten Mile Creek near the mouth of the Sixtymile River, using 3 D-6 Caterpillar bulldozers, sluices, and one small pump. They operated from April 15th to October 8th, and recovered 475.74 fine ounces of gold. They also stripped one-half mile of ground in preparation for mining in 1958. Their water supply was poor during much of the season.

MAYO DISTRICT

Placer mining activity in the Mayo District was at the same level in 1957 as it was in the year previous, although gold recoveries dropped significantly. Three new claims were staked in the district during the year, and 79 claims were renewed. There were 79 claims in good standing at the end of the fiscal year. There were 2,193.2 ounces of gold recovered during 1957, or approximately half of the amount recovered in 1956.

Waddco Placers, Limited continued operating on Haggart Creek with a crew of four to six employees. They did not have a very successful year, as they recovered only 1,666.95 fine ounces of gold. The company planned to move its operation to Spruce Creek in the Atlin area for the 1958 season.

Fred Taylor spent most of the season performing dead work on this Dublin Gulch property to prepare the ground for future mining. He produced only 95.55 ounces of gold.

Clifford Greig also had a disappointing season on Dublin Gulch. He worked part of the Taylor ground under a lay agreement, and recovered only 123.13 fine ounces of gold.

K. Djukastein and J. Sandanger continued to prospect on a placer lease on Johnson Creek. They reported encouraging results.

WHITEHORSE DISTRICT

Activity in placer prospecting increased during the year. An interesting discovery was made on Arch Creek, a tributary of the Donjek River, and 2 one mile prospecting leases were located by Messrs. W.L. Drury and R.O. Davis. The samples contained coarse and jagged gold, and were recovered from a section of the creek where gold had not previously been found. A new discovery was also made on a small unnamed creek on the right limit of the Aishihik River just below Otter Falls. Forty-five new claims were staked, and 70 claims were renewed.

Gold recovered from the district during the year totalled 1,635.83 ounces, significantly more than the 1,066.48 ounces of gold recovered in 1956.

Burwash Mining Company, and the operation on ground held by T. Kabanak were active on Burwash Creek during 1957. Burwash Mining Company recovered 1,003.75 fine ounces of gold. The Versluce operation

on Sugden Creek was also active during the year. Gold production from the various creeks was as follows.

Burwash Creek	1,183.37 ozs.
Sugden Creek	385.61 ozs.
Miscellaneous	66.85 ozs.
Total	1,635.83 ozs.

GEOLOGICAL SURVEY OF CANADA

DEPARTMENT OF ENERGY, MINES AND RESOURCES

MEMOIR 284

YUKON TERRITORY

Selected Field Reports of the Geological Survey of Canada 1898 to 1933

Compiled and Annotated
by
H. S. Bostock

the valley of Sheep creek, particularly near the stream itself, is much less rugged and rocky in appearance, as throughout this upper portion of the creek's course, the stream in most places still overlies the boulder-clay, not having as yet been able to sink its bed through the accumulations of this material. This boulder-clay, with the other glacial debris, borders the creek channel and extends well up on the valley sides. The stream here has a moderately gentle grade, and flows in a somewhat open valley which is strikingly in contrast with the rock canyon below, through which the water rushes and leaps over a succession of falls to the point where it joins the valley of Slims river.

The rocks exposed along Sheep creek are extremely varied in age and character. Along the lower portion of its course, limestones and greenstones predominate, and near the edge of Slims River valley, some cherts also occur intimately associated with certain of the limestone beds. The oldest rocks exposed include a group of marbles, cherts, and shales. The marbles are irregularly streaked or striped in appearance—nearly white and black streaks alternating. The cherts are prevailingly dark in colour, although white or greyish members occur, and nearly all are stained reddish with iron oxide. These older beds are overlain by more massive limestones which contain Silurian fossils. On the mountains to the north, Carboniferous limestones, shales, argillites, and associated beds also occur. All these beds are in places considerably distorted, folded, and broken, and brecciated zones are locally prominent. They have been invaded by greenstones which are extremely varied in character, and include diorites, diabases, andesites, and basalts. Along the upper portion of Sheep creek, Tertiary lignite-bearing beds are somewhat extensively developed. These include mainly conglomerates, sandstones, shales, clays, and associated tuff beds.

Mining on Sheep creek has been practically all confined to the comparatively shallow gravels of the present stream channel between claims Nos. 52 to 75 above Discovery. In all about $10,000 in gold is thought to have been obtained from the stream. The richest ground found was on No. 74 and the lower part of No. 75, from which Fisher brothers obtained $7,000 in about 40 days. The richness of this ground is apparently due to the fact that it lies just below a pup coming in from the left, which a short distance above its mouth apparently crosses the old stream channel.

The distribution of the gold in the gravels of the present stream is very irregular and, in most places, the amount of gold is small. Undoubtedly other points remain, however, like Nos. 74 and 75 above Discovery, that occur below the mouths of tributaries cutting the old channel on the benches, which will pay to work. It would also seem highly advisable to prospect the old channel which, where still intact from a short distance above No. 74 pup to the mouth of the valley, lies on the benches, but from a short distance above 74 pup, is below the level of the present stream. The bulk of the gold was originally deposited in this old channel, and there it still remains except where swept away by the ice during the Glacial period.

Burwash and Tetamagouche Creeks.* Burwash creek heads in the glaciers of the St. Elias range, and empties into Kluane river 5 or 6 miles below Kluane lake. It has a length, measured along its valley, of 18 or 20 miles and trends for a great part of its course across a high plain or platform-like surface that fronts the St. Elias range in this vicinity. Burwash creek is also

* McConnell, R. G., op. cit., pp. 15A-16A.

TETAMAGOUCHE

a typical, swift, mountain stream, comparable in size with Bullion creek, but with a grade less than that of Bullion, amounting to about 125 feet per mile along the main, central portion of its course. Like all glacier streams, its daily and seasonal flow is extremely variable, depending on the strength of the sun; and in times of flood, it becomes a raging torrent.

From near its head to the point where it enters the valley of Kluane river the stream is bordered on the left by a mountain wall which rises abruptly in most places for over 2,000 feet from the creek bed. On the opposite or right-hand side (looking downstream), however, the creek is flanked throughout a great part of its course by the high plain, before mentioned, the surface of which is composed of glacial deposits. Into this glacial upland tract, and prevailingly along its extreme edge, Burwash creek has cut a deep, trough-like valley. Along most parts of its course, the stream channel is bordered on the left by a rocky mountain wall, and on the right by more gentle slopes underlain by detrital materials and covered with grass and underbrush. At a few points the stream flows through narrow rock-walled canyons which are difficult to penetrate except in low water. The canyons are the result of the stream at these points having become superimposed over rock spurs projecting from the mountain sides. Above the upper canyon, the valley of Burwash creek suddenly opens out, and has gently sloping grassy slopes reaching up from 30 to 80 feet to the upland surface of the glacial platform fronting the St. Elias mountains.

Downstream from apparently just above the upper canyon, Burwash creek, in the process of deepening its channel, slowly and intermittently shifted its course to the left until it reached its present position, with the result that there now occur in most places along the right side of the valley, a succession of rock-cut channels containing stream gravels, which represent former positions of the creek. These channels necessarily become gradually lower in elevation as the present creek bed is approached, but are now in most places covered with glacial and other superficial detrital materials. They have nevertheless been explored at certain points, where they have been found at no great elevation above the present stream.

Tetamagouche creek is the largest and most important tributary of Burwash creek, and joins that stream on its left bank either on or just above claim No. 60 above Discovery. The creek follows a rather straight southeasterly course through a break in the mountains which flank the left side of Burwash creek, and in the upper portions of its course occupies a somewhat open valley with gentle slopes clad with grass and underbrush. Nearer Burwash creek, however, it forces its way through a rock-walled canyon, so narrow as to be cleft-like in appearance.

The rocks exposed along Burwash and Tetamagouche creeks are somewhat varied in character, but dominantly belong to an igneous, basic to semi-basic group including mainly diorites, diabases, andesites, basalts, and dunite—greenish and reddish amygdaloids being locally very prominent. In places, also, sedimentary rocks occur including for the greater part, shales, slates, argillites, cherts, limestones, and cherty conglomerate, in which Carboniferous and Triassic fossils were found; these beds have been intensely invaded by the igneous members. At a few points also, these older rocks are cut by granitic intrusives probably of Jurassic or Cretaceous age. All are pierced in places by dykes of a nearly white, greyish or yellowish rhyolitic rock which is thought to be of Tertiary age.

The creek gravels of Burwash and Tetamagouche creeks are in most

PLACER MINING OPERATIONS IN THE KLUANE LAKE MAP AREA, NTS 115 F/G

R. Braun (1)
Arch Creek 115 G 5
1980, 1981, 1982 61° 30'N, 139° 41'W

This property is situated along Arch Creek, approximately 2.6 km (1.6 miles) upstream from its confluence with Donjek River.

Two people mined at this site each season from 1980 to 1982 using a small backhoe.

M. Melanson (2)
Arch Creek 115 G 5
1980, 1981, 1982 61° 29'N, 139° 39'W

This property is situated along the middle portion of Arch Creek, approximately 4.6 km (2.9 miles) upstream from its confluence with Donjek River.

M. Melanson mined by hand at this location in 1980, 1981, and 1982.

G. Mogenson (3)
McCrory Holdings 115 G 6
Quill Creek 61° 29'N, 139° 27'W
1980, 1981, 1982

This property is situated along Quill Creek at the mouth of a left limit tributary approximately 10.5 km (6.5 miles) upstream from the Alaska Highway.

G. Mogenson and McCrory Holdings did a limited amount of work at this site in 1980, 1981, and 1982.

M. Flynn (4)
Burwash Creek 115 G 6
1979, 1980, 61° 22'N, 139° 25'W
1981, 1982

This property is situated along the right limit of Burwash Creek, approximately .8 km (.5 miles) downstream from the mouth of the Cooper Creek.

One or two people worked at this location each year between 1979 and 1982 using a D7 bulldozer. Water for sluicing was pumped.

Cooper Creek Mining Company (5)
Burwash Creek 115 G 6
1978, 1981 61° 22'N, 139° 24'W

This property is situated along Burwash Creek, approximately 3.4 km (2.1 miles) downstream from the mouth of Cooper Creek. Deposits at the site consist of 3.5 to 6 metres (12 to 20 feet) of gravel. Boulders in the gravel are not as large at this location as they are at locations further downstream.

This property was staked by F. LeFebvre in 1971. Six people mined on it that year. Only assessment work was done in 1972. Mining was done for a limited time during 1973, and for the entire season in 1974. The 1974 cut was along the right limit, and was approximately 6 metres (20 feet) wide and 90 metres (300 feet) long. A cut opposite the 1974 cut was mined in 1975. No work was done in 1976 or 1977.

