ASSESSMENT EVALUATION REPORT

DAWSON MINING DISTRICT
50 MILE CREEK

RJAS MINERALS

PLACER LEASE
ID00100

Assessment Period:
October 1, 1997 - September 24, 1998

Prepared By:
Albert Rudis

November 11, 1998

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This report has been examined by the Geological Evaluation Unit under Section 41 Yukon Placer Mining Act and is recommended as allowable representation work in the amount of $ 3000.00.

for Chief Geologist, Exploration and Geological Services Division, Northern Affairs Program for Commissioner of Yukon Territory.

TABLE OF CONTENTS:

I. LEASE DATA:

A. Lease Information: This report covers work on the following Prospect Leases:

1. ID00097 held by Bonnie Nordling, work done for RJAS Minerals
2. ID00098 held by Cheryl Laing, work done for RJAS Minerals
3. ID00099 held by Ralph Nordling, work done for RJAS Minerals
4. ID00100 held by Albert Rudis, work done for RJAS Minerals

B. Location Map: The general location of these leases is given on in Figure 1.

C. Lease Map and Access: A specific map of these leases is given as Appendix 1.. There are currently no passable roads to the area, and access is limited to helicopter.

II. SUMMARY:

Research, assay, and on-site testing and evaluation was carried out on four placer leases in the 50 Mile drainage system during 1997 and 1998. Results indicate:

A. P*lacer gravel in the drainage system has unique characteristics as follows:*

1. *It is very well washed.*
2. *Virtually wherever tested, gold is located top to bottom in the column.*
3. *Virtually wherever tested, there is a lot of magnetite present, and the more magnetite that is found, the more gold value.*
4. *Gold values are probably vertically and horizontally dispersed throughout the identified priority target test areas.*

B. *The two best priority target test areas are on Cheryl Creek bench, and on the 50 Mile high bench Magnetometer anomaly below Cheryl Creek.*

C. *There should be relatively higher gold values in the deposition transition (scouring to deposition) zone just past the Fifty Mile canyon (3 miles below lease ID00099).*

D. *A major source of the placer gold in the 50 Mile is a Late Cretaceous quartz pebble conglomerate (rock unit 1Kst). The extent, location and nature of 1Kst has resulted in a unique on-going,* In Situ *gold enrichment regimen. As long as auriferous 1Kst float remains within the gravel of the 50 Mile, weathering and impact causes a continuous release of gold into wherever the float is located in the column. The result is widely disseminated, low grade placer gold found top to bottom in a very well washed gravel column.*

E. *1Kst can be classified as an Auriferous Hematitic Paleoplacer (Paleoplacer Subtype 1.1.2 in the Geology of Canadian Mineral Deposit Types[1]).*

F. *Thrust faulting along the north scarp against which the 50 Mile Creek runs, has protected the present right limit high bench from scouring during regional uplift.*

G. *There is evidence of a paleo-dam on 50 Mile Creek. It, and perhaps others like it, could have sheltered and allowed creek level (present lower bench) gravel deposits to avoid scouring and to be re-concentrated.*

H. *Benches of the pups on leases ID00099, and ID00100 will likely have areas of economically mineable placer values. Areas in the 50 Mile high and low bench will also have economically mineable placer values.*

I. *Mechanically assisted testing should be the next step in 50 Mile drainage evaluation. Dozer and backhoe trenching using a long tom, and, after conversion to claims, bulk-testing and mining with a start-up wash plant (capable of handling large amounts of black sands) are the first priority in this testing. Auger drill application in the future should be highly selective, and should be limited until more is known about the ground and how it drills. Magnetometer survey use to support both exploration and mining should be considered as soon as the connection between magnetite and gold values is confirmed.*

J. *Applications for stream classification, road construction, and a water license should be submitted as soon as possible. Road building, mechanical testing, conversion to mining claims, bulk testing and mining should be staged for and implemented as soon as possible in the 1999 mining season.*

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[1] Eckstrand, 1995

III. LOCAL GEOLOGY:

A. General Geology:

The local geology of the area is described in DIAND Open File 1996-1G, specifically in its coverage of 115N/15,16. It states in general:

> "Northern Stewart River map area southwest of the Tintina Fault Zone is underlain by two distinct lithotectonic assemblages: 1) medium to high grade, polydeformed metasedimentary and met-igneous rocks of the Yukon-Tanana Terrane, and 2) weakly deformed and metamorphosed rocks to the Slide Mountain Terrane. These two assemblages are both mainly Paleozoic in age in the study area, and were juxtaposed by regional scale thrust faults in Early Mesozoic time, during a period of terrane accretion that affected much of the northern Cordillera. A variety of younger (post-accretion) volcanic, plutonic and sedimentary rocks are also present in the study area."[2]

The lease area falls within the Yukon-Tanana Terrane as described in this Open File. A brief summary of units in that Terrane follows:

B. Pre-Accretion Units:

"Yukon-Tanana Terrane in the northern Stewart River map area consists of two main assemblages of supracrustal rocks as well as three distinct suites of metapluntonic rocks. Supracrustal rocks comprise the Late Devonian (?) to mid-Mississippian Nasina assemblage and the mid-Permian Klondike Schist assemblage. The Nasina assemblage consists mainly of fine-grained, moderately carbonaceous (unit DMsqc) to non-carbonaceous (unit DMsq) quartz-muscovite-chlorite schist and quartzite derived from fine-grained siliciclastic rocks, with locally abundant interlayered mafic schist and amphibolite (unit DMsqm; mafic metavolcanic rocks) and marble (unit DMc). ..... Supracrustal rocks of the Klondike Schist assemblage mainly comprise a variety of felsic schist (unit Psqm), most of which are thought to have been derived from felsic tuffs, cherty tuffs and tuffaceous cherts. Interlayered with these felsic units are non-carboniferious, fine grained micaceous quartzite and quartz-fledspar-muscovite-biotite (+chlorite) schist (unit Psq) that were mainly derived from silicicalsitic protoliths......Granitic orthogneiss (unit DMgg), typically containing coarse potassium feldspar augen, forms two large bodies in the study area, the Mt. Burnham orthogneiss and the central and southern portion of the Fiftymile Batholith."[3]

C. Post-Accretion Units:

"Metamorphic rocks of the Yukon-Tanana and Slide Mountain terranes are unconformably overlain by a sequence of unmetamorphosed sedimentary (unit 1Kst) and volcanic (unit

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[2] Open File 1996-1(G), pg. 1
[3] Open File 1996-1(G), pg. 2

1Kva) rocks of middle (?) and Late Cretaceous age. The lower part of the sequence typically consist of sandstone and pebble to cobble conglomerate, which is overlain by massive andesitic flows and breccias."[4]

D. Lease Area Major Units: [5]

1. Area Right Limit:

DMgg: moderately to strongly foliated K-feldspar augen-bearing quartz monzonitic to granitic gneiss (S. Fiftymile Batholith).

2. Area Upper Left Limit:

DMS: medium to coarse grained mica schist, commonly garnetiferous, amphibolite, minor quartzite.
DMC: marble.
1Kgdr: massive hornblende-biotite granodiorite.
1Kva: andesite flows and brecias.
Psqm: rusty weathering quartz muscovite schist.

3. Area Lower Left Limit:

Dmgdg: massive to strongly foliated dioritic to granodioritc gneiss (N. Fiftymile Batholith)
1Kgdr: massive hornblende-biotite granodiorite
1Kst: sandstone, pebble conglomerate, minor shale, commonly coal-bearing
1Kva: andesite flows and breccias

E. Sources Of Placer Gold:

Possible sources of placer gold within the lease drainage include (by MINFILE as cited in Open File 1996-1G):

1. MINFILE #115N 039: North-northeast striking, mesothermal (?) quartz-carbonate veins with major Ag, Pb and minor Au, Zn. 63-55-29N 140-48-52W

2. *MINFILE #115N 040:* Lenses of galena and arsenopyrite with minor sphalerite, tetrahedrite and boulangerite in northeast-striking quartz veins. Major Ag, Pb and minor Au, Zn. 63-54-50N 140-47-46W

3. *MINFILE #115 042:* An epidote-magnetite-diopside skarn containing minor chalcopyrite and pyrrhotite developed at the contact between a marble layer and the intrusion (Dms and 1Kgdr). Major Cu, Ag, Pb, Au. 63-54-58N 140-34-35W

[4] Open File 1996-1(G), pg. 4
[5] Open File 1996-1(G), sheet 6

4. *MINFILE #115 044:* Late Cretaceous quartz pebble conglomerate (unit 1Kst), with one specimen containing a small rounded flake of gold. The conglomerate has a thickness of 15-30 m and outcrops over approximately 0.8 km. It is capped by, and may extend under, andesitic volcanic rocks (unit 1Kva). No mineralization was found in 1973 by Silver Standard. Paleoplacer with Au as the major commodity. 63-53-18N 140-25-10W

5. *MINFILE #115 119:* Another outcropping of unit 1Kst defined in MINFILE #115 044. 63-55-10N 140-25-32W

Our field work indicates that unit 1Kst has had a major impact on the nature and amount of gold deposition in the lease area. This will be discussed further under Section VII Current Work.

F. <u>LOCAL STRUCTURE, BEDROCK AND SURFICIAL GEOLOGY</u>:

1. <u>Thrust Fault:</u> A regional scale thrust fault dominates the 50 Mile course. Field investigation shows the Creek to have been diverted to the North side of the valley where it is bounded in a major part of its course by a steep bedrock scarp. We believe its emplacement locally controlled and preserved auriferous deposition. This is supported in part by the input of Jeff Bond, staff glaciologist for DIAND, Yukon Mineral Resources. Jeff forwarded this regarding the Surficial Geology of our interest area:[6]

> "The most interesting aspect of this drainage is how Fifty Mile Creek has become totally offset to the north side of the valley. Obviously, as you stated, this is bedrock (thrust fault, ed.) controlled but it does present some interesting exploration possibilities throughout the abandoned part of the valley. I believe that Fifty Mile Creek has not always been confined to the north side. If this is true then channels may be discovered in this abandoned area."

2. <u>Benches:</u> Mr. Bond also states:

> "The benches (terraces) in Fifty Mile Creek could have a varied Origin, but most are probably alluvial (interglacial) flood-plains of Fifty Mile Creek that formed as it has progressively eroded its bed. These are good locations to find intact alluvial gravel. It appears that most of these terraces, which I have outlined on air photo A27660-36, are of this type of origin. ....".

Our field work shows there are two major benches that extend to the lease area pups as well as to the Fifty Mile. Both consist of shallow, well washed gravel with the high bench located about 35 feet above the low bench, and both have large boulders present close to bedrock. Wherever checked, they were covered by a minimum of muck and contained very little clay. Gold values appears to run from

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[6] Bond, pg. 1

top to bottom in the gravel column. On the Fifty Mile, the benches are almost all on the right limit, but the pups have significant benches on both limits.[7]

3. Bedrock: Where exposed, bedrock underlying gravel in the 50 Mile and its tributaries generally conform to the rock units outlined on sheets #1 & #2 of Open File 1996-1(G). That is, ID00100 is underlain by DMs (medium to coarse grained mica schist, amphibolites and quartzites), ID00099 by DMgdg (massive to strongly foliated dioritic to granodioritic gneiss), and the Fifty Mile Creek Dmgg (moderately to strongly foliated K-feldspar augen bearing quartz monzonitic to granitic gneiss). Magnetometer work conducted earlier described their grids on the 50 Mile right limit benches as being entirely underlain by "the Paleozoic age Pelly Gneiss unit, a foliated to gneissic granodiorite; the sparse outcrop exposure indicates a generally shallow (<20) dipping W-N-W strike of the unit in this area."[8]

4. Overall: An earlier auger drill report offers the following description of the 50 Mile Creek:

> "For most of its length Fifty Mile Creek occupies a narrow high-gradient trough bound by precipitous cliffs to the northeast and smaller outcroppings of rim-rock to the southwest. Further to the southwest low-lying benches are again rimmed by small cliff-like outcrops. Bedrock in the valley includes quartzites, mica schists, gneisses and amphibolites with a generally flat-lying attitude. Several faults and shear zones are exposed in the magnificent cliffs, and bedrock is often exposed in the creek bottom itself..... The surficial deposits consist of a blanket of organic-rich 'black muck', usually between two and eight feet deep, under which lies a thin veneer of bouldery gravel."[9]

Our field work generally agrees with the above. But we did note more variety in the underlying bedrock which includes locally a mix of schist. We saw no muck over 3' thick, and the gravel we encountered was mostly in the range of 4' to 6'. We noted the 50 Mile Creek bed itself to be largely scoured, averaging about 200' in width, and showing frequent exposures of bedrock.

5. Paleo-dam: Our field work also reveals the possibility of a paleo-dam formed by a resistant Quartz Augen Schist (?) trending perpendicular to the valley on the 50 Mile just above the pup of ID00099[10]. While the extent of the dam is not known beyond the existing low bench and stream bed, it may have had major impact on deposition in the vicinity of this pup, and perhaps over a larger area. It occurs just above a possible major high magnetite content channel in the upper bench that is defined in previous magnetometer work reported in the Yukon Engineering Services Magnetometer Survey #120115.

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[7] Bond, pg. 1
[8] Yukon Engineering Services #120115, pg. 3, #120116, pg.3
[9] Woodsend, pg. 7
[10] Appendix 1, Sample Area F2-3

6. High Interest Placer Area: Another potential zone of high auriferous interest occurs on Lease ID00097, about 2.5 miles below the pup of ID00099. Here the tight canyon left limit defined by a near vertical bedrock scarp falls away. This and gradient change allows creek stream bed transition from a scouring environment to one of deposition and meanders. A concentration of gold scoured from the creek bed upstream, will likely occur in this zone.

IV. METHODOLOGY:

A. Access:

Access to the 50 Mile Creek drainage is a major problem. The gradients are high, and there are no roads or trails for vehicles or hiking. This project used helicopters for insert and extraction to a base camp, for examination of gradient, gravel and benches from the air, and for transport to sampling sites. In one case a specially configured rubber raft had to be used to transport camp gear from one site to another over shallow creek water. Equipment options were limited, and sampling had to utilize hand methods.

B. Testing and Research Procedure:

1. On-Site: 40 man-days of effort were expended on-site for testing/trenching in the lease areas Over 100 samples were collected. Samples were taken by digging hand pits, trenching, and sediment and rock sampling. Wherever possible, pits and trenches were taken to bedrock, and all were identified in field notes as to the actual or estimated depth of gravel, and from where in the gravel column they were taken. These were run over a long tom and/or panned for on-site evaluation. Concentrates were checked in the field by hand lens and 30X microscope for mineral identification and gold count. Results were evaluated on-site and they helped to shape the on-going sampling plan for the drainage area.

Sediment samples were collected for assay in order to help locate the best placer potential. They were also evaluated to help pinpoint a placer gold source, and to define where auriferous channels might be found. Because of its advantages, a few moss mat samples were taken.[11] Very fine sediment sample separation (<53 microns) was carried out in one case.[12] Rock samples were evaluated using hand lens and 30X microscope.

All concentrates resulting from panning, sediment samples, and rock samples were identified to location in field notes. SATNAV readings were taken were possible to further help pinpoint sampling sites.

Field evaluation included the identification of creek and pup gravel's and benches and their extent. This was done from both the ground and by helicopter. Sampling was accomplished on the ground by walking, and with a rubber raft used to get

[11] DIAND Open File 1996-4(T)
[12] DIAND Open File 1993-9(G), DIAND Open File 1994-11(G)

closer to sampling areas in one instance. Sampling by air was with the assist of a helicopter for lift to the individual sample sites.

2. Off-Site: Virtually all sediment and rock samples were sent off for fire assay Au and 30 mineral AA identification. Selected samples were run for Pt, Au and 32 minerals. Hg was checked at the ppb level. Pan concentrates were further evaluated by hand lens and microscope. Rough estimates of percentage of black sands to magnetite were made. In key samples the gold was removed by fine panning, and weighed. Results from this removal can be seen at Appendix 4. Pan concentrates were prepared for additional mineral analysis by a lab. Fragments of all rock samples were saved and received visual analysis in terms of assay results. The overall off-site testing plan changed depending on visual analysis and assay results. Changes were in accord with what results indicated in the light of previous 50 Mile testing and of technical literature research related to the creek's and its drainage area.

3. Research: Research included review of all available DIAND MINFILEs on the 50 Mile Drainage area. In particular prior placer testing reports were evaluated against data that we had available from non-published sources. Where possible earlier (non-published) prospectors were interviewed about their efforts and results. Background on prior magnetometer surveys was gathered from phone contact with principals. Specific research was also conducted depending on test and analysis results. For example, several publications were researched in an effort to understand the unique nature of the well washed, but auriferous, gravel of the 50 Mile. This includes: M.I.R.L. Reports No. 32 and 76; Geological Survey of Canada Bulletin 173; Milner's Geomorphology of the Klondike Placer Goldfields; and Exploration and Geological Services Division, Yukon, Bulletin 3 1994. Other analysis required similar research.

C. Evaluation Procedure: Evaluation (and testing) was directed primarily at determining: the overall potential for economic mining; difficulty of gold separation; location of potential hot spots for gold concentration; and location of auriferous stream channels (tied to the location of possible placer gold sources). Other important evaluation goals included: determining the best and most environmentally compliant development and mining plan; estimating possible long and short term mining potential; matching resource requirements and equipment to the potential mining plan; and determining the best placement of initial mechanical test sites and access road.

To accomplish this, evaluation has involved analysis directed at reconciling and merging results from current testing, previous results of testing/evaluation on the 50 Mile drainage, and applicable literature. Every data point was considered and analyzed as a part of the whole. For example, our literature research showed a drainage area rock unit (1Kst) to be a paleoplacer, one sample of which included a small piece of gold. We sampled the deposit, and noted and sampled its float thought-out the drainage area. We found widespread individual pieces that showed magnetite (no pyrite) stratified in the general matrix. This and our assays indicate that 1Kst is a auriferous paleodeposit that probably extended beyond its defined limits. Current estimates are that 15 to 30 m thick and 0.8 km long remains, and possibly extends under a felsite cap.[13] Reference to Geological Survey of Canada's Geology of Canadian Mineral Deposit Types (1995), showed this rock unit to be classifiable as a hematitic paleoplacer (subtype 1.1.2). As such it probably has little potential as an economic deposit on its own, but we found it had a great deal of potential as a gold source for the 50 Mile. Further, its characteristics answer questions as to why the creek's auriferous gravel's are not typical, and why previous testing efforts gave incorrect results.[14]

D. Assays, Trenching/Pan Samples:

A compilation of assays, trenching/pan samples and their results is found at Appendix 1.

E. Sample And Evaluation Sites:

Sample and evaluation sites are shown on the annotated Claim Maps at Appendix 2.

VI. PREVIOUS WORK:

A. Access Limitations: Difficult access due to terrain and remoteness has caused limited prospecting and no mining on the 50 Mile Creek. Currently, all viable access is by helicopter.

B. 1960's And 1970's: Early prospecting of the Creek and its pups was, however, done in the 1960's and 1970's by long time Dawson City residents Joe Sestack, Jimmy Lynch and Jim Archibald. Ralph Nordling, one of the current lease holders, assisted Joe during several trips to the area. Aside from his early personal experience, Mr. Nordling has been told the results of these early efforts by each of the prospectors. They reported that the Creek and several of its pups carry gold, but other more accessible areas were of more interest to them at the time. Mr. Archibald and Mr. Sestack both thought the area had high potential for mining. With the exception of some limited backhoe work by Jimmy Lynch, all work was done by hand methods. One shallow hand pit in the lower bench at the confluence of the pup that is covered by Lease ID00099, was reported as being relatively high grade. Our hand panning of this existing pit shows about $10 to $14 per yard with no bedrock currently being accessible or included.[15]

C. 1989 And 1990: The area was subsequently evaluated by Lorne Mollot under four leases numbered 7563 through 7566. Two Magnetometer Geophysical Reports numbers 120115 and 120116 were filed in 1989, and an Exploratory Auger Drilling report number 120131 was filed in 1990.

[13] See section III, Local Geology
[14] See section VII, Current Work
[15] Appendix 1, samples 17-7, F28-1, F28-3 to F28-6

1. Magnetic Survey #120116: Magnetic survey 120116 ran lines on the 50 Mile high bench near the confluence of the pup covered by our lease ID00100, and on that part of the 50 Mile covered by our lease ID00098. Results included "the possible presence of two separate, parallel gravel strata stranded after successive regional uplifting and stream downcutting". Trenching across this grid was recommended. [16]

2. Magnetic Survey #120115: Magnetic survey 120115 ran lines on the 50 Mile high bench below the confluence of the pup covered by our ID00099 and on our Creek lease ID00097. It concluded that the magnetic response that was found was probably controlled by a local rock unit.' It states, however, that a there is a possibility that the anomaly indicates the presence of placer material with an unusually large, linear deposit of magnetite in the gravel. Results of our own assessment work indicates that the source of the anomaly is probably an auriferous placer magnetite concentration enriched in part by the upstream pup.

3. Auger Drilling #120131: Auger Drilling 120131 involved two lines and a total of twenty drill holes. One line was near the top end of our lease ID00098, and the other more than five miles downstream near the top end of our lease ID00097. Stated results included "a lack of any appreciable heavy mineral concentrate in the drill samples and a complete lack of gold". It was concluded that this and the general morphology of the valley suggests that the Fifty Mile Creek drainage is of recent origin, probably dating back to the last regional uplift. It states: "the valley has little potential as a placer gold host, and it was therefore recommended that the leases be abandoned".[17] Our work and analysis to date completely refutes this result and the recommendation of Drill Report 120131. Notable drilling deficiencies are:

    a. Magnetic Survey Recommendations Avoided: All drill holes were placed within the 50 mile stream bed and lower bench. No holes were placed in the upper bench, nor were there any placed where recommended by magnetometer survey. The stated reason for avoiding magnetometer survey areas was that these areas were too difficult to get to.

    b. Upstream Drill Line Has Limited Application: The upstream line was drilled into frozen ground, but did only zero, .5 and 1 foot penetrations into bedrock. Results here may be accurate in the Creek bed gravel as far as it was drilled, but would not apply in the adjacent high bench. Nor would they apply where we have outlined enrichment from pups located several miles downstream. Further, the line's shallow bedrock penetration does not allow for the excellent environment for deep deposit which the high angled, riffle-like blocky bedrock presents even in the local scouring environment that likely prevailed. As an example, current successful mining on Clear Creek, but with a similar bedrock type and disposition, penetrates as much as 4 feet into bedrock before any gold is reached.[18]

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[16] Yukon Engineering Services #120116, pg. 4

[17] Woodsend, pg. 7

[18] Statement of Adrian Hollis, Clear Creek Miner and Professional Auger Driller, August 1998

c. Downstream Drill Line Conditions: The downstream line was drilled entirely into thawed ground, and into what we determined is a well washed, well sorted and virtually clay free gravel. Large boulders that would impede drilling show above the contact exposed at the top of the nearby 35 foot shear rise from the low bench to the base of the high bench. This indicates that boulders can also be expected on the low bench contact, and they are in fact found where bedrock is exposed on the Creek bottom.

d. Downstream Line Conditions Impacted Results: It is particularly significant that all the holes in the downstream line were drilled in unfrozen gravel and in water. Auger drilling in unfrozen placer gravel without using casing is not recommended procedure, and has been proven to give unreliable results. In this line, accuracy is further impeded because the holes were all in water, the gravel was well washed with little to no clay to bind gold particles, and large cobbles and boulders were present in the column. The natural vibration of the auger; jolts with contact with larger boulders near the expected pay zone; the water medium; and the well-washed, non-binding gravel would have made a natural slide for gold on the auger flights. Under these conditions, gold and black sands encountered in the gravel or bedrock could not be expected to rise with the sample.

e. Downstream Drill Line Conflicts With Current Field Data: In the one existing hand pit that we could observe and pan in the low bench below the drill point on the stream, an unfrozen water table was intersected at three feet below the surface. Further, the gravel was well washed, and, even while bedrock was not visible or reachable, it contained high levels of magnetite in association with gold. This pit runs about $10 to $14 per yard in samples taken above bedrock. Gold from the pit (sample F2-2) can be viewed in the photograph given as Appendix 4. Our results from trenching in the nearby 50 Mile right limit high bench show a lower grade than F2-2, but the gold is also associated with well washed gravel and abundant magnetite. Here bedrock was reached, but could not be effectively penetrated. It is significant that this abundant magnetite sample was taken in an area adjacent to, but at a considerable distance from the potential channel indicated by MAG Survey 120115. Sample F6-1 in the photo shows the high bench gold.

VII. CURRENT WORK:

A. Significant Findings And Results:

1. Nature Of Deposit:[19]

a. Gravel: The gravel is very well washed and has little clay.