Mining was done along the right limit by three people in 1978 using a D8 bulldozer, and a Michigan 175A loader with 1.9 cubic metre (2.5 cubic yard) bucket. No work was done in 1979 or 1980. Four people worked at the property in 1981 using a D9 bulldozer and the Michigan loader to mine along the right limit. No work was done in 1982.

Gold from Burwash Creek is reported to have a fineness of 871 to 876.

Kluane Resources (6)
Burwash Creek 115 G 6
1981, 1982 61° 22'N, 139° 20'W

This property is situated on Burwash Creek approximately 250 metres (800 feet) upstream from its confluence with Tatamagouche Creek. It has been mined previously, and drilled. There is no muck present. The section consists of 2 to 2.5 metres (6 to 8 feet) of clast supported gravel with rounded boulders 15 to 45 cm (6 to 18 inches) in diameter.

Kluane Resources began work on the property in 1981. Eight to ten people worked two shifts using a D9G bulldozer to rip up and stockpile gravel, and a 980C loader to feed the sluice box. A "Ross" sluice box capable of processing 230 cubic metres (300 cubic yards) of material per hour was used. Three settling ponds were constructed. Work on the property during 1982 began in August. It was done by 6 employees.

W. Jones (7)
Burwash Creek 115 G 6
Tatamagouche Creek 61° 23'N, 139° 19'W
1978

This property is situated on Burwash Creek at the mouth of Tatamagouche Creek. Mining on the low right limit bench on Burwash Creek opposite the mouth of Tatamagouche Creek was begun in 1975 and completed in 1977.

W. Jones used a D4 bulldozer to do assessment work on Tatamagouche Creek in 1978. In September, the bulldozer did a half roll while climbing a steep bank, killing Mr. Jones.

2595 Yukon Ltd. (8)
Burwash Creek 115 G 6
1982 61° 22'N, 139° 19'W

This property is situated on the right limit of Burwash Creek, immediately downstream from the mouth of Tatamagouche Creek. The deposits consist of .3 metres (1 foot) of muck overlying 2 to 2.5 metres (6 to 8 feet) of coarse gravel.

Work at this site began in September, 1982. A D9G bulldozer and a 980C loader were used.

M. Turnbull (9)
Burwash Creek 115 G 6
1980, 1981, 1982 61° 22'N, 139° 17'W

This property is situated along the left limit of Burwash Creek, approximately 1.9 km (1.2 miles) downstream from the mouth of Tatamagouche Creek.

Two people worked at this site in 1980, 1981, and 1982.

J. Tardiff (10)
Burwash Creek 115 G 6
1980, 1981 61° 22'N, 139° 16'W

This property is located along Burwash Creek, approximately 2.9 km (1.8 miles) downstream from the mouth of Tatamagouche Creek.

J. Tardiff worked alone using a D7 bulldozer to mine at this site in 1980 and 1981.

Alsace Mining (11)
Burwash Creek 115 G 6
1978, 1979, 1980 61° 23'N, 139° 16'W
1981, 1982

This property is situated on a right limit bench, approximately 3 metres (10 feet) above Burwash Creek. The section consists of gravel with coarse, rounded boulders. Deposits at creek level have been previously mined.

Mr. R. Muller has worked on this property since 1973. In some years, ground preparation work was done, and in others, cuts of approximately 950 square metres (10,000 square feet) in area were mined.

D. Miller (12)
D. Storing 115 G 6
Burwash Creek 61° 23'N, 139° 15'W
1979, 1980,
1981, 1982

This property is situated along the left limit of Burwash Creek, approximately 5.8 km (3.6 miles) upstream from the Alaska Highway.

Two or three people worked at this site each year from 1979 to 1982 using a TD-7E bulldozer, and loader. Work in 1982 was done communally with D. Storing, who did test work on an adjacent property.

L. Tremblay (13)
2540 Yukon Ltd. 115 G 6
Burwash Creek 61° 23'N, 139° 15'W
1978, 1979, 1980
1981, 1982

This property is situated on Burwash Creek at the lower canyon. Slide rock from the valley walls has buried gravel deposits along the right limit of the creek at this site. One section from the right limit consisted of 1.2 to 2 metres (4 to 6 feet) of muck and locally derived bedrock slabs overlying 1.2 to 2 metres (4 to 6 feet) of coarse gravel and .5 metres (2 feet) of sand.

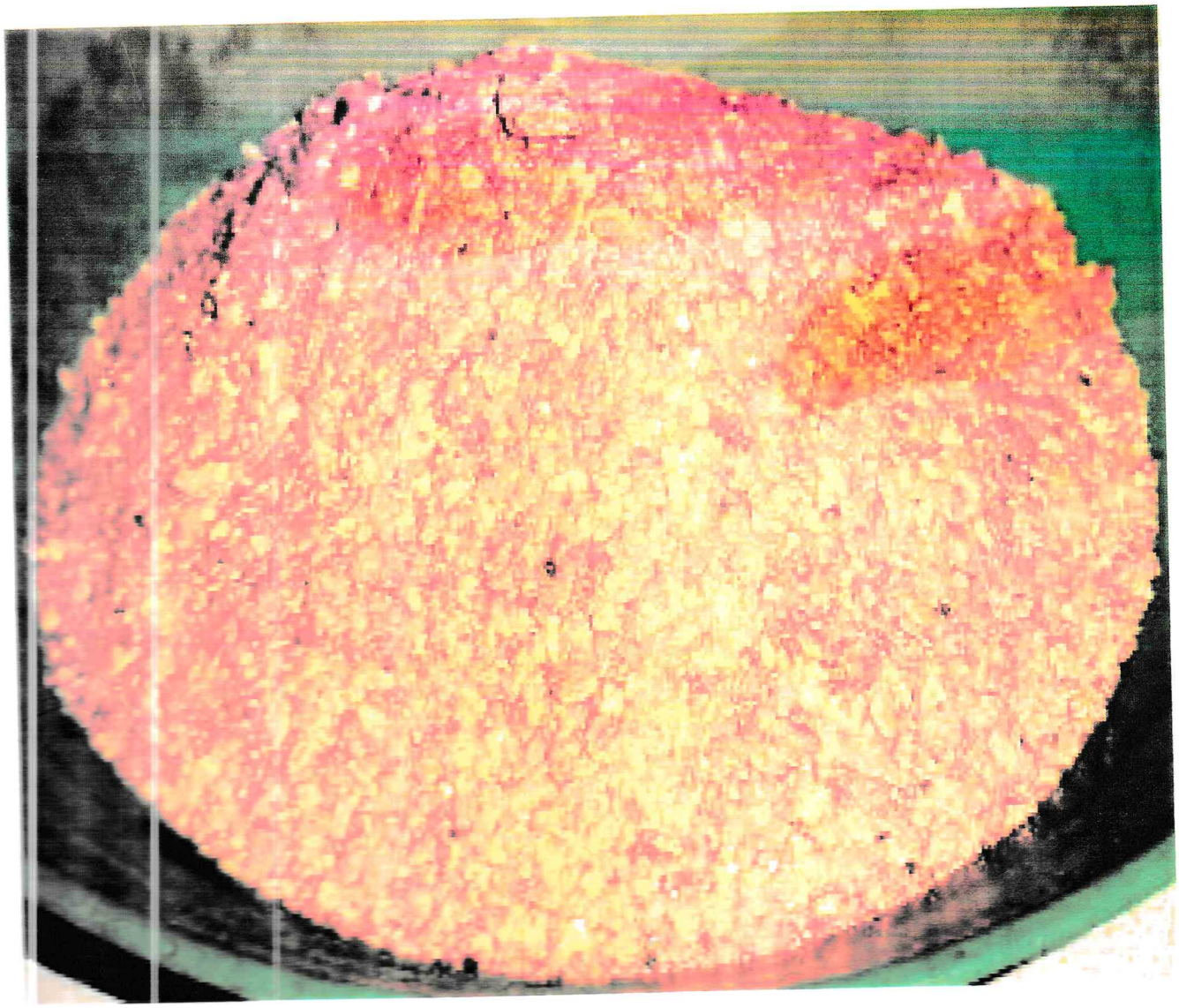
Work at this site began in 1978 when Mr. Tremblay and a helper dug several test pits along the right limit of the creek. In 1979, two people worked on weekends at the property. They did some hydraulicking to remove muck, and used a small JD bulldozer to push gravel over a stationary grizzly with 7.5 cm (3 inch) spacing and into a 50 cm (20 inch) by 9 metre (30 feet) sluice box. Work continued on weekends, and throughout July during 1980. In 1981, Mr. Tremblay and a helper used a small JD bulldozer, and loader with .2 cubic metre (.25 cubic yard) bucket for their work. 2540 Yukon Ltd. leased part of the property during 1981, and four people working with a D7 bulldozer and 980 loader constructed a creek diversion, drainage ditches, and settling ponds. In 1982, Mr. Tremblay began work in August on the left limit of the creek with a D8 bulldozer, and a Michigan 175 loader with 1.9 cubic metre (2.5 cubic yard) bucket. There was a 2.5 to 3 metre (8 to 10 feet) thick section of gravel at that site.

G. Jones (14)
Burwash Creek 115 G 6
1981, 1982 61° 23'N, 139° 14'W

This property is situated on a left limit bench of Burwash Creek, approximately 5 km (3 miles) upstream from the Alaska Highway. Frozen gravel deposits 1.2 metres (4 feet) thick are being mined.

Work began on the property in 1981. Three people working part-time shovelled gravel into a 25 cm (10 inch) by 4 metre (14 feet) sluice box. A 5 hp. pump provided water for sluicing. Operations continued, although on a reduced scale, in 1982.

Snag River Placers (15)
W. Woolsey 115 G 6
Burwash Creek 61° 25'N, 139° 14'W
1982



Gold from Burwash Creek Mine 2002

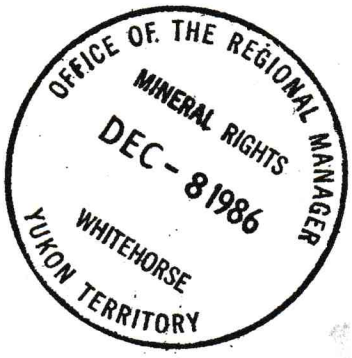
120081

REPORT

ON

JOAN PLACER CLAIMS

1-21 GRANT NO'S 38421-38441 INCL.



TO

DUANE PFAFF

BY

L.J. SIEGA P. GEOL.

DATES: JULY 24 - AUG. 5, 1986

PLACER SHEET NO. 115-G-6

LOCATION: 188 miles N.W. of Whitehorse, along the Alaska Highway to M.P. 1104, thence 7 miles S.W. along Burwash Creek.