[19] Findings and Results are explained in narrative, supported by data in Appendix 1, and/or are covered by footnote

b. Gold In Column: Virtually wherever tested, gold found is top to bottom in the column with enrichment toward the bottom.

c. Magnetite Presence: Virtually wherever tested, there is a lot of magnetite in the gravel, and the more magnetite that is found, the more gold value.

d. Gold Dispersal: Because of the widespread presence of low grade gold in sampling, its dispersion top to bottom in the test column, and the observed unique nature of the deposit, gold values are probably vertically and horizontally dispersed throughout the identified target test areas.

e. Gold In Channels: Channels defined by Magnetometer survey will probably have considerably higher gold values than the overall bench.

f. Sampling Targets: The two best initial bulk sampling targets are on Cheryl Creek bench, and on the 50 Mile high bench Magnetometer anomaly below Cheryl Creek.

g. High Grade Potential: There should be relatively higher gold values in the deposition transition (scouring to deposition) zone just past the Fifty Mile canyon (3 miles below ID00099).

h. Bedrock Riffles: Bedrock is largely blocky, flaggy gneiss and schist that grades from high-quartz dense to high-mica flaky. Wherever intersected on the 50 Mile, the bedrock presents an excellent riffle system and gold-trap across stream flow.

i. Channel Location: Magnetometer surveys indicate the presence of channels. Two possible parallel channels with magnetic anomalies widths of about 75' show up on the Fifty Mile right limit high bench adjacent to the pup at ID00100. One very large anomaly shows up on the Fifty Mile right limit high bench just below ID00099. It runs 120' wide to 300' long (to the extent of the baseline).

j. Bench Width: Bench width varies, but on the Fifty Mile left limit it is seldom under 100' on the low bench, and several hundred feet on the high bench. It is virtually flat and about 600' wide opposite of the pup at ID00100. Bench width on the tributaries run from narrow to up to about 800' in width.[20]

k. Pay Channel Depth: The depth of pay channel probably is the same as the depth of the gravel. Pay, while it may prove to be locally spotty, is likely to run across the width and depth of the benches. Where-ever exposed, bench depth ranges mostly 4' to 6'. The one drill line placed closest to target areas for bulk sampling, showed an average depth of 4.5' of gravel.[21]

[20] Yukon Engineering Service, #s 120115 & 120116

[21] Woodsend, pg. 3

l. Gravel Classification: Gravel type on the benches is probably alluvial floodplain.[22] It is very well washed, has little clay, ranges from poorly to well stratified, and is composed mostly of stream rounded local rock types. Fairly large boulders are concentrated close to bedrock.

m. Depth Of Overburden: Our Field investigation showed broad areas of the 50 Mile lower bench, and tributary lower benches, to have little to no depth of overburden. Overburden thickness of about 2' or less of muck was noted on target areas. Gravel below the muck is shallow, and it carries some gold values to the top of the column (excluding muck). Two of the three auger drill lines placed on the 50 Mile in 1990 also indicate shallow overburden. These showed an average of about 2' of muck on the first level benches. The third drill line showed depths of 7' and 8' of muck per hole on the low bench, but it was placed upstream of our target areas, well above the limits of our leases.[23]

n. Depth To Permafrost: Depth to permafrost was not determined. We intersected no frozen ground in our testing. Previous auger drilling on 50 Mile Creek intercepted frozen ground on two of three lines, but the depth of intersection was not given. The thawed holes were in the right limit lower bench on the drill line location closest to our target area.[24] The surface of the right limit high bench is covered by muskeg and stunted black spruce and is likely frozen beneath the vegetation.

o. Placer Reserves: Significant testing and evaluation needs to be done before placer reserves can be projected. However, Section VII, Recommended Mining Operation projects a mine life of over ten years if initial assumptions prove to be correct.

p. Placer Grade Projections: Our un-compromised sample set is relatively small and placer grade projections have to rely on results from our least infiltrated, most representative samples. These are represented by sample F6-1 on the 50 Mile right high bench for $2.50 per yard, and F3-9 on pup ID00099 left limit low bench for $4.00 per yard. Per yard value is likely to be significantly higher in bedrock, which could not be effectively penetrated in sampling.

q. Category Of Placer Deposit: In accord with the major placer categories given by LeBarge[25] the placer deposit in the 50 Mile and its tributaries probably has characteristics of both *Pleistocene non-glacial buried alluvial sediments* and *Pleistocene interglacial alluvial sediments*. The shallow overburden is generally not typical of the non-glacial buried sediments.

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[22] Bond, pg. 1
[23] Woodsend, pg. 3
[24] Woodsend, pg. 3
[25] LeBarge, 1997, pg. 5

r. Glaciation: Jeff Bond in a letter on the 50 Mile Surficial Geology and Glaciation states: "It is very possible that an older glacial moraine was deposited in Fifty Mile but due to lengthy erosion it is no longer visible from photos. It does appear to have once been glaciated during an early pre-Reid glaciation (over 1.2 Ma ed.). I question whether the impacts of such an old glaciation is discernible in the distribution of heavy mineral obtained from small-scale sampling. There have been many 100,000s of years since this glacial period and it is likely that the creek has re-concentrated the old and recent potential placers into creek channels on bedrock. In other words if the gold source was from within the old glacial limit then you likely still wouldn't notice a difference in the heavies on either side of the limit because of how old this glacial event (i.e. Plenty of reworking time since)." Mr. Bond did identify one possible tributary Moraine in the watershed, and traced out limits of largely colluvial veneer that covers the southern side of 50 Mile left limit high bench (terrace).[26]

2. Sources Of The Placer Gold:

a. Silt Sample Indicator: We were unable to correlate Silt Sample Indicator assay results to the presence of placer gold, or to a probable placer gold source. While12 of 22 sediment samples contained anomalous gold, no definite pattern pointing to an underlying presence or source was discernible. The 12 positive samples taken had an average of 8.2 ppb, and the highest reading was 15 ppb. Negative results are not surprising given the findings of Open File 1994-11(G). This report showed little correlation between results on samples elements of -180 to +53 microns and the Brewery Creek deposit location. Because of the 50 Mile terrain and transport limitations, field testing did not allow the taking of large enough sediment samples for a break-down to a -53 micron element as is recommended in the Open File.[27] Future sediment sampling should allow for this break-down and separate assay of the -53 micron element.

b. Mid-Cretaceous Conglomerate: Several indicators point to a mid-Cretaceous conglomerate (rock unit 1Kst[28]) as a source of placer gold in the 50 Mile drainage. These indicators include:

1. Field Sampling: Sampling was both at outcrop and in float. While the conglomerate has a thickness of 15-30 m and outcrops over approximately 0.8 km[29], sampling and field investigation shows that its float is located extensively throughout the lease area (see

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[26] Bond, pg. 1

[27] Open File 1994-11(G), pg. 4-5
[28] Open File 1996-1(G), pg. 4
[29] Open File 1996-1(G), pg. 16

Appendix 2). It occurs in several sweets that range in colour from white, to white-brown, to gray. And some samples show magnetite, hematite and probable gold inclusions, with magnetite banded into a dense zone in one sample. The rock is essentially unaltered with no pyrites detected. It is hard, but fractures easily on impact. This ease of fracturing, the extent to which 1Kst float is still found in the 50 Mile gravel, and the presence of magnetite segregation within the rock defines an enrichment environment in magnetite and in gold that would last as long as the float in the creek gravel continued to weather and fracture within stream deposition. This environment of continuing *IN SITU* enrichment provides a mechanism that can explain the presence of top to bottom gold in very well washed gravel that has a bare minimum of clay. Pan sampling has shown several gold flakes that are angular, and yet considerably flattened. This also could also point to 1Kst as a source (i.e. flattened by pressure in conglomeration process and not by stream hammering).

2. Assays On 1Kst show anomalous gold in 5 of 6 samples. Of those showing gold, there was an average of 14 ppb, and a high of 18 ppb. While these results are low in ppb, they likely do not represent what values would be a pay zone. And they do confirm the presence of gold. Further, because of its extent a high grade pay zone in the conglomerate would not be necessary to produce a significant pay zone in the 50 Mile placer. The presence of gold (possibly some visible), segregated magnetite, hematite and no pyrite indicate that it is an *auriferous hematitic paleoplacer* (Paleoplacer Subtype 1.1.2 in the Geology of Canadian Mineral Deposit Types[30]). As such it compares with the rich Tarkwaian hematitic paleoplacer in Ghana, and the marginal Elliot Lake paleoplacers in Canada.[31]

3. Research shows that 1Kst is correlative to units in the Indian River.[32] Indian River Tertiary conglomerate is discussed by both Gleeson and Milner as follows:

> "The conglomerates, white and quartzose, are exposed along the south side of Indian River; they carry low gold values. In the vicinity of Indian River these sediments are cut by andesite and diabase dykes."[33]

> "MacKinnon Creek-Indian River area. This area to the south of the Klondike Goldfields is underlain by poorly exposed quartz pebble conglomerate with white to gray orthoquartzite containing black carbonaceous wood fragments, shale and

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[30] Eckstrand, 1995
[31] Eckstrand, 1995, pg. 1-16 (cites Roscoe, S.M.)
[32] Open File 1996-1G, pg. 4, citing Lowery (1984)
[33] Gleeson, pg. 8

> coal. These rocks are cut by and intercalated with igneous material of intermediate composition. These Tertiary rocks appear to have been deposited in extensive intermontane, possibly fault controlled basins. The conglomerated appears as frost heaved blocks on the left bank of MacKinnon Creek for much of its length, and also on steep banks on the right side near earlier shafts and adits, and in 1975 in excavations and drilling.....The conglomerates are auriferous, were explored underground in the boom years of the Klondike, and are being explored now. Placer gold particles have been recovered from depth by drilling."[34]

4. Extensive Fracturing, Weathering And Rework: There has been an extensive fracturing, weathering and rework opportunity for the conglomerate. For the current gravel deposits, this extends back at least to a possible pre-Reid episode of glaciation in the valley.[35] LeBarge supports this in describing the general 60 (50) Mile placer area as follows: "Since these areas are un-glaciated, alluvial sediments have undergone an extensive period of weathering and fluvial reworking, essentially since the Tertiary period (Pre-Reid - 1.6 Ma ed.). This has allowed a continuing cycle of uplift and erosion to concentrate and re-concentrate placer in rich pay streaks in valley bottoms, valley side alluvial fans and bedrock terraces."[36]

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[34] Milner, 1977, pg. 20-21
[35] Bond, pg. 1
[36] LeBarge, 1996, pg. 4

5. White Channel Process:

At the 50 Mile, 1Kst shows a gold enrichment process similar to the Klondike White Channel Gravel on Bonanza Creek, but there are major differences as follows:

White Channel	1Kst
Auriferous	Auriferous
Occurs over large areas	Occurs over large areas
Largely well-washed white quartz	Largely well-washed white quartz
Served as gold and heavy mineral enrichment for underlying creeks	Serves as gold and heavy mineral enrichment for underlying creeks
Gravel - easily washed	Conglomerate - compact hard and resistant but fractures easily on impact
Pliocene (5.3 - 1.6 Ma)[37]	As early as the Albian (113 - 97.5 Ma)[40]
150-175' thick, 450' above valley floor (at Eldorado, floor is 2,000'el., and Thrust Fault trends NW[38])	45-90' thick[41], 2000'above valley floor (at 50 Mile floor is 2,000'el., and thrust fault trends NW[42])
Regional uplift impact probably at Tertiary, and after White Channel deposition.[39]	Regional uplift impact probably at Tertiary, and after White Channel deposition.[43]

37 Bostock, 1957, as cited in Milner Pg. 27
38 Milner, pg. 37
39 Gleeson, pg. 14

40 Gleeson, pg. 14
41 Open File 1996-1G, pg16
42 Open File 1996-1G, pg. 5, sheets 1& 2
43 Gleeson, pg. 14

c. Magnetite, Hematite Association: Magnetite and/or hematite may be associated with a major placer gold source. Wherever gold was found in pan and long tom testing there was a presence of magnetite and hematite. The more they were present, the more gold was found in the sample. In most cases there were so many heavy black sands that separation from the gold was difficult. Two larger magnetite pieces from pan concentrates showed the possible inclusion of gold. Also, there is magnetite present in the conglomerate (1Kst), which is an auriferous hematitic paleoplacer which probably enriches the 50 Mile valley gold placers. And an epidote-magnetite-diopside skarn containing gold values is reported on the north ridge line above the 50 Mile valley.[44]

d. Quartz Veins: Two quartz vein structures may contribute to the 50 Mile Placer gold. One consists of north-northeast striking, mesothermal (?) quartz-carbonate veins with major Ag, Pb and minor Au, Zn and is located at 63-55-29N 140-48-52W.[45] The other consists of lenses of galena and arsenopyrite with minor sphalerite, tetrahedrite and boulangerite in northeast-striking quartz veins. Major Ag, Pb and minor Au, Zn and is located at 63-54-50N 140-47-46W.[46]

3. Significance Of The Sources Of the Placer Gold:

a. Pay Channel Location: Identification of sources for 50 Mile placer gold has helped locate potential high grade pay channels and bench areas. The linkage between magnetite and a gold source points to the large magnetic anomaly on the left limit 50 Mile high bench below pup at ID00099[47], as a particularly high priority area for bulk testing and mining.

b. Deposition Explanation: Identification of the conglomerate unit, 1Kst, as a significant source for 50 Mile placer gold helps explain the non-traditional placer gravel characteristics shown in testing and evaluation. These non-regular characteristics include: wherever tested, top to bottom pay across the gravel column; and gold present despite the well washed, clay deficient and shallow gravel. As stated above, a continuing enrichment to the creek system is likely provided by *In Situ* fracturing, and weathering of 1Kst material deposited in the system for over a million years. Pan sampling has shown several gold flakes that are angular, and yet considerably flattened. This also could also point to 1Kst as a source (i.e. flattened by pressure in conglomeration process and not by stream abrasion).