LATITUDE 61° 22' LONGITUDE 122° 20'

TABLE OF CONTENTS

SUMMARY

During the period 1949-1969 Burwash Creek in the Kluane District, Yukon Territory had a reported production of 25,212 oz. (crude 87%). All of the production to date may not have been recorded. Sporadic successes and failures have continued to this day.

The main channel of the Joan claims (11-21) contain upwards of one million cubic yards of easily accessible auriferous gravels. The writers data indicates that the volumes in free gold from sluiced stream gravels will be in the range of:

0.58 GRAMS/YD^3

OR

0.0187 OZ/YD^3

10.47/YD^3 OR 9.11/YD^3 (INCLUDE CRUDE DISCOUNT)

Note: Au. @ $560.00/OZ.

The calculated cost of processing one $yd.^3$ is $3.60 using contracted rental rates. At a net of ($9.11 - $3.60) $5.51 per $YD.^3$ processing 2000. YD^3 per day strongly suggest a viable operation.

Although most of the recorded testing was completed on the lower portion of the claims, there are no significant physiographic features that suggests lower auriferous concentrations elsewhere. On a seasonal schedule of some 150-200,000 yds.^{3} the property will sustain this type of operation upwards of 5 years.

INTRODUCTION

The Kluane Lake map area is in the mountains of the southwest Yukon. Around the turn of the century (1903) the Jacquot brothers discovered gold on Burwash Creek. The area attracted the interest of placer miners many of whom passed through on their way to Alaska. The better access provided by the Alaska Highway enhanced activity by prospectors and mining companies. In 1945 the Burwash Mining Co. Ltd. (Henry Besner) mined from the lower canyon to the mouth of the Tatamagouche or 500' below the Joan No. 1 (1973). Total production from 1948 to 1960 inclusive was nearly 10,700 ounces of gold or an average of 823 ounces per year. The concentrates included coarse and fine gold as well as small amounts of platinum, native silver and native copper. Since then sproadic successes and failures have continued to the present day.

In June of '86 the writer contracted to complete certain assessment work and a report on the Joan claims (1-21) or Grant Numbers 38421 to 38441 inclusive for the present owner Duane Pfaff. At the end of the 1985 season sluicing ended approximately 300' north of the No. 1 Post on Claim No. 11. For the record, a serious effort was made to locate the posts but none were located and using Placer Claims Map 115-G-6 the approximate location of all the claims was flagged. Subsequent trenching, pits, sampling and assessment work was completed and filed. No reliable records of the 1985 seasons work was available.

Other than panning selective areas, most of the sampling consisted of running selective measured quantities, from pits and trenches, through the Flying Dutchman concentrator. A recent mining graduate and 2nd year student were employed for two weeks processing samples.

The writer has worked on Burwash Creek in 1973 to 1975 and '85 and '86. The following data is from published and unpublished reports, personal data and observations.

PROPERTY, LOCATION, ACCESS

The property consists of twenty-one (21) placer claims (Joan 1-21 incl.) on Burwash Creek seven miles southwest off the Alaska Highway or 188 miles northwest of Whitehorse. From M.P. 1104 access to the property is along a rough rocky trail parallel to Burwash Creek. See Figure I. The claims were staked along the central portion of Burwash Creek (valley distance-18 miles) at an average elevation of 4500 feet. Burwash Creek is a typical swift mountain stream with an extremely variable seasonable flow and in time of high water becomes a dangerous torrent. In general, the forest cover is light (mostly scrub brush) with an upper limit at about 4700

feet. Permafrost does occur close to the surface and stripping of scrub brush is not a problem. Normally, this is usually completed early in the season to allow for thawing during the warmer summer months.

The nearest comfortable roadhouse with outside communications is located at Burwash Landing (M.P. 1093) at Kluane Lake. With regard to operational emergencies, an 8000 foot air strip is located two miles north of the Burwash Lodge and pontoon aircraft are able to land on Kluane Lake.

PHYSIOGRAPHY AND GENERAL GEOLOGY

The Kluane Lake map area contains two major physiographic divisions. These include the Yukon Plateau to the N.E., and the St. Elias Mountains to the S.W. separated by the Shakwak Trench. Kluane Lake (El. 2575) is the lowest feature of the trench separation.

The information on the glacial history of this area has been compiled by assuming three progressively less extensive ice-sheets. (J.E. Muller, Memoir 340, 1967 (See Photo). The Nisling (oldest) and Ruby ice sheets advanced N.W. across the Burwash area whereas the St. Elias was restricted to the headwaters of Burwash Creek. Locally, a distinct physiographic feature of the Nisling advance is the glacial upland tract along the

extreme edge of the central (present mining area) portion or southern edge of the Burwash Valley. At the upper end of Burwash creek, within two miles of the glacier, some very large erratics - 10' x 12', coarse grained granitic boulders and pillow lavas, may be evidence of the Elias advance.

In the immediate area known mineral deposits include placer gold, copper nickel-platinum sulphides, (Quill Creek-Hudson Bay Mining) and two coal outcrops. The writer has examined the low grade scattered copper nickel sulphides associated with ultra-basic intrusives near the mouth of Tatamagouche Creek, and seen the narrow bony 4-1/2' irregular coal outcrop immediately below the upper Burwash Canyon. In this regard, additional coal (reported-Sub Bituminous C) exposures on Amphitheatre Mountain were not examined.

BURWASH CREEK

Burwash Creek is a glacial stream with headwaters in the Burwash Glacier. The stream flows through a wide open valley in the upper portions and from below the upper canyon, forms a deep V shaped valley. (present mining area). Here, the creek flows across a plain of the front range and is bounded on the north by steep rocky (to 1000') cliffs of the Elias Range, whereas the southern edge is a distinct smooth glacial remanent of the Nisling advance. (El. 4500').

In the immediate claims area boulders, gravel, sand silt and clays bands (8"-16") in total range from 20' at the lower end of the claims to 38' near the campsite or No. 11 claim. The stream has exposed sedimentary and more commonly blocky igneous, basic to semi-basic rocks throughout the claims area. These include shales, argillite, schists, conglomerate, gabbro, peridotite and rhyolite. Many of these beds are fragmented, sharply folded and overturned. Particularly in the upper portion of the claims (10-21) it is interesting to note that in the process of deepening this ever shifting channel, the stream in most places has shifted to the north side of the valley. At the present time the south side exposes an intermittent series of (low rock bluffs) elevated old stream channels

varying in height from 10' to 30'. Neither the values nor the amount of glacial covered material associated with these benches is considered significant relative to the material in the main channel. Fine gold has been recovered from these benches.

In general, over the past 13 years intermittent sluicing has progressed from the Joan I to Joan II. No serious mining has disturbed the ground Joan II to to 21. Here, the stream gravels are generally free from brush and varies in width between 180 and 250 feet. The gradient of the stream in this area is approximately 125 feet per mile and water in the by-pass channel is estimated at 24,000 gals/minute.

HISTORY - STATISTICAL PRODUCTION

Mining activities on Burwash Creek date back to 1904 and evidence of sniping operations (hand piled stones) on the south bank of the Joan claims is quite clear. Similar sporadic attempts continued until 1945

when the Burwash Mining Co. successfully mined from the lower canyon past the mouth of the Tatamagouche (3-1/2 mi.). The recorded production is as follows:

PERIOD	VOLUME YDS.	CRUDE 87% Au.
1945 - 1959 incl.		approx. 17,000
1960 - June 9 - Oct. 10 2 Shifts	70,000	1,430
1961 - June 4 - Oct. 5	78,000	1,500
1962 - June 21 - Oct. 22	60,000	1,637
1963 - June 6 - Oct. 10	50,000	1,060
1964 - ? ?	?	946
1965 - ? ?	50,000	695
1966 - ? late Sept.	?	695
1967 - ? ?	?	325
1968 - ? ?		342
1969 - ? ?	?	800

*Note: This production is taken from 500' past the junction of Burwash Creek and Tatamagouche Creek.

The production statistics quoted here are those only of the Burwash Mining Co. Ltd. as recorded in G.S.C. memoirs. The words "approximate and about" are quoted in all the references in regards to volume and crude ozs. respectively.

A. Production and values from references quoted:

Note: Using gold at $560.00/oz. Crude discount not taken into account since the producers may enjoy higher prices.

PERIOD	VOLUME YDS.	Au. OZ'S CRUDE 87%	Au/OZ CU.YD	$VALUE/ CU.YD
1960	70,000	1,430	0.0204	$11.20
1961	78,000	1,500	0.0192	10.66
1962	60,000	1,637	0.0272	15.10
1963	50,000	1,060	0.0212	11.78
1965	50,000	695	0.0139	7.84
1967	42,000	325	0.0077	4.32

Average yearly production = 58,333 cu. yds.-say-60,000.

The weighted average of 350,000 yds. is:

0.0190 oz/cu.yd.or $10.66/cu.yd.

Note: 15 oz. Pt. was reported in 1963.

MAP NO.: 115 G 6

PLACER ASSESSMENT REPORT X
PROSPECTUS
CONFIDENTIAL
OPEN FILE X

DOCUMENT NO: 120068
MINING DISTRICT: WHITEHORSE
TYPE OF WORK: DRILLING

REPORT FILED UNDER: L.J. SIEGA & R. NECULA

DATE PERFORMED: JUNE 24 - JULY 3, 1985

DATE FILED: AUGUST 21, 1985

LOCATION: LAT.: 61° 20'N

AREA: BURWASH CREEK

LONG.: 139° 29'W

VALUE $: 16,510.00

CLAIM NAME & NO.: P 11653-11680, P 11748

WORK DONE BY: L.J. SIEGA

WORK DONE FOR: L.J. SIEGA & R. NECULA

DATE TO GOOD STANDING:	

REMARKS:

REPORT

ON

29 PLACER LEASES

CERTIFICATE NO. 400P

KLUANE DISTRICT- YUKON TERRITORY

BY: L.J.SIEGA, P. GEOL.

June 15, 1985

DATES: JUNE 24 to JULY 3, 1985

PLACER SHEET NO. 115-G-6

LOCATION: 188 Miles N.W. of Whitehorse, along the Alaska Highway to M.P. 1104, thence 24 Miles S.W. along Burwash Creek.

LATITUDE - 61° 20' LONGITUDE - 139° 29'

120068

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INTRODUCTION

In April of 1985 the writer and Ray Necula purchased (each 50% ownership) twenty-nine placer claims (see map) adjoining and due N. of the Kluane National Park Boundary on Burwash Creek. Previous work on these claims include two test pits in the vicinity of P11653 and 54, and a third one on P11657. Unfortunately, no reliable relevant statistical data was available.

Mr. R. Moore did process some of the said gravels during the summer of 1984. He indicated to the writer that he was encouraged by recoveries from material above the clay (10' - 12') and justifiably abandoned the area upon entering the clay. It appears that the two remaining pits were excavated for assessment work. Again no relevant data is available.

On June 23/85 the present owners contracted Midnight Sun Drilling Co. Ltd., of Whitehorse to drill the property.

SUMMARY

The results of the rotary drilling (218') on Burwash Creek were most inconclusive. Poor recoveries coupled with excessive water in the holes were the main causes. Panned surface samples are more encouraging than the drilled results.

Therefore, a bulk sluiced sample is recommended in the vicinity of Hole #1. Here, drilling information indicates bedrock clay at 6' - 8'. The sluiced sample and drainage channel should commence some 400' south of drill Hole #1 and cut diagonally across the stream. Cost estimates of the proposed sluicing is to be submitted pending availability of the required equipment and a preference for on site equipment should be noted.

PROPERTY, LOCATION, ACCESS

The property consists of 29 leases (see map) located at the upper end of Burwash Creek and adjoining the Kluane National Park boundary. From M.P.1104 access to the property is along a very rough rocky trail parallel to Burwash Creek. The leases are staked along the central portion of Burwash Creek (valley distance 25 miles) at elevations between 4500' and 5000'. Burwash Creek is a typical swift mountain stream with an extremely variable seasonal flow and in time of high water becomes a dangerous torrent.

In general, the forest cover is light (mostly scrub brush) with an upper limit of 4500'. Permafrost does occur close to the surface and stripping of scrub brush and wet moss (2' - 3' thick) doesn't create a problem. Unfortunately, due to an abnormally cool season the spring run-off had just begun (July 1st) and access to the said claims was made very difficult by remaining ice patches (300' - 400') and newly constructed creek crossings.

In our particular case 4 hours a day was wasted travelling a grueling trail. However, it should be noted that the nearest comfortable roadhouse with outside communications is located at Burwash Landing (M.P.1093) at Kluane Lake. In regards

to operational emergencies, an 8000 foot air strip is located two miles north of the Burwash Lodge and pontoon aircraft are able to land on Kluane Lake.

PHYSIOGRAPHY AND GENERAL GEOLOGY

The Kluane Lake map area contains two major physiographic features. These include the Yukon Plateau to the northeast, and the St. Elias Mountains in the southwest separated by the Shakwak Trench. Kluane Lake (El.2575') is the lowest feature of the trench separation.

The information on the glacial history of this area has been compiled by assuming three progressively less extensive ice sheets. (J.E.Muller, Memoir 340, 1967). The Nisling (oldest) and Ruby ice sheets advanced (N.W.) across the Burwash area whereas the St. Elias was restricted to the headwaters of Burwash Creek. Locally, a distinctive physiographic feature of the Nisling advance is the glacial upland tract along the extreme edge of the central (present mining activity) portion or southernedge of the Burwash valley. At the upper end of Burwash Creek and in the canyon some very large erratics -10' -12', coarse grained granitic boulders and pillow lavas, may be evidence of the Elias advance. (Map 1178A, Glaciation, Kluane Lake, Yukon Territory.)

In the immediate area known mineral deposits include placer gold, copper nickel - platinum sulphides (Quill Creek - Hudson Bay Mining) and two coal outcrops. The writer has

noted the low grade scattered copper nickel sulphides associated with ultra basic intrusives near the mouth of Tetamagouche Creek and the narrow bony 4½ ft. irregular coal outcrop immediately below the upper Burwash Canyon. Neither these showings nor the coal reported on Amphitheatre Mountain are of interest at this time.

BURWASH CREEK AND HISTORY

Burwash Creek is a glacial stream with headwaters in the Burwash Glacier. The stream flows through a wide open valley in the upper portions and from below the upper canyon, forms a deep "V" shaped valley. Here, the creek flows across a plain of the front range and is bounded on the north by steep rocky (2000') cliffs of the Elias Range, whereas the southern edge is a distinct smooth glacial remanant of the Nisling advance. El.4500'

Burwash Creek, on the said claims, is filled with boulders, gravel, sand, silt and clay. The stream has exposed sedimentary and commonly blocky igneous, basic to semi basic rocks. Still there is no apparent reason to expect that these auriferous gravels have been concentrated from relatively local source rocks. Rather, that they have over a long period of glacial activity and flooding conditions over an extremely large area, been concentrated by the natural sluicing action of the present channel system.

Quoting from GSC Memoir 340, J.E.Muller. "In 1904 coarse gold was found from the foot of the lower canyon, upstream for a distance of 8 miles or more. The creek was then the best producer in the area and has retained that

position ever since. So far as can be established, little placer mining occurred from then until 1945, when Burwash Mining Co. Ltd., managed by Henry Besner, started operating a sluicing plant fed by R.D.8 bulldozers, a 3/4 cu. yd. 22B, and a 4-man crew. Total production from 1948 to 1960 inclusive taken from the report on Emergency Gold Mining Assistance, was nearly 10,700 ounces of gold or an average of 823 ounces per year. The gold is coarse and the concentrates also contain some platinum, native silver and native copper."

The writer did in fact see Mr. Besner and his operation which was very impressive - (1973). In contrast to the equipment presently on the stream, one can't help but admire his talent and fortitude. Unfortunately, at this time additional more recent production figures aren't available except those that are recorded in the writers references.

DRILLING PROGRAM

On June 26th a tandem trucked mounted rotary rig, and support unit (drill pipe) were moved onto placer claim #P11657. A D7 dozer made the road accessible and proceeded to prepare seventeen drill sites as noted in Fig. 1. Site pads (50' x 80') were completed the following day.

Six holes were drilled for a total of 218'. The locations of the said drilling are as noted. See Fig. 1.

HOLE NO.	BRG. & ELEV.	DIST. TO FROM	CLAIM & POST NO.	T.D. DEPTH	ELEV.
#1	140°	60' + 6%	1-11657	26'	4620'
#17	137°	390' + 2°	2-11668	26'	5020'
#15	35°	180'-3°	2-11663-3°	20'	4870'
#14	220°	60'-2%	2-11662	46'	4860'
#10	170°	145'-3°	1 of 11661	40'	4750'
#9	147°	90' @-5°	1 of 11657	60'	4750'

In general placer claims 11666 to 11680 and 11663 to 11655 are wide (-100' - 300') drift covered areas with gravel, sand, silt, and minor granitic and altered greenstone boulders. Claims 11656 to 11666 run through a fairly narrow gorge (40' - 50') exposing minor amounts of gravel and is littered with greenstones boulders (4'- 8') smaller granitic boulders, sand, silt and clay. The stream gradient in the gorge is on the order of 250'/mile.

All of the drill cuttings were transported to Owen Brown's sniping operation on Canyon Creek. Here, the samples (2' sections) were run through a small efficient drum concentrator.

The results are as noted:

HOLE #1 - 0-8' 60% drift + 40% stream gravel.
8-26' blue-green fine silty clay.
Av. 4 small colors 6-8', + 1 small nugget.

HOLE #17- 0-26' - 10% drift - 80% stream gravel, and 10% granitic boulders.
4-6' - 3 small colors
8-10' - 3 small colors, one small thinly worn nugget.

NOTE: This hole was abandoned after 10 hours of continuous hammering. The casing shoe could not penetrate the boulder.

HOLE #15- 0-6' - 20% drift + 70% stream gravel, 10% granitic boulders.
6-20' - blue green fine felty silty clay.
NO COLORS.

HOLE #14- 0-20' - 30% drift + 50% stream gravel, 20% greenstones and granitic boulders.
20-26' - stream gravel mixed with reddish clay.

26-40' - boulders, basic intrusives, greenstones, typical slide area.

6-8' - 2 small colors.

NOTE: Clay anomaly between holes #15 and #14 some 300' apart.

HOLE #10- 0-28', 15% stream gravel + minor red clay,
75% basic boulders - greenstones
28-60' - greenstone boulders - slide area?
26-28' - 2 small AU colors.

HOLE #9 - 0-26', 20% drift, 25% stream gravel, 55% greenstone boulders mixed with volcanic gravels.

The concentrates don't warrant assaying and a positive identification (U. of A.) for platinum is being sought. In comparing surface panned samples with adjacent drilled cuttings a distinct lack of black sand and colors was very noticeable. This same discrepancy was more notable as the hole depth increased. Obviously, the intended recoveries were not attained and may have been due to excessive water in the holes. Additionally, the configuration of 25' of hose from the head of the ram to the cyclone acts much the same as the trap in our house sinks. Through the hose, sporadic bursts of cuttings, mud and water flowed and overflowed to sample bags.

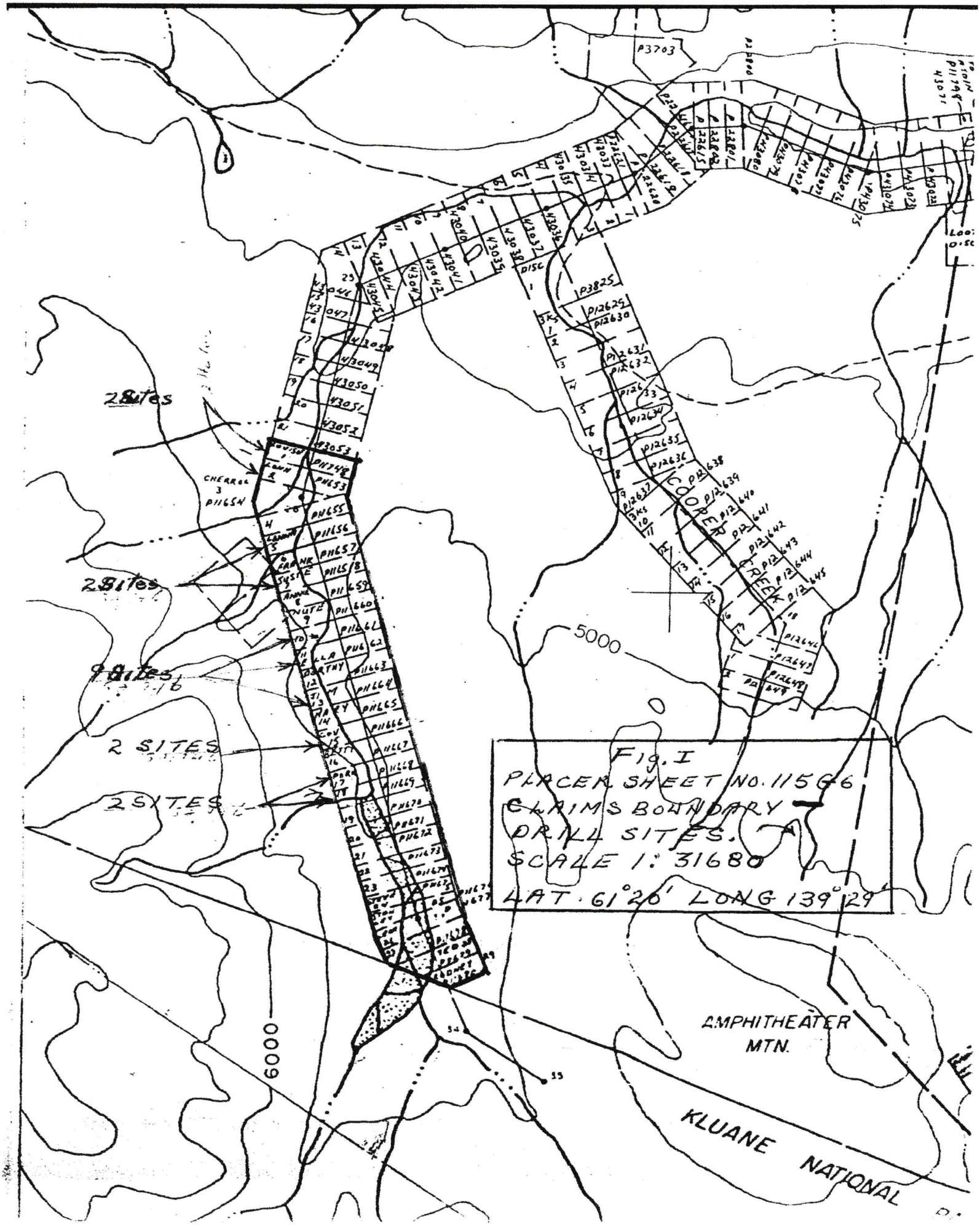


Fig. I
PLACER SHEET NO. 115G6
CLAIMS BOUNDARY
DRILL SITES.
SCALE 1:31680
LAT. 61°20' LONG 139°29'