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[44] Open File 1996-1(G), pg. 15, MINFILE #115N 042
[45] Open File 1996-1(G), pg. 13, MINFILE #115N 039
[46] Open File 1996-1(G), pg. 14, MINFILE #115N 040
[47] Yukon Engineering Services #120115

4. Nature Of The Bedrock:

Wherever tested; gold and black sands were found in bedrock in which the overlying gravel has gold present. Nearly all bedrock intersected and exposed is a blocky (flaggy) schist or gneiss set cross-angle to the creek flow. The wider fissures all showed clay/black sand emplacement as far down as they can be traced. Bedrock and deposition environment is similar to that described by Adrian Hollis on his current placer operation on Clear Creek. Mr. Hollis states that he is very often not intersecting gold until he is 4' down into bedrock, and then the material is moderate grade and extends up to a depth of 10'. It is likely that values in the 50 Mile bedrock will be significant and deep, and it probably will be significant and deep in the scoured bed of the 50 Mile stream bed as well. Gleeson found significant gold values in bedrock of the White Channel even at depth. He states: "The presence of placer gold in the weathered bedrock is not surprising. Fractures in the bedrock act as riffles to trap gold and even after bedrock has been mined some gold may remain. Gold is three to five times heavier than most other heavy minerals; therefore it readily settles into rock fractures and openings, and any movement of the rock allows it to settle deeper; this is especially true of the flaggy variety of schist. Sample m7 taken on a bench from which a considerable amount of bedrock has been mined contains more than 100 milligrams of placer gold."[48] Again, it is likely that values in the 50 Mile bedrock will be deep, and probably will be deep in the scoured bedrock of the 50 Mile stream bed. Evaluation of gold values in the 50 Mile should extend well into bedrock.

5. Significance Of Thrust Faulting In The 50 Mile Valley:

Mr. Jeff Bond, geologist with DIAND Yukon, has provided the following on the 50 Mile thrust fault.

> "The most interesting aspect of this drainage is how Fifty Mile Creek has become totally offset to the north side of the valley. Obviously, as you stated, this is bedrock (thrust fault, ed.) controlled but it does present some interesting exploration possibilities throughout the abandoned part of the valley. I believe that Fifty Mile Creek has not always been confined to the north side. If this is true then channels may be discovered in this abandoned area."[49]

This control of the 50 Mile stream flow by thrust faulting combined with the impact of the late Tertiary uplift of the Yukon Plateau[50] limited erosion of the right limit high bench. The bedrock underlying the 50 Mile gravel is highly resistant. Downcutting would have occurred at the path of least resistance which is the thrust fault fracture

[48] Gleeson, pg. 45

[49] Bond, pg. 1

[50] Gleeson, pg. 14

zone along the northern scarp. The stream was thus directed along the scarp, and minimal downcutting would have occurred in the area of the current high bench. In addition, a potential *paleo-dam* (described below) formed by a more resistant of element of bedrock trending across the stream flow, could be indicative of others that existed along what is now the largely scoured stream bed. These paleo-dams would have caused waterfalls that would create protected areas for stream gravel reworking and preservation, and form enrichment zones within the stream-bed bedrock.

As has been mentioned above, our field work revealed a possible *paleo-dam* formed by a resistant Quartz Augen Schist (?) and trending perpendicular to the valley on the 50 Mile just above the pup of ID00099.[51] While the extent of the dam is not known beyond the existing low bench and stream bed, it may have had major impact on deposition in the vicinity this pup, and perhaps over a larger area. It occurs just above a possible major high magnetite content channel in the upper bench that are defined in previous magnetometer work reported in the Yukon Engineering Services Magnetometer Survey #120115.

6. <u>Similarity To The Indian River:</u>

Based on current data, the 50 Mile Valley leases may prove to be similar in potential to that of the Indian River when it was first developed. LeBarge has said of the Indian River:

> "One of the most notable trends is the amount of placer gold mined from Indian River, which had no recorded gold production prior to 1985. This is an excellent example of an area that previously saw little activity because it was considered below mineable grade. With re-evaluation of its placer gold potential and modern large tonnage mining methods it has become the third highest producing creek over the total 18-year period."

The full potential of the 50 Mile remains to be assessed. While it may or may not compare to the Indian in total production, the valley has a similar history. The 50 Mile has had no gold production, and current testing so far has shown it to be low grade. Previous work reported no gold values. The ground in the Fifty Mile valley is so rough going that previous drilling was restricted from the indicated Magnetic target areas. Negative results on the alternative drill lines lead to the conclusion (erroneous) that the valley was too juvenile to host significant gold and heavy mineral deposits.[52] Modern mining methods will be needed to take advantage of the low cost potential offered by shallow gravel, top to bottom values, and minimal overburden.

B.

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[51] Appendix 1, Sample Area F2-3

[52] Yukon Engineering Services, #120115 & 120116

C. Conclusions:

Based on data presented in Appendix 1, and Findings and Results covered above, it is concluded that:

1. Major Placer Gold Source: A major source of the placer gold in the 50 Mile is a Late Cretaceous quartz pebble conglomerate (rock unit 1Kst). Only one in-place outcrop of 1Kst remains remnant in the Hart Mountain vicinity. Here it has a thickness of 15-30 m and outcrops over approximately 0.8 km. It is capped by, and may extend under, andesitic volcanic rocks (unit 1Kva). Float from the conglomerate fractures easily, but is found over a wide area of the 50 Mile. This indicates that a large, broad initial coverage was available to be eroded as a gold source.

2. Gold Enrichment Regimen: The extent, location and nature of 1Kst has resulted in a unique gold enrichment regimen. As long as auriferous 1Kst float remains within the gravel of the 50 Mile, weathering and impact causes a continuous *In Situ* release of gold into wherever the float is located in the column. This has resulted in widely disseminated, low grade placer gold, top to bottom in a very well washed gravel column that has virtually no clay to help bind values.

3. Auriferous Hematitic Paleoplacer: 1Kst can be classified as an Auriferous Hematitic Paleoplacer (Paleoplacer Subtype 1.1.2 in the Geology of Canadian Mineral Deposit Types[53]). As such it compares with the rich Tarkwaian hematitic paleoplacer in Ghana, and the marginal Elliot Lake paleoplacers in Canada.[54] Magnetite and hematite are found segregated and layered in the conglomerate. It is probable that 1Kst is a major source of the heavy black sands found in the 50 Mile gravel.

4. Bedrock Gold Values: Wherever tested, gold and black sands were found in bedrock in which the overlying gravel has gold present. Nearly all bedrock intersected and exposed is a blocky (flaggy) schist or gneiss set cross-angle to the creek flow. The wider fissures all showed clay/black sand emplacement as far down as they can be traced. There will be higher values in the bedrock than in the overlying gravel. There will be significant values at depth in bedrock, even where the overlying gravel has been scoured off.

5. Thrust Faulting Impact: Thrust faulting along the north scarp against which the 50 Mile runs, has protected the present right limit high bench from scouring during regional uplift. Bedrock underlying 50 Mile gravel is highly resistant to erosion. Downcutting would have occurred at the path of least resistance which is the fracture zone along the northern scarp formed by thrust faulting. Without the limiting of downcutting to north side of the stream valley, scouring across valley would have occurred.

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[53] Eckstrand, 1995

[54] Eckstrand, 1995, pg. 1-16 (cites Roscoe, S.M.)

6. Paleo-Dam Impact: There is a possible paleo-dam trending perpendicular to the valley on the 50 Mile just above the pup of ID00099.[55] While the extent of the dam is not known beyond the existing low bench and stream bed, it, and perhaps others like it, could have sheltered and allowed creek level (present lower bench) gravel deposits to avoid scouring and to be re-concentrated. Enrichment on the low benches during regional uplift will give them more grade potential than the high bench.

7. Mineable Benches: Benches of the pups on leases ID00099, and ID00100 will likely have areas of economically mineable placer values. Areas in the 50 Mile high and low bench will also have economically mineable placer values.

8. Magnetite Impact: Placer values will be the highest were magnetite and black sands are most concentrated.

9. Gold Value Target: There should be relatively high gold values in the deposition transition (scouring to deposition) zone just past the Fifty Mile canyon (about 3 miles below the pup at ID00099).

10. Effective On-Site Testing: Mechanically assisted testing should be the next step in evaluation. Hand method effectiveness is limited by: the volume that can be processed; difficulty in bedrock penetration; obstruction from and difficulty in moving large boulders that are present above bedrock; problems in sampling in the high water table in the lower benches; a large volume of heavy black sand that is particularly difficult to process and separate; the tough bush condition which makes it extremely difficult in changing locations and getting to key sample sites; and the high cost of helicopter access. Construction of a road into the 50 Mile valley will be essential for large scale testing.

11. Testing Procedure: Dozer and backhoe trenching using a long tom, and, after conversion to claims, bulk-testing and mining with a start-up wash plant (capable of handling large amounts of black sands) are the first priority. The low grade, disseminated nature of the placer gold will require a bulk test to verify its mining potential. Previous auger drilling has proven to be difficult on the 50 Mile, and this has lead to misinterpretation of the nature of the valley and its placer potential. Auger drill application in the future should be highly selective, and should be limited until more is known about the ground and how it drills. Previous magnetometer surveys have given good, or marginal, results depending on how they are interpreted. They have covered only a limited area. Magnetometer survey use to support both exploration and mining should be considered as soon as the connection between magnetite and gold values is confirmed.

12. Testing Location: The best ground for testing, and probably for start-up mining, is the 50 Mile right limit high bench below the pup at ID00099. The large magnetic anomaly at this location should be an initial trench location. The second target site is the broad (about 800'X1000') bench about 1 mile upstream on ID00099. Our samples with the least slide-rock infiltration are taken from

[55] Appendix 1, Sample Area F2-3

these benches. F6-1 on this 50 Mile right high bench ran $2.50 per yard, and F3-9 on pup ID00099 ran $4.00 per yard. Both Benches have about 5' of gravel with 2' to no muck, and are underlain by bedrock good for trapping gold. With the shallow overburden and gravel, values in the range of these samples will be profitable. A small (20,000 yard) left limit lower bench at the mouth of the pup at ID00099 has shown values in the range of $10 to $14 above bedrock. It should become a key initial mining site should stream classification allow economic placement of settling ponds and mining in the lower benches.

C. <u>Recommendations:</u>

1. Prepare and submit applications for stream classification, road construction, and a water license as soon as possible.

2. Stage for and begin construction of an access road into the 50 Mile valley as soon as possible in the 1999 mining season.

3. Stage for and begin mechanically assisted testing on the 50 Mile leases as soon road access and weather allows. Dozer and backhoe trenching using a long tom, and, after conversion to claims, bulk-testing with a start-up wash plant (capable of handling large amounts of black sands) should be the first priority.

4. Make the 50 Mile right limit high bench below the pup at ID00099 the first test target. The large magnetic anomaly at this location should be an initial trench location.

5. As soon as sufficient testing has been accomplished on this target, convert lease ID00097 (initial target site lease) to placer mining claims.