CERTIFICATION

I, LEVY J. SIEGA of WARBURG, ALBERTA, hereby certify that:

1. I am a Geologist with the office at 5324 - 50th Avenue, WARBURG, ALBERTA.
2. I am a registered Professional Geologist in good standing with the Association of Professional Engineers, Geologists and Geophysicists of Alberta. No. 25927
3. I have a 50% direct interest in the said property.
4. This report is based on my personal supervision of the drilling program, reports, maps and data in my files.
5. I have been working in a consulting capacity for 22 years.
6. I own and operate the WARBURG COAL CO. LTD. (8 years).

LEVY J. SIEGA, P. GEOL.

L J Siega

REFERENCES

1. Mineral Industry of Yukon Territories and S.W. District of McKenzie.

   1966 paper #6740 D. GRAIG AND P. LAPORTE

   1967 paper #6868 D. GRAIG AND P. LAPORTE

   1968 paper #6955 D. GRAIG AND P. LAPORTE

   1969-70 Volume #1

2. Cairnes 1915 pp. 22-24
3. Skinner 1961 pp. 17-18, 1962, pp. 20-21
4. Green and Godwin 1963 pp. 63, 1964 pp 82-83
5. Green 1965, pp. 80
6. G.S.C. Memoir 340, J. E. MULLER pp. 106
7. G.S.C. Memoir 284, H. S. BOSTOK pp. 367-369
8. G.S.C. Summary Report for 1914, pp. 3-10, 10-33, (1915)

RECOMMENDATIONS

Notwithstanding the projections of the Aden Gold Study, both the historical and recent data warrants a viable mining operation. At the present time a comfortable 20 man camp (complete with showers cookhouse and dining area) is established on site. The Bucyrus 40H, S/N.135268 needs a thorough complete qualified servicing, repairs to the undercarriage, (drivers and idlers) and repacking of all boom cylinders. (Wilmac-quoted est. $25,000.00) The D'8 S/N 46A3673 must be replaced with a newer model and a 980 loader as a back-up. The Ross box below camp can be repaired and there is sufficient material on site to complete a new grizzly. The writer does not recommend the use of the floating sluice presently on site. Some 500' of 16" galvanized pipe (on site) can be used to supply water. Two 4 x 4's and a 3 ton flat deck with cherry-picker, welder and 500 gal. fuel tank with pump are required. Since capital costs and repairs of the suggested requirements vary dramatically with the condition and purchasing opportunities, these costs are not included in the production costs.

However, new or near new cost estimates of the said equipment would be in the order of:

D'8K	-	$275,000.00
235 Backhoe (2 YD)^3	-	300,000.00
980 Loader (5 YD)^3	-	275,000.00
2 (4 x 4's)	-	40,000.00
3 ton Flat Deck & Welder tank and pump	-	50,000.00
		$940,000.00

It is conceivable that with the present economic situation (surplus equipment) reliable used equipment could probably be purchased for one-half the quoted estimate.

In regards to production costs where applicable the writer has elected to use heavy equipment rental rates. The recommended equipment is capable of processing 200 cu.yds/hr, per 10 hr shift or 50,000 yds/month. (83% job efficiency factor). Normally 100 operating days per season is anticipated.

COST ESTIMATES/MONTH OPERATION

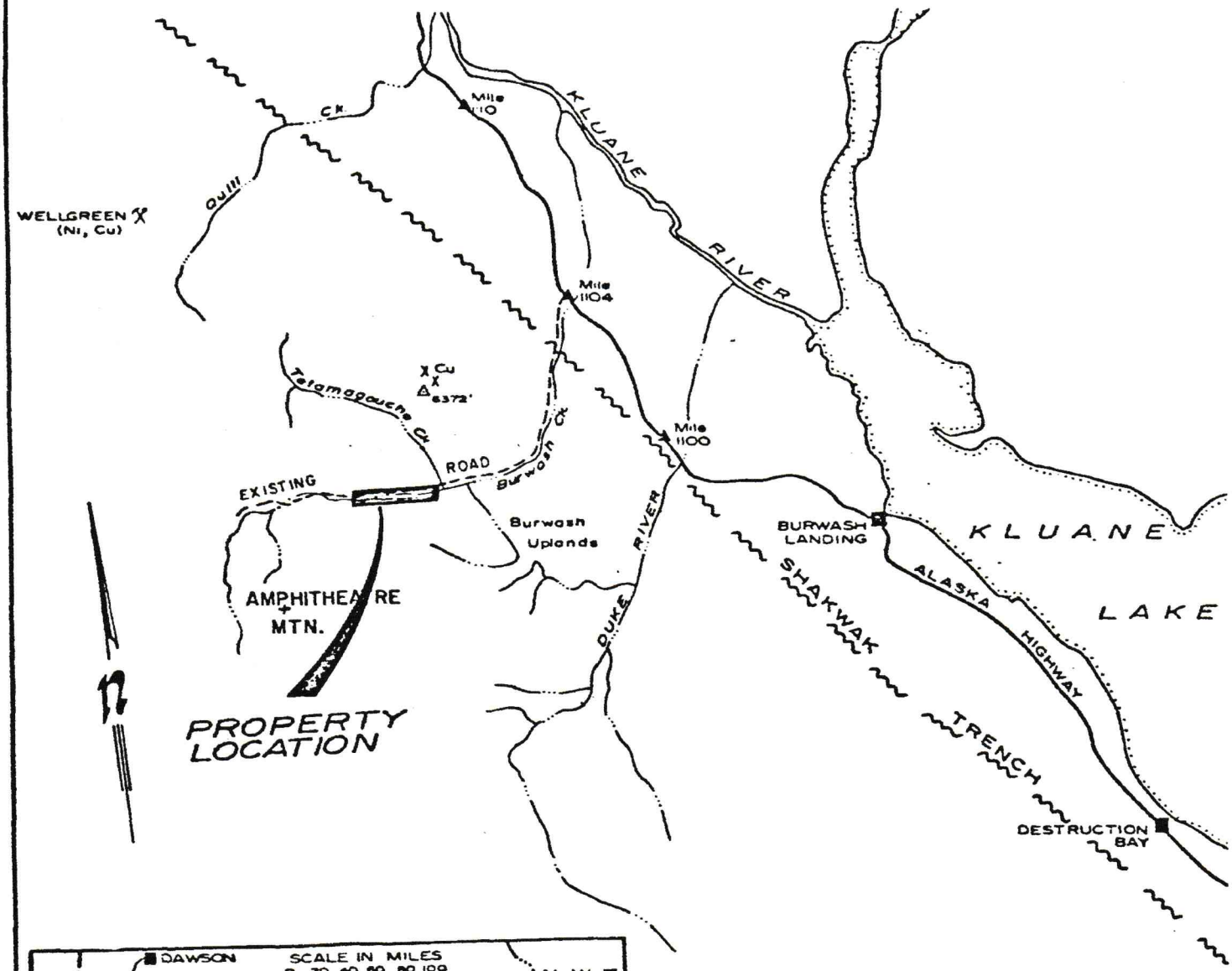
D'8K	-	$ 21,000.00
235 Backhoe	-	19,800.00
980 Loader	-	22,500.00
Ross Box-Welding, Repairs & Hoses	-	3,000.00
2 (4 x 4's)	-	3,000.00
Service Truck	-	4,000.00
Fuel - 9000 gal/M @ 60¢/L	-	24,300.00
Camp supplies - Food		9,000.00
Wages & Supervision (7 men)	-	36,600.00
Mobilization and Demob. equipment out of Whitehorse	-	8,000.00
Maintenance and Repairs	-	14,000.00
Contingencies		15,000.00
		$180,200.00

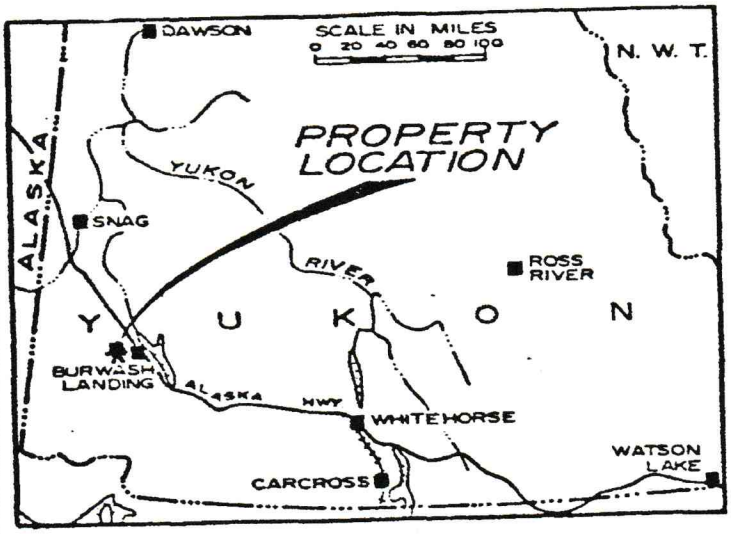
On this basis the cost to sluice the said gravels would be $\frac{\$180,000.00}{50,000}$ or $\$3.60/yd^3$.

Relative to an efficient operation, loss of production or inefficient recoveries these costs may vary considerably but should stabalize between $3.00 and $4.00/yd^3.

A. A general view of the property looking westerly down the Burwash Creek Valley. The Danjek Range of mountains can be seen in the background.

B. A view of Burwash Creek and benches which is quite typical of the entire length of claims.





— JOAN LEASES —

CLAIM Nos. 1 – 21
RECORD Nos. 38421 – 38441

LOCATION MAP

BURWASH CREEK PROPERTY

YUKON TERRITORY

SCALE (AS SHOWN)

FIG. 1

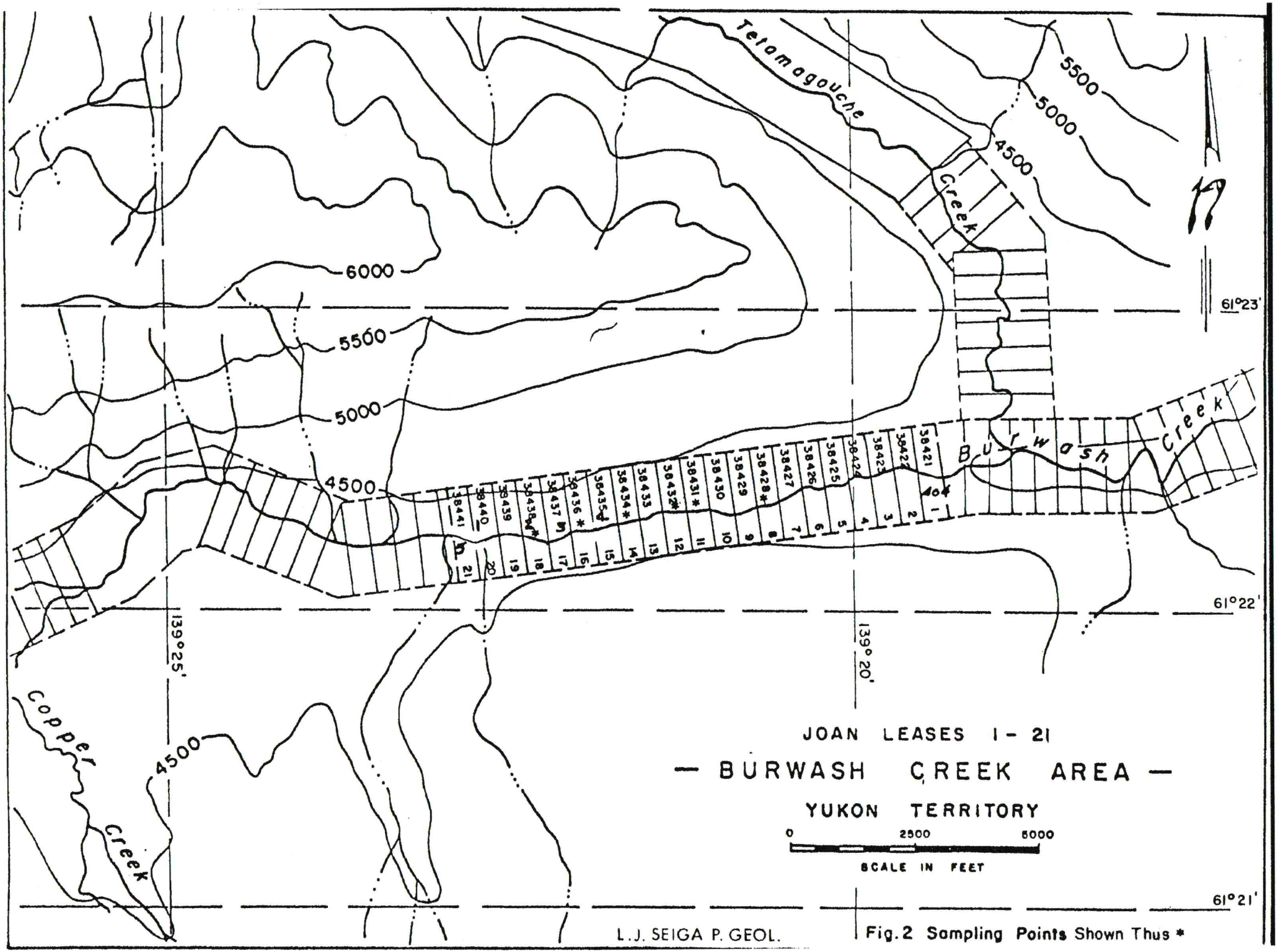


Fig.2 Sampling Points Shown Thus *

REFERENCES

1. Mineral Industry of Yukon Territories and S.W. District of McKenzie.

   1966 paper #6740 D. GRAIG AND P. LAPORTE
   1967 paper #6868 D. GRAIG AND P. LAPORTE
   1968 paper #6955 D. GRAIG AND P. LAPORTE
   1969-70 Volume #1

2. Cairnes 1915 pp. 22-24

3. Skinner 1961 pp. 17-18, 1962, pp. 20-21

4. Green and Godwin 1963 pp. 63, pp. 82-83

5. Green 1965, pp. 80

6. G.S.C. Memoir 340, J. E. MULLER pp. 106

7. G.S.C. Memoir 284, H. S. BOSTOK pp. 367-369

8. G.S.C. Summary Report for 1914, pp. 3-10, 10-33, (1915)

ATTESTATION

I, LEVY J. SIEGA of 24 GRANDVILLE AVENUE, ST. ALBERT, ALBERTA make oath and say, that:

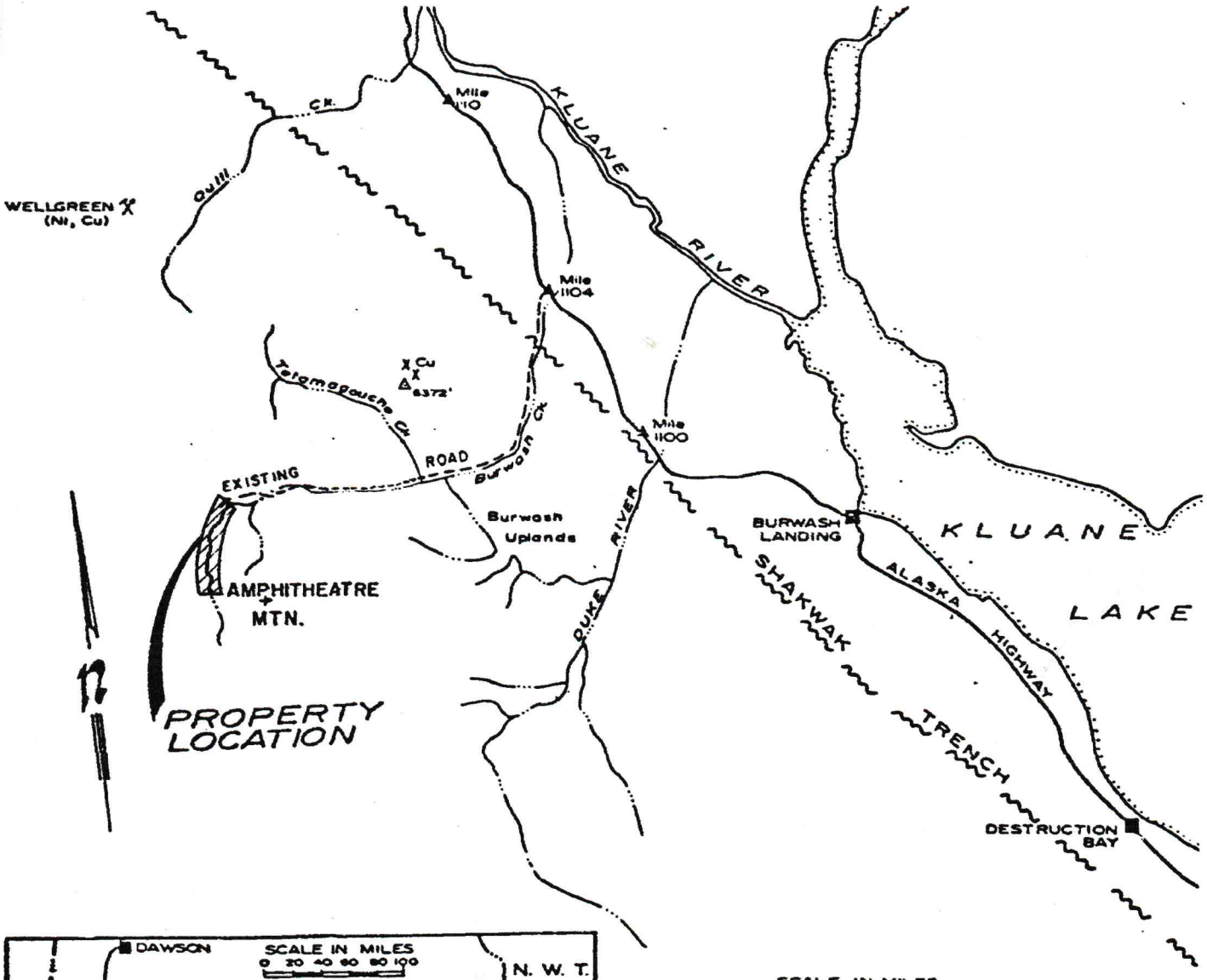
1. I am a registered Professional Geologist in good standing with the Association of Professional Engineers, Geologists and Geophysicists of Alberta. No. 25927

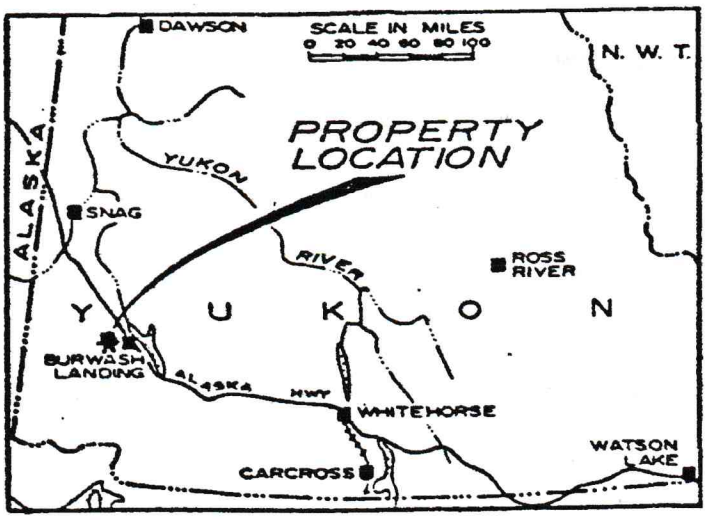
2. I have no direct or indirect interest in either the property or securities of Duane Pfaff, nor do I expect to receive any such interest.

3. This report is based on a personal examination of the property and reports, maps and data in my personal files.

4. I am a graduate of Washington State University, B.Sc. and have been working in a consulting capacity for 23 years.

Levy J. Siega, P. Geol.