6. Convert bulk testing into full-time mining as soon as profitability is proven.

7. Make the second test target site the broad (about 800'X1000') bench about 1 mile upstream on the pup on ID00099. Accomplish required exploration work with backhoe testing and long tom. When bench values are sufficiently confirmed, convert lease to mining claims prior to bulk testing.

8. Convert the remaining leases to mining claims as soon as they are tested sufficiently to meet lease exploration requirements.

9. Confirm that gold values in the small left limit lower bench at the mouth of the pup at ID00099 is the range of $10 to $14. Consider this bench as a key initial mining site should these values prove-up, and if stream classification allows economic placement of settling ponds and mining in the lower benches.

10. Utilize efficient, modem mining methods and take advantage of the low cost mining potential offered by shallow gravel, top to bottom values, and minimal overburden.

11. Conduct a continuing program of confirming the economic potential of the 50 Mile and its tributaries. Systematically evaluate all mining claims.

12. Place high priority on evaluating the deposition transition (scouring to deposition) zone just past the Fifty Mile canyon (about 3 miles below the pup at ID00099).

13. Confirm through testing: that enrichment on the low benches has a higher grade potential than the high bench; and that placer values are highest were magnetite and black sands are the most concentrated.

14. Consider as viable targets for testing/mining, all of the right limit high bench from the initial mining target just below ID00099 to several miles upstream and downstream on 50 Mile Creek.

15. In testing and mining, consider that values in the 50 Mile bedrock can be deep, and perhaps not show up until several feet of bedrock are removed. Also consider the scoured bedrock of the 50 Mile stream bed as potentially mineable, and worth evaluating.

16. As soon as the connection between magnetite and gold values is confirmed, utilize magnetometer surveys to support both exploration and mining.

17. Utilize auger drilling in exploration on a selective basis, and limit it until more is known about the ground and how it can be effectively drilled.

VIII. RECOMMENDED MINING OPERATION:

1. Applications And Permits: Applications for stream classification, road construction, and a water license should be submitted as soon as possible. Initial contacts with the agencies involved indicate that, with prompt submission, these could all be in place by the end of May, 1999.

2. Mining Methods: In general, a traditional mining operation using heavy equipment is recommended.. Current plans are for road building and trenching initially using a D9H Cat and an excavator. Following conversion of the mining leases to claims, bulk testing and limited scale mining will be conducted using a 100 yard per hour sluice plant. As soon as the expected larger scale potential of the placer is proven, this plant would be replaced with one of a 200 to 300 yards per hour capacity. Additional support equipment and facilities would be added at that time as required.

3. Mining Potential: Employment of 6 to 12 people throughout the first mining season is projected. The right limit high bench in the vicinity of lease ID00099

should be the initial mining target, but all of the right limit high bench from here to several miles upstream and downstream are viable targets for mining. It may be possible that the high bench could sustain mining operations at a 300 yard per hour rate for about 10 years. The two pups also have a significant mining potential. They should receive mechanical trenching to confirm potential values, and would probably be best mined as a smaller 60 to 100 yard per hour "New Zealand" type operation to ensure environmental compliance in the tighter pup valleys. Running the pups concurrently with the 50 Mile operation would require 2 to 3 additional personnel for several years. If environmental standards allow mining in the lower bench and in the Creek bed, a 300 yard per hour operation could add another five or six years of non-concurrent mining. With positive bulk test results and concurrent mining, total potential mine life could be in the range of 10 to 15 years with a average rate of employment of 12 to 20 personnel.

4. Environmental Considerations: Waste and tailings must be dealt with in full compliance with the newly enacted environmental regulations. Mining and waste disposal will be facilitated because drilling, trenching and exposed contacts show the total gravel column in key target areas to be mostly in the 4 to 6 foot range with virtually no muck to about 3 feet of muck. The gravel is also very well washed, has a bare minimum of clay and, where checked, shows gold values from top to bottom. Water for sluicing on the high bench and, if allowed, in the low bench should be pumped initially from the Fifty Mile Creek at a point closest to the mining pit. To assist in effluent control, water should be re-circulated, with demands for additional water for replacement volume only. Effluent discharge to the Creek must be kept to a minimum, and held to a zero discharge level if required. Mining in the pups should be able to draw required water from the pups. Re-circulation, and discharge constraints given above will also apply to the pups. Settling must occur in established settling ponds. For the high bench these may have to be located on the high bench, and for the pups within the pup valley. Isolation of the high bench from the Creek bed will be facilitated as there is about a 35 foot shear vertical rise in bedrock from the bed to the high bench contact. Settling ponds within the Creek bed should be contemplated only if specifically allowed by stream classification and environmental regulation. Access to the site should be over the non-gazetted Matson Creek road, then east over the ridge line on an existing non-gazetted hard-rock mining access road, and then by new construction down into the 50 Mile valley through the pup covered by lease ID00099.

IX. AUTHOR'S QUALIFICATIONS:

Albert Rudis has 9 years of experience in exploration and evaluation of mining properties in Nevada. For over five years he served as the President of Nevada International, Inc., a small Nevada mining exploration and development corporation. Mr. Rudis also has extensive research and analytical experience with the U.S. Government, five years of which was in scientific research and development as an operations research analyst at a U.S. Navy Laboratory. For the past three years Mr. Rudis has lived in Dawson City, Yukon. During this period he has been involved in placer mining on a full time basis, and has conducted exhaustive research into both historical and current placer mining operations and procedures. He has assisted and advised local miners on a voluntary basis as requested, and has consulted with select local placer miners with emphasis on ground evaluation, processing plant effectiveness, and drilling procedure. Mr. Rudis has a BS degree in Geology from Trinity College, Connecticut, and an MBA from the University of Oregon.


141°00'
45'
30'
15'
64°00'
MOUNT NOLAN
BEDROCK HILL
Bedrock Creek
Sixty Mile River
Mosquito Creek
Boucher Ck
Butler Gulch
Huot Gulch
Gulch
Granite
MOUNT HART
Enchantment Ck
CRAG MOUNTAIN
Fifty Mile Creek
ALASKA
TERRITOIRE DU YUKON
ÉTATS-UNIS D'AMÉRIQUE
CANADA
Sixty Mile
KLO
YUK
Pine Creek
Swede Creek
Borden Ck
Christmas Creek
Matson
Marion
Creek
Ladue River
Deep Creek
45'
30'
6145
2500
3000
3500
4000
4500
2000
1500

Figure 1.

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XII. APPENDICES:

1. Table Of Assays, Trenching/Pan Samples
2. Claim Maps Showing Sample Site Locations
3. Photo Of Selected Gold Samples
4. Assay Certificates
5. Certification Of Costs Of Evaluation

APPENDIX 1: TABLE OF ASSAYS, TRENCHING/PAN SAMPLES, AND EVALUATION:

ASSESSMENT EVALUATION REPORT

DAWSON MINING DISTRICT
50 MILE CREEK

PLACER LEASES:
ID00097, ID00098, ID00099, ID00100

Location and Sediment Samples	Trenching / Pan Samples	Rock Samples
Lease *A* 63-50-52 140-32-51 Sample 15-1S 2.40%Fe 7ppb Au 75ppb Hg 26ppm Cu 5ppm Sb 16ppm Pb 77ppm Zn 2ppm Mo 5ppm As	1 pan sample of creek gravel No bedrock showing Au under 30X microscope	15-1F: Granitic float - oxidized pyrite 10ppb Au 65ppb Hg 13ppm Cu 21ppm Pb 69ppm Zn 5ppm Mo 1178ppm Ba 53ppm Zr
A 63-51-04 140-33-04 15-2S 6ppb Au 50ppb Hg 26ppm Cu 2ppm Mo 18ppm Pb 75ppm Zn 2.35%Fe 15-3SO 8ppb Au 20ppb Hg 32ppm Cu 2ppmMo 22ppm Pb 107ppm Zn 5.68%Fe 15-4MS: (Moss Sample) <5ppb Au <15ppb Pt 15ppb Hg 26ppm Cu 17ppm Pb 80ppZn 2.63% Fe	1 pan sample in decomposed bedrock 5' of gravel to contact Au under 30X microscope (micro) 1 pan in gravel above bedrock 1 Fl ake (Fl) Au 30X micro Au galena	*Note:* *<u>Lease A</u> - ID00100* *<u>Lease B</u> - ID00099* *<u>Lease C</u> - ID00098* *<u>Lease D</u> - ID00097*
A 63-51-06 140-33-10 15-5owms (Moss Sample) 13ppb Au 32ppm Cu 16ppm Pb 106ppm Zn 7ppm As 2ppm Mo 2.84%Fe	1 pan sample from existing L-shaped trench on small right limit bench: 20'X6' & 10'X5' 1 Fl Au 30X Micro Au Magnetite	
A 63-51-05 140-33-20 15-6S 7ppb Au 5ppb Hg 0.2ppm Ag 47ppm Cu 28ppm Pb 88ppm Zn 10ppm Ax 3ppm Mo 2.99% Fe 15-7: (Decomposed Bedrock) <5ppb Au 30ppb Hg 12ppm Cu 9ppm Pb 103ppm Zn 2pmm Mo 8.16% Fe	4 Samples taken - 1 pan each: #1 from 4'X6' right limit trench 2 small Fl Au, *round and flattened* #2 from decomposed bedrock on bench 30X Micro Au pyrite #3 gravel above decomposed bench bedrock 30X Micro Au #4 existing left limit pit 30X Micro Au	
A 63-51-12 140-33-36 From 150' wide altered fault gauge		15-8SO <5ppb Au Possibly 30X Micro Au 3ppm Mo 50ppm Cu 15ppm Pb 69ppm Zn 6ppm Sb 20ppb Hg 3.12% Fe

C 63-51-39 140-31-58		16-1 Altered Quartz Schist 1.04% Fe <5ppb Au 20ppb Hg 6ppm Cu 21ppm Zn 2ppm Mo
C 63-50-43 140-31-39 2.34%Fe 5ppb Au <15ppb Pt 24ppm Cu 15ppmPb	1 pan sample from gravel at South confluence of 3 streams 2 small Fl Au Abundant magnetite	
C 63-50-57 140-34-13 16-4S <5ppb Au 19ppm Cu 11ppm Pb 62ppmZn 2.00%Fe 10ppb Hg		Chip sample Quartz Muscovite Schist 16-5 <5ppb Au 10ppb Hg 5ppm Cu 10ppm Pb 47ppm Zn 1pmm Mo 1.31% Fe
C 63-51-17 140-35-06 16-6S <5ppb Au 5ppb Hg 19ppm Cu 11ppm Pb 63ppm Zn 5ppm As 1ppm Mo 2.02%Fe		
C 63-51-01 140-35-06 16-7S 7ppb Au 5ppb Hg 21ppm Cu 25ppm Pb 60ppm Zn 6ppm As 1ppm Mo 2.12%Fe		
C 50 Mile left limit		Sample of large slide material 1500 feet upstream of pup at Lease *A* Fe <5ppb Au 25ppb Hg 8ppm Cu 21ppm Zn 3ppmMo
C 63-50-51 140-31-39 Mouth of small pup between R and C 17-1S <5ppb Au <15ppb Pt 27ppm Cu 2ppmMo 14ppm Pb 74ppm Zn 5ppm As 2.21%Fe		
C 63-50-50 140-30-39		75' zone of atlered Quartz Muscovite Schist 17-2 2.71%Fe <5ppb Au 30ppb Hg 62ppm Cu 104ppm Zn 5ppm Sb 48ppm Ni 11ppm Pb 5ppm Sb 3ppm Mo

C 200' high X 400' left limit outcrop upstream of *B*. Noncalcarious Quartz Muscovite Schist		17-3AS: Schist 2.93%Fe <5ppb Au 25ppb Hg 61ppm Cu 113ppm Zn 6ppm Sb 3ppm Mo 18ppm Pb 6ppm Sb 3ppmMo
		17-3BQ: Included Quartz fragment from schist <5ppb Au 40ppb Hg 77ppm Cu 35ppm Zn 9ppm Sb 4ppm Mo 2.10% Fe
C Bar at mouth of right limit pup just upstream of *B*	17-4 2 pan sample of gravel - no bedrock 30X Micro Au	
C 75'X50' outcrop of fractured, altered Quartz Muscovite Biotite Shist on right limit just above lease *B*. This is the predominant rock type in the area just above B.		17-5: Schist 1.35%Fe 8ppmAs 2ppmMo <5ppb Au 15 ppb Hg 4ppm Cu 9ppm Pb 85ppmZn
	Half pan sample of decomposed more altered Schist Possible 30X Micro Au	17-6: More altered element of Schist <5ppb Au 45ppm Cu 141 ppm Zn 22ppm Pb 10 ppm Mo 10ppb Hg 0.3ppm Ag 3.17%Fe
C Mouth of pup of lease *B* 17-8S <5ppb Au 145ppm Hg 20ppm Cu 73ppm Zn 1ppm Mo 12ppm Pb 2.46%Fe	17-7: 1 pan sample from existing pit. No bed rock visible. Weighs about 12 grains in Au 30X Micro Au 1 pan from surface of bar downstream of pit 30X Micro Au	
A 63-50-45 140-32-52		18-1: Chip sample dense bluish Marble float showing 30X Micro pyrite dissemination. Also found outcropping at lease *B*. <5ppb Au 8ppm Cu 21ppm Pb 20ppm Zn 61ppm As 5ppm Sb 2ppm Mo 511ppm Sr 20 ppb Hg
A 300' downstream of fault at 15-8SO		18-2: Quartz from partially decomposed Quartz Muscovite Schist <5ppb Au 43ppm Cu 12ppm Pb 52ppm Zn 6ppm Sb 2ppm Mo 2.65% Fe
A 300' upstream of fault at 15-8SO	Pan sample taken three feet down into gravel. No bedrock . 30X Micro Au	

A 63-51-18 140-33-40 18-3S 8ppb Au <15ppm Pt 27ppm Cu 14ppmPb 74ppmZn 5ppm As 2ppm Mo 2.50% Fe		
A 63-51-28 140-33-59 Sample from the mouth of the first right limit branch to pup. 18-4S 2.70% Fe 6ppb Au 30ppb Hg 34ppm Cu 28ppm Pb 83ppm Zn 10ppm As 2ppm Mo		
A 63-51-28 140-33-59 Sample from the mouth of the first left limit branch to pup 18-5S 2.81% Fe <5ppb Au 29ppm Cu 21ppm Pb 7ppm As 1ppm Mo 79ppm Zn 2ppm Mo		
A 30' downstream of falult15-8SO FE <5ppb Au .1ppm Ag 60ppb Hg 32ppmCu 18ppm Pb 96ppm Zn 9ppm As 2ppm Mo		
B 63-31-48 140-28-47 20' upstream on first upper right limit tributary to pup (near fork) 19-1S 2.69% Fe <5ppb Au 25ppb Hg 41ppm Cu 92ppm Zn 1ppm Mo 32ppm Pb	500' upstream on right limit branch 19-3: 1 pan sample from stream gravel - no bedrock. Much black sands about 50% course magnetite. Possible Au inclusion in magnetite piece. 30X Micro Au. Lab pan analysis pending.	500' upstream on right limit branch 19-1A: Conglomerate Float Possible sparse magnetitie inclusion. Lab analysis pending 19-2: Chip sample Quartz Muscovite Biotite Calcite Schist float. 3.68%Fe 5ppm Sb 2ppm Mo <5ppb Au <15ppb Pt 34ppmCu 9ppmPb 71ppnZn
B 63-51-45 140-29-26 50' upstream on first upper left limit tributary to pup (near fork) In vicinity of previous 917ppb Au soil sample. 19-4S 2.68% Fe 78ppm Zn <5ppb Au 50ppb Hg 31ppm Cu 13ppmPb		

B 63-50-58 140-28-39 Several hundred feet downstream of fork 19-5S 15ppb Au <15ppbPt 25ppm Cu 11ppmPb 82ppm Zn 1ppm Mo 2.71% Fe		
C Vicinity of the first right limit pup into the 50 Mile downstream of *A*.	600' upstream on this pup - 1 pan sample in left limit gravel - no bedrock 1 medium Fl and 1 small Fl Au 19-9 1 pan sample of decomposed element of 19-8. Black sands pyrite	50 Mile right limit rock outcrop 300' upstream of this pup 19-6: 200' wide granitic gniess with major pyrite along gneiss bands 6ppb Au 17ppm Cu 13ppm Pb 24ppmZn 2ppm Mo 35ppb Hg 2.86% Fe 19-7: 200' wide possible monzonite 0.70% Fe 5ppb Au 4ppm Cu 16ppm Zn 15ppb Hg 19-8: 300' wide Quartz Muscovite Biotite Calcite Schist <5ppb Au 1386ppm Mn 598ppm Ba 4.76% Ca 3.16% Fe 15ppb Hg 28ppm Cu 6ppm Pb 69ppm Zn 2ppm Mo
D Vicinity of most downstream right limit pup on *D*. LHM-1S: 11ppb Au <15ppbPt 19ppm Cu 14ppmPb 35ppb Hg 2.13% Fe 61ppm Zn 1ppmMo LHM-2S 5ppb Au 40ppb Hg 13ppm Cu 12ppm Pb 67ppm Zn 14ppm Zn 2ppm Mo 2.32% Fe		LHM-1: Quartz Muscovite Schist 8ppb Au 33ppm Cu 44ppm Pb 115ppm Zn 5ppm Sb 1ppm Mo 15ppb Hg 1.69% Fe LHM-1B: Quartz Muscovite Schist <5ppb Au 20ppm Cu 8ppm Pb 47ppm Zn 2ppm Mo 15ppb Hg 1.09% Fe

A&B Headwaters feeder/enrichment zones		21A: Andesite <5ppb Au 1245ppm Mn 4ppm Pb 71ppm Zn 2ppm Mo 4.03% Ca 5ppb Hg 5.14% Fe 21A2: Andesite <5ppb Au 10ppm Pb 42ppm Zn 3ppm Mo 1318ppm Mn 4.94% Ca 5ppb Hg 4.30% Fe 21B: Quartz Monzonite with weathered pytite 9ppb Au .3ppm Ag 49ppm Cu 5ppm Pb 45ppmZn 53ppm As 5ppm Sb 15ppb Hg 21B2: Andesite 5ppb Hg <5ppb Au .1ppm Ag 4ppm Cu 68ppm Pb 165ppm Zn 945ppm Mn 3.30% Ca 5.55% Fe 21C: Conglomerate 15ppb Au 15ppb Hg 3ppm Pb 4ppm Zn 6ppm Sb 1ppm Mo 0.25% Fe 21C2: Granitoid - possibly Quartz Monzonite 39ppb Au 45ppb Hg 5.8ppm Ag 36ppm Cu 2367ppm Pb 26ppm Zn 33ppm As 20ppm Mo 3.99% Fe 21D: Gneiss <5ppb Au 5ppb Hg 7ppm Cu 25ppm Pb 1ppm Mo 3.24% Fe 54ppm Zn 21E: Granitoid <5ppb Au 26ppm Cu 20ppm Pb 53ppm Zn 1ppm Mo 2.67% Fe <5ppb Hg 21F: Andesite <5ppb Au 2ppm Cu 6ppm Pb 54ppm Zn 2ppm Mo 3.16% Fe 5ppb Hg

C Left limit bar at the mouth of *B*.	F28-1 1 full pan sample from existing pit - no bedrock Well washed gravel with abundant black sands Estimate $10/yard Au. Have concentrate.	
B About 200 yards upstream on the pup	F28-2 1 bucket sample from trench to bedrock on high bench. Estimate $8/yard Au. Gravel well-washed with magnetite.	
C Existing trench at mouth of pub *B*	F28-3 Half pan sample as recheck different trench area About $9/yard Au. Concentrate held F28-4 Half pan sample recheck different trench area About $10/yard Au. Concentrate held F28-5 Full pan taken at midway depth of trench (at 2 feet) 5 medium Fl 20 small Fl Au. Estimate .3 to .4 grains Au. Gold bright yellow, small, flat but angular. Abundant black sands. Concentrate held. F28-6 Full pan taken at top of trench (4 feet above bottom) 1 small Fl Au 30X Micro Au Some black sands	
C 10'X3'X6' trench opposite and upstream of contact with high bench. No muck present. Very little clay in a very well washed gravel.	29-1 1 yard sample taken down to 41/2' depth. Gravel coarsely sorted with several large boulders present. Much fine black sands. No bedrock. 5 Fl and 20 fly spec (Fs) Au. 29-2 1/4 yard sample taken from 41/2 feet to 6 feet. Hit water at 5'. No bedrock seen. Sample taken under water with considerable slumping. Lots of black sand with garnet and magnetite. More than four times the gold weight than 29-1. 7 medium Fl Au.	

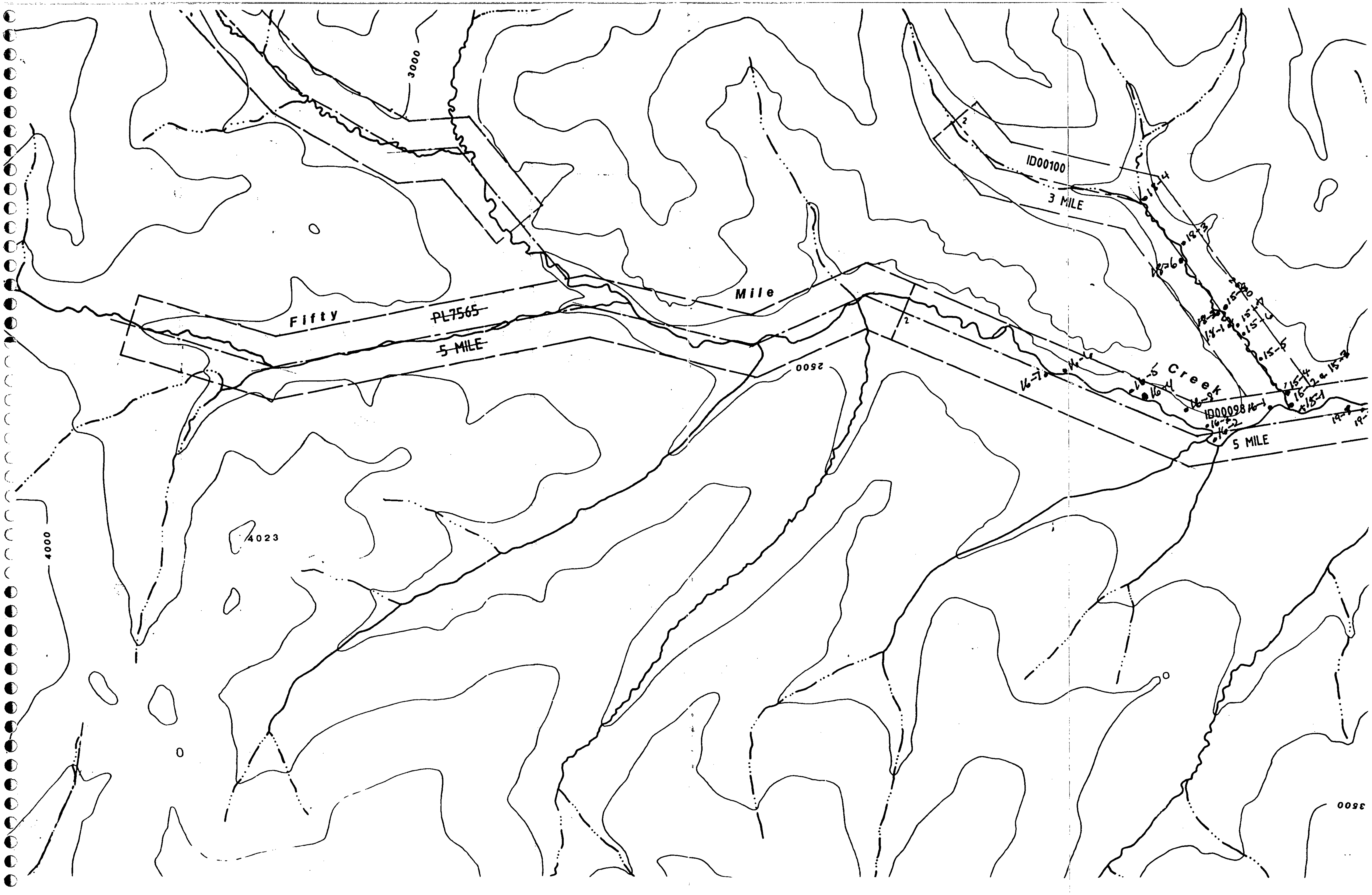
C 8'X3'X4' trench on *B* pup left limit high bench 90' from the mouth of the pup. High bench is over 30' above low bench. Virtually no muck, and little clay in the gravel. Poorly sorted exceptfor first foot above bedrock.	F30-1 1/3 bucket sample from middle of cut top to 6" above bottom. No bedrock taken. 1Fs Au 30X Micro Au. F30-2 1/2 yard sample down to bedrock. No bedrock penetration. Dropped portion of concentrate before gold count, and so results could have been higher. 8 Fs Au.	
C 5'X5'X4' trench on *B* pup left limit high bench. Located 50' from F30-1 pit. Visual scan indicates that the high and low benches on the pup could be the same as those on the 50 Mile right limit	F30-3 Half yard sample across 4 feet to top of bedrock. Bedrock not taken. Gold is angular and not hammered. 3 Fl and 16 Fs Au.	
B Trench, 3'X3'X5' on low bench remnant 600' upstream from mouth of pup.	F31-1 1 yard sample top to bottom. Did not reach bedrock and took a mix of gravel and slide rock. 30X Micro Au, a few Fs Au and abundant heavy black sands present.	
B Trench, 3'X3'X5' on low bench remnant 590' upstream from mouth of pup.	F31-2 1/2 sample. Infiltration from slide rock. Took from about 5' above to 3' above estimated bedrock. Abundant heavy black sands difficult to separate from gold. A few Fs Au and 30X Micro Au.	
B Trench, 6'X3'X5' on high bench remnant 600' upstream from mouth of pup. above low bench. 2' to 3' of slide material High bench is 30' removed to get to gravel trench level. Virtually no muck. Gravel very well washed with a minimum of clay.	F1-1 1 yard sample from below slide rock to bedrock (3' to 6'). 6" of slabby schist bedrock also taken. Some mixture of slide rock. A lot of heavy black sands make fine gold difficult to separate. 3.1 grains Au per yard weighed. Gold is angular, flatish but not hammered. Photo at Appendix 3.	
B Trench, 6'X3'X5' on high bench remnant 570' upstream from mouth of pup. High bench is 30' above low bench. 1' to 2' of slide material removed to get to gravel trench level. Virtually no muck. Gravel very well washed with a minimum of clay.	F1-2 1/2 yard sample from 2 1/2 feet above bedrock. Little to nl slide rock mixed in. Gold similar to that in F1-1. 7.1 grains Au per yard weighed. Photo at Appendix 3.	