GROUP CERTIFICATE No. 400P

29 CLAIMS

RECORD No's. P11748,
P11653 - P11680 INCL.

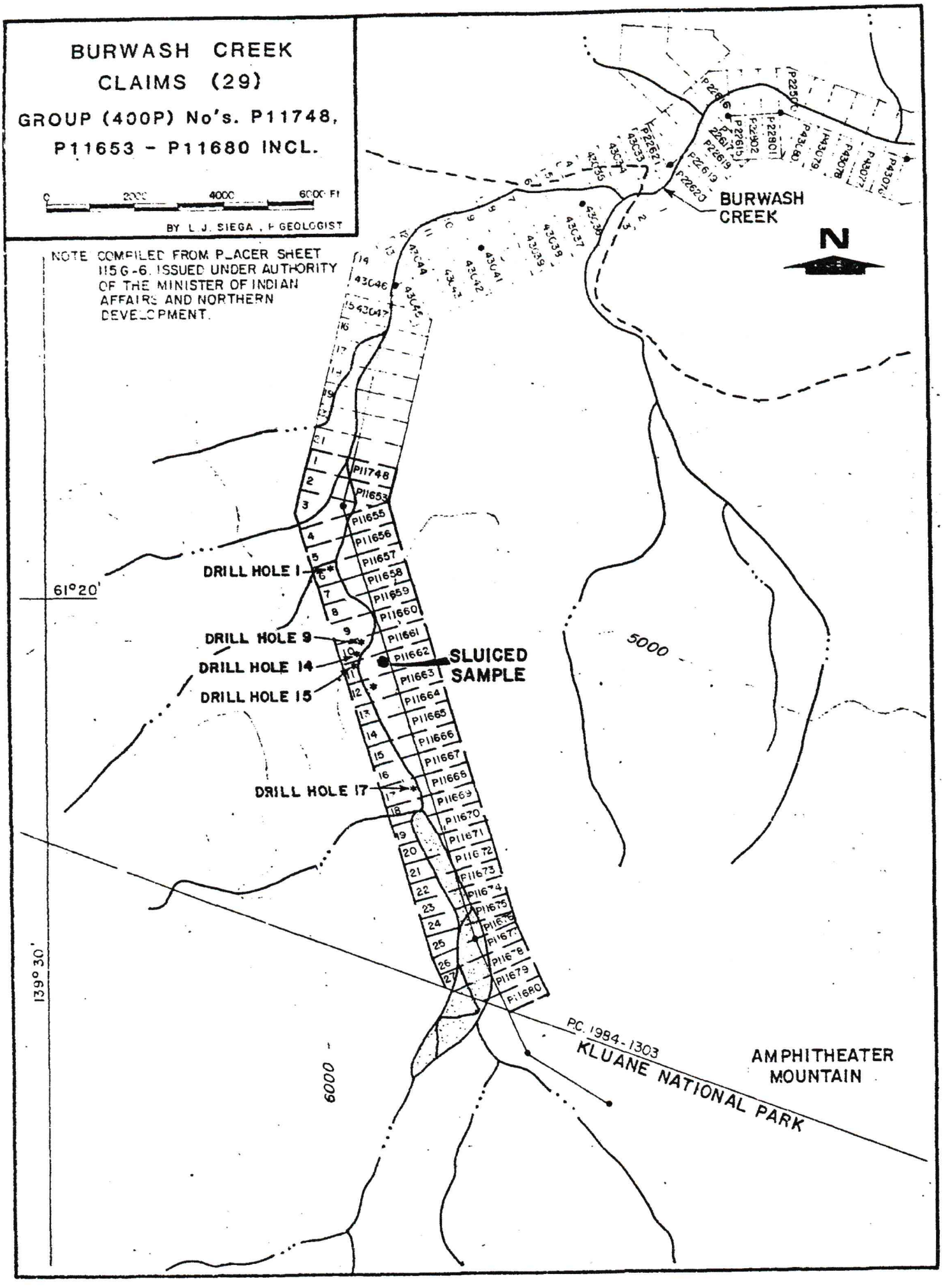
LOCATION MAP

BURWASH CREEK PROPERTY

YUKON TERRITORY

SCALE
(AS SHOWN)

FIG. 1


BURWASH CREEK
CLAIMS (29)
GROUP (400P) No's. P11748,
P11653 - P11680 INCL.
0
2000
4000
6000 FT
BY L. J. SIEGA, P GEOLOGIST
NOTE COMPILED FROM PLACER SHEET
115 G-6. ISSUED UNDER AUTHORITY
OF THE MINISTER OF INDIAN
AFFAIRS AND NORTHERN
DEVELOPMENT.
BURWASH
CREEK
N
P11748
P11653
P11655
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P11675
P11676
P11677
P11678
P11679
P11680
DRILL HOLE 1
DRILL HOLE 9
DRILL HOLE 14
DRILL HOLE 15
DRILL HOLE 17
SLUICED
SAMPLE
61°20'
139°30'
5000
6000
P.C. 1984-1303
KLUANE NATIONAL PARK
AMPHITHEATER
MOUNTAIN

CERTIFICATE

I, LEVY J. SIEGA of St. Albert, in the Province of Alberta, hereby certify that:

1. I am a professional geologist with the office at 24 Grandville Avenue, St. Albert, Alberta, T8N 0T4.

2. I am a registered Professional Geologist in good standing with the Professional Engineers, Geologists and Geophysicists of Alberta.

3. I am a Graduate of Washington State University B.Sc. (1963).

4. I presently have a 50% interest in the reported leases (Group 400P).

5. This report is based on a personal examination and exploration of the property, reports, maps and data from my personal files.

6. Past owner operator of Warburg Coal Co. Ltd. (10 years).

7. I have been working in a consulting capacity for the past 23 years.

Levy J. Siega, P.Geol.

L. Siega

REFERENCES

1. Mineral Industry of Yukon Territories and S.W. District of McKenzie.

   1966 paper #6740 D. GRAIG AND P. LAPORTE
   1967 paper #6868 D. GRAIG AND P. LAPORTE
   1968 paper #6955 D. GRAIG AND P. LAPORTE
   1969-70 Volume #1

2. Cairnes 1915 pp. 22-24.

3. Skinner 1961 pp. 17-18, 1962, pp. 20-21.

4. Green and Godwin 1963 pp. 63, pp. 82-83.

5. Green 1965, pp. 80.

6. G.S.C. Memoir 340, J.E. MUELLER pp. 106.

7. G.S.C. Memoir 284, H.S. BOSTOK pp. 367-369.

8. G.S.C. Summary Report for 1914, pp. 3-10, 10-33, (1915).

9. Placer Deposits: Formation, Evaluation and Exploration by R.L. DEBICKI. Whitehorse, Yukon. Yukon Placer Mining 1978-82 pp. 18-34.

INTRODUCTION

Burwash Creek, in the Kluane Lake map area, adjoins the Elias mountains of the southwest Yukon. A major trunk valley (Shakwak Trench) containing most of Kluane Lake transects the area from southeast to northwest and is an old prospect route now followed by the Alaska Highway.

Around the turn of the century (1903) the Jacquot brothers (placer miners) established Burwash Landing. The better access provided by the Alaska Highway enhanced activity by prospectors and mining companies.

In 1945 the Burwash Mining Co. mined from the lower canyon of Burwash Creek to the mouth of the Tatamagouche (3-1/2 miles). Total production from 1948 to 1960 inclusive, taken from the report on Emergency Gold Mining Assistance, was nearly 10,700 ozs. of gold or an average of 823 ozs. per year. Since then sporadic successes and failures have continued to this day but no reliable records on recent activities is available. (See Fig. I.)

PROPERTY, LOCATION, ACCESS

The property consists of twenty-nine placer claims (P11748, P11653 to P11680 incl.) grouped under Certificate No. 400P. The claims are located near the headwaters of Burwash Creek or nine miles S.W. of the Alaska Highway and 188 miles N.W. of Whitehorse. From M.P. 1104 access to the property is along a rough rocky trail parallel to Burwash Creek for a distance of 10-1/2 miles.

Burwash Creek (partially glacial fed) is a typical mountain stream with an extremely variable flow and in time of high water or heavy

Kluane National Park boundary and for the most part is within the 5000' contour level. In general, the lower and upper one third of the claims length (2.75 miles) are in a wide (300' ±) braided ever shifting channel. These wide drift covered areas are separated by a steep winding canyon draped with glacial material of the Burwash Uplands. Bedrock is not visable in the canyon walls and near the bottom impenetrable thickets of alders, willows and bunchgrass thrive on moisture laden slopes.

The nearest comfortable roadhouse with outside communications is located at Burwash Landing M.P. 1093 at Kluane Lake. (See Fig. I.)

PHYSIOGRAPHY AND GENERAL GEOLOGY

The Kluane Lake map area (1177A) contains two major physiographic divisions. These include the Yukon Plateau to the N.E. and the St. Elias Mountains in the S.W. separated by the Shakwak Trench. The front ranges of the Elias Mountains (Kluane Ranges) adjoin Burwash Creek and the Burwash Uplands.

The information on the glacial history of this area has been compiled by assuming three progressively less extensive ice-sheets. (J.E. Muller, Memoir 340, 1967). The Nisling (oldest) and Ruby ice-sheets advanced N.W. across the Burwash area whereas the St. Elias was restricted to the headwaters of Burwash Creek.

Locally, a distinct physiographic feature of the Nisling advance is the glacial upland tract along the extreme N.E. portion of the claims area and extending along the central portion of Burwash Valley.

Mineral deposits known to date include: placer gold, copper, nickel, platinum sulphides associated with ultra basic intrusives, native copper in volcanic sediments and scheelite and molybdenite in granitic rocks. Presently, only placer gold is being produced and the total production to 1960 is estimated to be in the neighbourhood of 30,000 ozs. This production has been mainly from recent and probably some Pleistocene or Tertiary stream gravels mined to bedrock along narrow canyons.

BURWASH CREEK - STATISTICAL DATA

Between 1904 and 1945 mining activities on Burwash Creek consisted of small sniping operations. In 1945 the Burwash Mining Co. Ltd. (H. Besner) successfully mined from the lower canyon past the mouth of the Tatamagouche (3-1/2 miles). The recorded production data is as follows:

Period	Volume - yds.^{3}	Gold - oz. Crude 87%
1945 - 59 incl.		approx. 17,000
1960 - June 9 - Oct. 10 Two shifts	expected 70,000	1,430
1961 - June 4 - Oct. 5	78,000	1,500
1962 - June 21 - Oct. 22	60,000	1,637
1963 - June 6 - Oct. 10	50,000	1,060
1964 - ?	?	946
1965 - ?	50,000	695
1966 - ? late Sept.	?	695
*1967 - ?	?	325
1968 - ?	?	342
1969 - ?	?	800

*NOTE: This production is taken from 500' past the junction of Burwash Creek and Tatamagouche Creeks.