B F31-1 trench sampled again in attempt to avoid slide material and get closer to bedrock. Bedrock not reached and slide rock still infiltrated.	F2-1 1/4 yard sample showed about same as sample F31-1. Abundant black sands. One piece of magnetite showed possible inclusion of Au. A few Fs Au noted.	
C Existing 3'X8'X4' trench at mouth of B pup. Trench sampled also at F28--1	F2-2 1/4 yard sample from top of trench to water level at about 4'. No bedrock seen. Gold angular, flatish, but not overly hammered. Au weighed 14.2 grains per yard, and is shown in Appendix 3.	
C Trench on 50 Mile right limit slope of bedrock ridge formed by resistant blocky Quartz Augen Schist. This ridge likely formed a dam which has implications for Au deposition on both sides of the ridge. Gravel deposited is onthe archaic downside dam slope. Ridge is locateda few hundred feet upstream of B pup mouth.	F2-3 1/4 yard sample. Bedrock is a blocky and slabby Quartz Augen Schist, and was not penitrated. Abundant magnetite. Fs Au is present, but is hard to separate. Gold is flat and light. Pan concentrate analysis pending at lab.	
B About 2km upstream on pup.		F3-1A: Conglomerate float with dark black matrix 10ppb Au <15ppb Pt 0.9ppm Ag 23 ppm Cu 476ppm Pb 324ppb Zn 15ppm As 17ppm Mo 315ppm Bs 4.09%Fe. These minerals are consistent with an auriferous paleoplacer deposit. F3-1B: Quartz Muscovite Schist <5ppb Au 30ppb Hg .1ppm Ag 12ppm Cu 15ppm Pb 17ppm Zn 4ppm Mo 6.70% Fe F3-1C: Altered Quartz Muscovite Schist <5ppb Au 15ppb Hg 0.1ppm Ag 29ppm Cu 15ppm Pb 25ppm Zn 28ppm As 3.09% Fe
B About 3km upstream on pup. Adjacent high benches show gravel. Lower valley about 600' wide. Silt that shows is about 2' and gravel 6'.	F3-3 5'X2' existing hand pit. Water at 2.5' and no bedrock seen. 1 pan sample shows no visible Au and some black sand. On right limit	F3-2: Dark intrusive (Andesite) float <5ppb Au 15ppb Hg 21ppm Cu 13ppm Pb 54ppm Zn 42ppm As 3ppm Mo 276ppm Ba 3.59% Fe

B 3km upstream on pup. On right limit	F3-4 Test pit down to 2". At 1 foot into gravel ran in a 6" layer of muck which formed a false bedrock. This sample taken above this false bedrock. Black sands with no garnet. No visible gold.	F3-5: Conglomerate float showing coarse magnetite 18ppb Au <15ppb Pt 0.1ppm Ag 13ppm Cu 13ppm Pb 60ppm Zn 24ppm As 2ppm Mo 1.41% Fe F3-6: 4' vein of mostly quartz from schist <5ppb Au 5ppb Hg 3ppm Cu 9ppm Pb 10ppmZn 18ppm As 0.47% Fe
B 1.5km upstream on pup. Just above canyon and on right limit	F3-8 One bucket sample from hand pit. (of F3-7) About 1' above bedrock taken, and about 6" of bedrock. 6 Fl Au Abundant black sands	F3-7 Decoposed 4"X?X? seam of black decomposed bedrock. Very heavy in black sands with abundant magnetite. Host bedrock is Quartz Muscovite Biotite Calcite schist. Possible 30X Micro Au noted. 46ppb Au **4ppm Hg** 0.1ppm Ag 21ppm Cu 32ppm As 1ppm Mo 392ppm Sr 7.39% Ca 2.48% Fe
B 1.5 km upstream on pup, just above canyon. On a left limit bench that runs about 800'X1000'. Bench appears flat with silt washed offf and gravel exposed on surface.	F3-9 3 bucket sample. Little slide rock contamination. Gravel is about 5' thick with no silt. Two feet above bedrock and 4" of bedrock taken. Au weighs 4.0 grains per yard and can be seen at Appendix 3.	F3-10 Altered quartzitic float, apparently from local schist. Rose colored in zones. <5ppb Au 8ppm Cu 2ppm Pb 10ppm Zn 2ppm Mo 0,54% Fe
D 1km downstream of pup at *B* At location of second camp site.	F5-1 From lower bench shallow existing pit. One pan of material from three feet down. No water and no bedrock in sight. Abundant clear garnet and magnetite.	
D First ledt limit creek downstream from pup at *B* on 50 Mile. About 3 km down.	F5-2 1 bucket sample from upper bench, right limit at small creek's mouth. Two feet to bedrock. No bedrock taken. 2 small Fl Au.	F5-3 Quartz Muscovite Schist chip sample. <5ppb Au 5ppm Cu 9ppm Pb 10ppm Zn 11ppm As 2ppm Mo 0.66% Fe

D 350 feet downstream from camp 2, on right limit upper bench. Upper bench is 30' above lower bench.	F6-1 Test trench with 6' of gravel and virtually no muck. Gravel is tight and stratified. Bedrock is fractured and blocky Quartz Muscovite Schist laying at a steep "god trap" angle. Clean sample with a minimum of slide rock. The 3.5' above bedrock taken. No bedrock penetration. Au weighs 2.5 grains per yard, and is shown at Appendix 3.	
D 350 feet upstream from camp 2, on right limit upper bench	F7-1 Test trench with 5.5' of gravel and virtually no muck. Gravel is less consolidated than F6-1, and may have been partially reworked by adjacent creek flow. Considerable sluff has diluted sample. Virtually no clay present. Loosely compacted and not well stratified. Bedrock slaby, broken schist with large fissures. Could not get into fissures. 3.5 feet above bedrock taken with no bedrock penetration. Au weighs 0.8 grain per yard, and can be seen at Appendix 3.	
D 600' feet downstream of sample site F6-1 on right limit upper bench.	F8-1 5' of gravel shows some gold top to bottom. Material well stratified, tight and shows little to no sluff. A little caly is present, but only near bedrock. Bench is 35' above lower bench at this point. Bedrock is slabby schist and has fractures with gravel filling. Sample taken top to bottom. There was no bedrock penetration. 1 yard sample. Abundant black sands. 1 piece of galena. Sample compromised as concentrates partially dumped accidentially after 25 half buckets run. Au weighs 1grain per yard, and can be seen at Appendix 3.	
D Helicopter drop to mouth of 2nd pup below pup at *B*. Small water course with narrow valley - but fly over recon shows a widdening and gravels upstream. An upper bench is present.	F9-1 A ltle gravel was found on a remant right limit bench 30' up-slope and 150' in from the pup mouth. Took about 4" of gravel with alluvial and some bedrock. Bedrock fractured and blocky. 3/4 bucket run. Normal (not excessive) black sands. One magnetite heavy may have included Au. No conglomerate float seen. 3 Fl and 9 Fs Au.	F9-2 Quartz Muscovite Schist chip sample. Little mica and sparse pyrite. 300 ' downstream of pup mouth. No conglomerate noted in 50 Mile Creek bed. <5ppb Au 0.1ppm Ag 22ppm Cu 4ppm Pb 11ppm Zn 20ppm As 3ppm Mo 1.17% Fe

D Helicopter drop to mouth of 3rd pup below pup at *B*. Long, broad (750") delta at mouth. Helicopter recon shows considerable gravel upstream on pup. Helicopter recon shows extensive gravel upstream on the pup.	F9-3 Sample on pup 200' upstream from 50 Mile. 1 bucket taken down to about 3' in the gravel. No silt noted where sampled. No bedrock indications seen. No visible Au, and sparce black sands.	
D Rock samples taken in vicinity of camp 2.		G-1: Brown matrix conglomerate float. 16ppb Au <15ppb pt 0.3ppm Ag 12ppm Cu 83ppm Pb 18ppm Zn 98ppm As 1ppm Mo 1.32% Fe
		G-2: Grey matrix conglomerate float. 10ppb Au <15ppb Pt 22ppm Cu 9ppm Zn 14ppm As 3ppm Mo 1.38% Fe
		G-3: Quartz from 50 Mile left limit Quartz Muscovite Shist <5ppb Au 0.3ppm Ag 33ppm Cu 68ppm Pb 16ppm Zn 0.54% Fe
		G-4: Assorted mixed conglomerate float <5ppb Au 0.2ppb Ag 13ppm Cu 40ppm Pb 108ppm Zn 39ppm As 2ppm Mo 1.07% Fe



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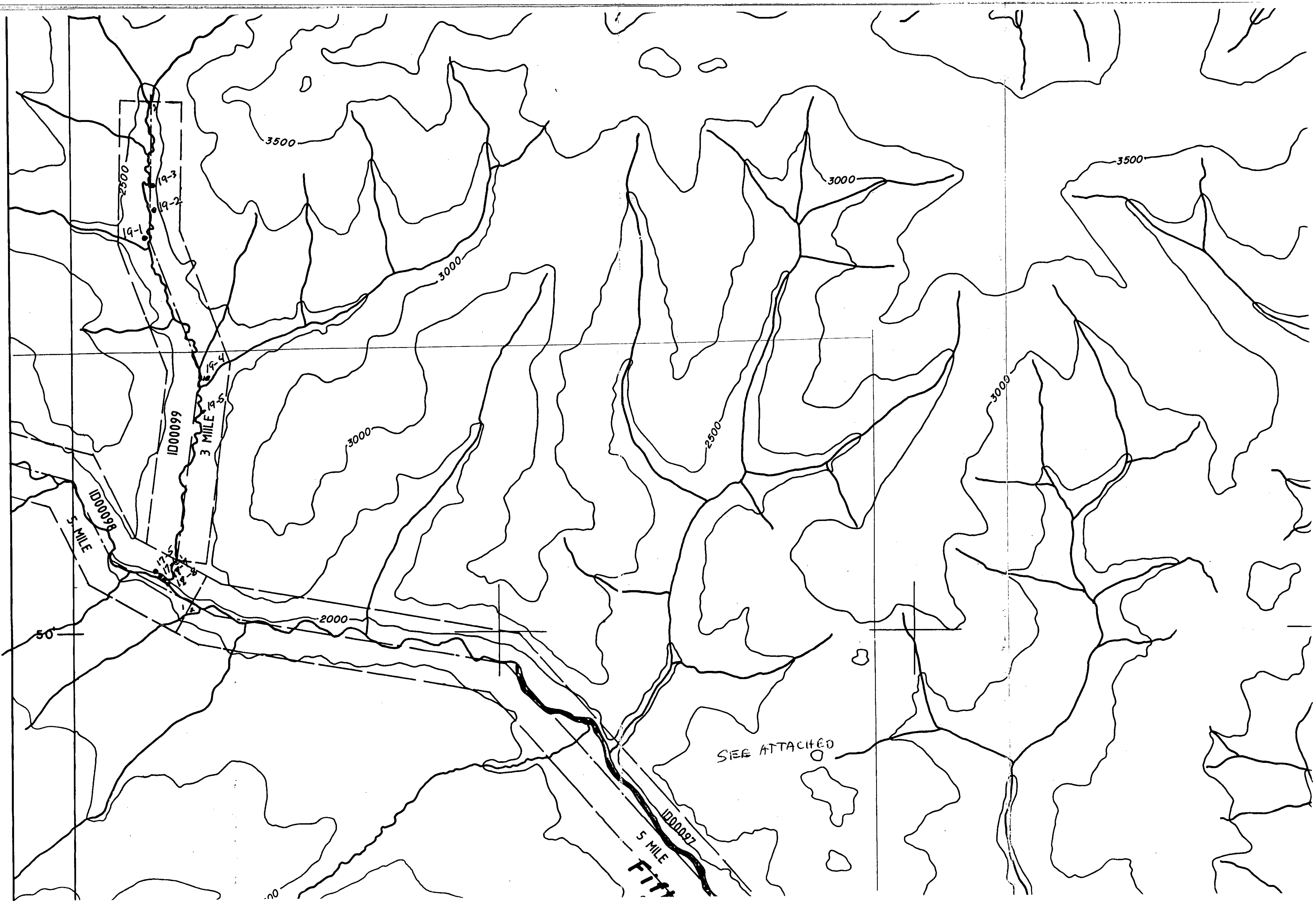