The production statistics quoted here are those only of the Burwash Mining Co. Ltd. as recorded in G.S.C. Memoirs. The words "approx. and about" are quoted in all the references in regard to volume and crude

ozs. respectively. From 1969 to 1986 at least six different groups have mined tailings and virgin ground between Tatamogouche and Johnson Canyon. These past mining activities included minor successes and failures coupled with gross mismanagement and no recent reliable data is available at this time.

In summary, the statistical data for the years 1960 to 1967 indicate an average yearly production of 58,300 cu. yds. (say 60,000). The weighted average of 350,000 yds.^{3} is 0.0190 oz./yd.^{3} and 15 ozs. of Pt. was reported in 1963.

Additionally, using the total gold production for the years 1945-59 incl., 1964, 1968-1969 incl., and introducing an average yearly production of 60,000 cu. yds./yr. the average values on a production of 1,080,000 yds. would be as follows:

Volume yds.^{3}	Av. Crude ozs.	Av. oz./yd.^{3}	Value/yd.^{3}
1,080,000	19,783	0.0180	$10.08

NOTE: Av. @ $560.00/oz.

The writer was in Burwash in 1973 when Besner (Burwash Mining) was operating and is acquainted with the productive capacity of his machines (3/4 yd. - 22B, 2 old D-8's).

EXPLORATION: GROUP NO. 400P

Group Certificate No. 400P covers 29 placer claims at the head of Burwash Creek. These claims cover the last canyon to be mined on the said creek. Especially the canyons acted as large natural sluice boxes, through which great quantities of glacial material were washed down, with partial elimination of sand and clay and the concentration of coarser components and placer minerals. The canyon is littered with volcanic boulder gravel (basalts and andesites), sandstone, conglomerate, gravel, shale, and a few large (10'x12') granite (Nisling?) remnant boulders.

In the summer of 1985 the owners contracted to drill the property and six holes or a total of 218 feet were sampled. The contracted equipment proved most unsatisfactory and the recoveries of the tested material were not acceptable in view of the fact that surface sampling provided more colors than did drill cuttings. However, drilling has provided critical data in regards to clay bands and plausible bedrock and these results will and have directed future exploration activities. (See Report 15/6/85 L.J. Siega.) One interesting aspect of the drilling indicates the presence of a thick (20' ±) blue green fine silty felty clay on claim No.'s 11657 and again on 11667. The clay bed on these claims (minor colors on top) are near the mouth and the upper end of the canyon (some 400' diff. in elev.) and are not present or identified in the canyon proper.

In August of 1986 the owners graded the road from Tatamagouche to the claims area and rebuilt washouts along the canyon as well as prepare sampling sites. In addition to dozens of panned samples, 5 yards of near surface material was processed through the Dutchman concentrator. Sufficient colors were noted such that Duke River Mining (J. Willy) was contracted to move their equipment (D'7, 690B, and sluice box) into the canyon for a sluicing test.

The 30' sluice was set up about half way up the canyon (100'S. of post #1, Cl. No. 11662) to process material along a backwash or meander of the creek. From a bucket count and measured excavation 154 cu. yds. of gravel was sluiced. Prior to heavy stream seepage filling the excavation a brown rusty sandy gravel (approx. 1 ft.) was noted above the pale green andesite (with disseminated pyrrhotite) bedrock. Several near bedrock samples were panned and 4-6 good colors per pan were noted. After one hour of sluicing and panning material from the second riffle (and subsequently the same riffle) the results appeared most encouraging. Nuggets (1/4" to 1/8" - 15%) and medium to fine (-10 to -40 mesh -70%) gold were noted. The box was stripped, washed clean and the new mats were burn't and panned clean. Heavy minerals in the concentrate include: magnetite with minor amounts of garnets, hematite, native copper and gold specks amalgamated with mercury. Small globules of mercury were also noted in the concentrates. (Old prospectors evidence.)

The sluiced area (on one side of the canyon) encountered bedrock at 7 feet. It is not known whether this depth to bedrock would persist across the full creek width. Not likely, in view of the fact that drill holes in the canyon indicate depths between 28 and 40 feet. A drill hole 200' N. of the sluiced area went to 40 feet. Quite conceivably, the test was on a remnant bench of the main channel or a steep waterfall is nearby. In either case it is interesting to speculate on what auriferous values may be in plausible deeper sections.

CONCLUSION AND RECOMMENDATIONS

The historical production, drilling, surface sampling and in particular the sluice test warrants putting this property into production. One hundred and fifty-four cubic yds. of gravel was sluiced and 2.6 ozs. of free gold (purity 87%) was recovered.

Reasonable access (preferably 4x4) and a plentifull gravity fed water supply (4000 G.P.M.) is assured during the normal (3-4 months) operating season.

Initial mining will commence at the mouth of the canyon and sometime later be extended below and above the canyon. On the basis of an average projected mining width of 100 feet to a depth of 36 feet the mineable reserves are a minimum 2 million cu. yds. Approximately one-half of these reserves would be mined within the canyon complex. To speculate on mining full widths (300' $\pm$) of the creeks glacial gravels (considerably higher reserves) below and above the canyon is premature and requires further exploration as do the Burwash Uplands gravel that drape the canyon walls.

On a proposed production schedule (83% working efficiency) of 200,000 yds.^{3} per season mining the canyon will take 5 to 6 years. The cost estimates of the recommended program are listed below.

ESTIMATED COSTS/MONTH (1987)

1.	245 Backhoe	26,000.00
2.	D'8K - Dozer	10,000.00
3.	980 Loader	10,000.00
4.	Wages and Supervision	60,000.00
5.	Fuel	25,000.00
6.	Camp Supplies (Food)	12,000.00
7.	Two Pick-ups (4x4)	1,000.00
8.	Service Truck-Tandem	1,000.00
9.	Power Plant	1,000.00
10.	Camp Complex	2,000.00
11.	Mobilization and demobilization	3,000.00
12.	Contingency	9,000.00
		160,000.00

On a projected production of 50,000 yd.^{3}/month the cost of processing 1 yd.^{3} = $\frac{160,000.00}{50,000}$ = $3.20.

The noted costs of excavating and mobile equipment is based on relevant industrial rents rates whereas the camp and mobilization is quoted @ $60,000.00 spread over 3 years or approx. 10¢/yd.^{3}. A contingency of $9,000.00/m should cover extraneous expenses including processing, dispersal of concentrates, and sluice box repairs.

B. Using the total reported gold production for the years 1945 - 1959 incl., 1964, 1968 - '69 incl. and introducing an average yearly production of 60,000 cu. yds/yr. from (A) above:

The average values on a production of 1,080,000 cu. yds. would be as follows. (TOTAL VALUE)

VOLUME CU.YDS.	Total Au. CRUDE OZ.	Au.OZ/ CU.YD.	VALUE/ CU.YD.
1,080,000	19,783	0.0180	$10.08

Note: The writer was in Burwash in 1973 when Besner (Burwash Mining Co. Ltd.) was operating and is acquainted with the productive and excavating capacity of his machines (3/4 YD^3-22B and 2 old D8'S)

SAMPLING DATA

Four pits, one connected drain, and two benches were excavated as noted in the sampling data. In total, approximately 7,280 yards were removed with

the 40H and the D'8. Selected samples were extracted and processed through the Flying Dutchman.

SAMPLE NO.	CLAIM NO.	PIT NO.	DESCRIPTION & VOLUME, YDS.^{3}	Au./87% MILLIGRRAMS/YD^3	VALUE/ CU.YD
4-39	11	1	@ 8', 0.5	181	$ 3.26*
4-17	11	1	@36', 0.33	1086	$19.55
1-J	11	1	@ 5', 0.5	165	$ 2.97*
1-H	12	2	@ 8', 1.0	196	$ 3.52*
1PO	12	2	@14', 1.0	362	$ 6.52
1-A	12	2	@34', 0.5	724	$13.03
1I	12	2	@36', 0.5	740	$13.32
1TPD	11	1	@35', 1.0	543	$ 9.77
PD8C	8	On Bedrock, Mined OUT area, .16		2172	$39.10*
1-K	12	2	@16', 0.5	271	$ 4.87
PD9	14	3	@ 9', 1.0	346	$ 6.23
P3CR	16	Bench	Bedrock 5', 1.0	161	$ 2.89*
5A	18	4	Bench Bedrock 4',1.0	110	$ 1.98*

Note: The value/cu.yd is calculated using a gold price of $560.00/oz. Crude discount has not been included here.

Heavy minerals in the concentrate include magnetite with minor amounts of native copper, hematite, garnets and galena. No platinum was recovered.

* Values and samples not included in calculating a reasonable dollars value of the auriferous gravels.

DISCUSSIONS

The sampling data indicates low values on gravels near the surface and on remanent benches of the south shore. Where mining ceased in 1985 (CLAIM NO. 11.) bedrock is at 38' and betweeen claims 11 to 14 will probably vary between 34 and 38 feet. The drain must be established (500' of trenching) where the deepest channel hugs the north bank and will probably continue as such through Claims 11 to 14. Lower mangetometer readings though not definitive support this contention.

In order to calculate a dollar value per yd.^{3}, the writer has elected to discard all values followed the asterisk (*) as noted in the sampling data. Most of these lower values will be excluded by the recommended surface stripping. Alternately, as for the bedrock sample PD8C taken on grey fine grained iron stained porphrite rhyolite which was logged at $39.10 per yd.^{3}, it is felt that it is an anomolus reading which more probably indicates that there are areas of high auriferous concentrations. In this respect the writer has a photo of two nuggets (16-1/2 oz. and 9-1/2 oz.) which were recovered by Burwash Mining.

The calculated dollar value of mineable auriferous gravels to be sluiced will be in the order of $10.47 per yd^3 or $9.11 per yd^3 taking into account the crude discount. Between claims 11 to 21 there is no apparent physiographic feature which may dramatically alter the said values.

At this time it should be noted that some 60 to 70% of the recovered gold will range from 1 to 10 milligrams in weight and include flour gold from 1/100" to 6/100". Coarse gold in the range of 100 to 200 milligrams will amount to between 20 and 40% of the total recovered. This necessitates prudent care and judgement in so far as sluicing equipment, clean-ups and operational expertise is concerned.

Whereas the creek bed varies between 180 and 250 feet in width, sluicing of the main channel will most probably be in the order of 80 to 100 feet with an average depth of 25 feet. Between 10 and 12 feet of surface gravels will be stripped and pushed to the south shore. A conservative estimate of mineable reserves on the said claims Joan 11 to 21 would be 1,000,000 yd^3. These reserves will support a viable operation for at least 5 years and more probably 8 years considering the fact that it has taken 13 years to mine from the Joan 1 to 11.