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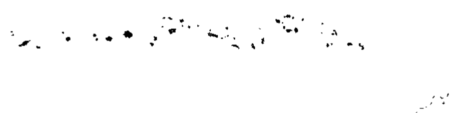
ID00097
5 MILE
F1
F2-1
F28-2
F29-1
F9-2
3-7
3-8
3-9
3-10

Sample 6-1 (1 yard) - 2.50 Gr

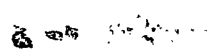
Sample 3-9 (3 bucket 1/8 yard) - 0.50 Gr



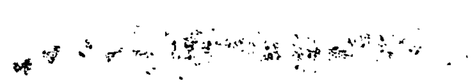
Sample F1-1 (1 yard) - 3.10 Gr

Sample F1-2 (1/2 yard) - 3.55 Gr

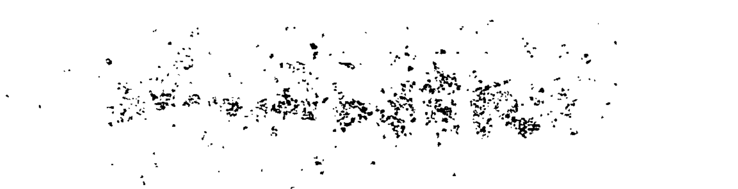
Sample F7-1 (1 yard) - 0.80 Gr



Sample F8-1 (1 yard) - 1.00 Gr



Sample F2-2 (1/4 yard) - 3.55 Gr



CERTIFICATE OF ANALYSIS
iPL 98I1015

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Northern Analytical Laboratories

18 Samples Out: Sep 28, 1998 In: Sep 22, 1998 [101515:23:30:89092898]

Project : W.O. 5610
Shipper : Norm Smith
Shipment: PO#: 054572

Analysis:
Au/Pt/Pd(FA/AAS 30)
ICP(AqR)30 Hg(CVA)

Comment:

CODE	AMOUNT	TYPE	PREPARATION DESCRIPTION	PULP	REJECT
B311	18	Pulp	Pulp received as it is, no sample prep.	12M/Dis	00M/Dis

NS=No Sample Rep=Replicate M=Month Dis=Discard

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DL	3D	EM	BT	BL
0	0	0	0	0

Ph:867/668-4968
Fx:867/668-4890
Em:NAL@hypertech.yk.ca

Analytical Summary

##	Code	Method	Units	Description	Element	Limit Low	Limit High
01	0313	FA/AAS	ppb	Au FA/AAS finish 30g	Gold	2	10000
02	0331	FA/AAS	ppb	Pt FA/AAS finish 30g	Platinum	15	10000
03	0341	FA/AAS	ppb	Pd FA/AAS finish 30g	Palladium	5	10000
04	0520	CVA	ppb	Hg Cold Vapor/AAS	Mercury	5	10000
05	0721	ICP	ppm	Ag ICP	Silver	0.1	100.0
06	0711	ICP	ppm	Cu ICP	Copper	1	20000
07	0714	ICP	ppm	Pb ICP	Lead	2	20000
08	0730	ICP	ppm	Zn ICP	Zinc	1	20000
09	0703	ICP	ppm	As ICP	Arsenic	5	10000
10	0702	ICP	ppm	Sb ICP	Antimony	5	1000
11	0732	ICP	ppm	Hg ICP	Mercury	3	10000
12	0717	ICP	ppm	Mo ICP	Molydenum	1	1000
13	0747	ICP	ppm	Tl ICP (Incomplete Digestion)	Thallium	10	1000
14	0705	ICP	ppm	Bi ICP	Bismuth	2	10000
15	0707	ICP	ppm	Cd ICP	Cadmium	0.1	100.0
16	0710	ICP	ppm	Co ICP	Cobalt	1	10000
17	0718	ICP	ppm	Ni ICP	Nickel	1	10000
18	0704	ICP	ppm	Ba ICP (Incomplete Digestion)	Barium	2	10000
19	0727	ICP	ppm	W ICP (Incomplete Digestion)	Tungsten	5	1000
20	0709	ICP	ppm	Cr ICP (Incomplete Digestion)	Chromium	1	10000
21	0729	ICP	ppm	V ICP	Vanadium	2	10000
22	0716	ICP	ppm	Mn ICP	Manganese	1	10000
23	0713	ICP	ppm	La ICP (Incomplete Digestion)	Lanthanum	2	10000
24	0723	ICP	ppm	Sr ICP (Incomplete Digestion)	Strontium	1	10000
25	0731	ICP	ppm	Zr ICP	Zirconium	1	10000
26	0736	ICP	ppm	Sc ICP	Scandium	1	10000
27	0726	ICP	%	Ti ICP (Incomplete Digestion)	Titanium	0.01	1.00
28	0701	ICP	%	Al ICP (Incomplete Digestion)	Aluminum	0.01	10.00
29	0708	ICP	%	Ca ICP (Incomplete Digestion)	Calcium	0.01	10.00
30	0712	ICP	%	Fe ICP	Iron	0.01	10.00
31	0715	ICP	%	Mg ICP (Incomplete Digestion)	Magnesium	0.01	10.00
32	0720	ICP	%	K ICP (Incomplete Digestion)	Potassium	0.01	10.00
33	0722	ICP	%	Na ICP (Incomplete Digestion)	Sodium	0.01	5.00
34	0719	ICP	%	P ICP	Phosphorus	0.01	5.00

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DL=Download 3D=3½ Disk EM=E-Mail BT=BBS Type BL=BBS(1=Yes 0=No) ID=C030901
* Our liability is limited solely to the analytical cost of these analyses.

BC Certified Assayer: David Chiu

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iPL 98I1015

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Client : Northern Analytical Laboratories
Project: W.O. 5610

18 Samples
18=Pulp

[101515:23:30:89092898]

Out: Sep 28, 1998
In : Sep 22, 1998

Sample Name	Type	Au ppb	Pt ppb	Pd ppb	Hg ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm
F3 - 10	Pulp	—	—	—	—	<0.1	8	2	10	<5	<5	<3	2	<10	<2	1.0	2	7	28
F5 - 3	Pulp	—	—	—	—	<0.1	5	9	10	11	<5	<3	2	<10	<2	1.5	3	8	76
F9 - 2	Pulp	—	—	—	—	0.1	22	4	11	20	<5	<3	3	<10	<2	2.4	4	11	132
G - 4	Pulp	—	—	—	—	0.2	13	40	108	39	<5	<3	2	<10	<2	2.3	13	13	179
F3 - 1b	Pulp	—	—	—	30	0.1	12	15	17	<5	<5	<3	4	<10	<2	13.4	13	56	11
F3 - 1c	Pulp	—	—	—	15	0.1	29	15	25	28	<5	<3	<1	<10	<2	5.9	7	14	99
F3 - 2	Pulp	—	—	—	15	<0.1	21	13	54	42	<5	<3	3	<10	<2	7.3	21	20	276
F3 - 6	Pulp	—	—	—	5	<0.1	3	9	10	18	<5	<3	<1	<10	<2	1.0	2	7	46
F5 - 4	Pulp	—	—	—	5	<0.1	4	<2	11	18	<5	<3	1	<10	<2	2.1	4	6	36
G - 3	Pulp	—	—	—	<5	0.3	33	68	16	<5	<5	<3	<1	<10	<2	1.1	1	4	33
F1 - 1	Pulp	86m	<15	5	—	6.5	28	42	59	<5	<5	<3	2	<10	<2	73.9	26	38	46
F3 - 1a	Pulp	10	<15	<5	—	0.9	23	476	324	15	<5	<3	17	<10	<2	11.6	5	12	315
F3 - 5	Pulp	18	<15	<5	—	0.1	13	13	60	24	<5	<3	2	<10	<2	3.0	3	15	180
F3 - 9	Pulp	84m	<15	<5	—	7.6	33	47	66	<5	<5	<3	3	<10	18	69.7	33	45	889
F7 - 1	Pulp	56m	<15	<5	—	5.1	29	69	79	39	<5	<3	<1	<10	<2	84.0	32	60	73
G - 1	Pulp	16	<15	<5	—	0.3	12	83	18	98	<5	<3	1	<10	<2	2.6	2	9	158
G - 2	Pulp	10	<15	<5	—	<0.1	22	<2	9	14	<5	<3	3	<10	<2	2.5	3	15	248
F3 - 7	Pulp	46	<15	<5	110	0.1	21	32	38	32	<5	4	1	<10	<2	5.1	28	165	202
Minimum Detection		2	15	5	5	0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2
Maximum Detection		10000	10000	10000	10000	100.0	20000	20000	20000	10000	1000	10000	1000	1000	10000	100.0	10000	10000	10000
Method		FA/AAS	FA/AAS	FA/AAS	CVA	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

—=No Test Ins=Insufficient Sample Del=Delay Max=No Estimate Rec=ReCheck m=x1000 %=Estimate % NS=No Sample

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Client : Northern Analytical Laboratories
Project: W.O. 5610

18 Samples
18=Pulp

[101515:23:30:89092898]

Out: Sep 28, 1998
In : Sep 22, 1998

Sample Name	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
F3 - 10	<5	267	6	93	4	7	1	<1	<0.01	0.08	0.11	0.54	0.02	0.04	0.01	0.01
F5 - 3	<5	209	6	104	21	19	1	1	<0.01	0.30	0.46	0.66	0.08	0.23	0.04	0.04
F9 - 2	5	335	11	79	4	9	2	1	<0.01	0.47	0.05	1.17	0.22	0.08	0.01	0.01
G - 4	47	128	7	284	15	55	7	1	0.01	0.50	0.93	1.07	0.22	0.19	0.05	0.03
F3 - 1b	<5	186	10	63	<2	9	13	1	0.04	0.38	0.04	6.70	0.04	0.40	<0.01	0.01
F3 - 1c	6	258	10	205	17	15	3	2	0.05	1.16	0.13	3.09	0.30	0.48	0.03	0.03
F3 - 2	<5	93	213	323	21	113	3	4	0.33	1.59	1.13	3.59	0.86	0.83	0.17	0.22
F3 - 6	<5	140	7	103	3	36	1	<1	0.02	0.51	0.36	0.47	0.09	0.11	0.05	0.01
F5 - 4	<5	106	8	105	22	9	1	1	0.01	0.58	0.39	1.19	0.28	0.17	0.03	0.07
G - 3	<5	102	3	35	8	7	3	<1	0.01	0.13	0.08	0.54	0.03	0.04	0.06	0.04
F1 - 1	164	238	1061	538	29	15	13	2	0.12	0.33	0.55	23%	0.09	<0.01	<0.01	0.16
F3 - 1a	<5	98	24	2421	5	8	3	<1	<0.01	0.18	0.04	4.09	0.01	0.07	<0.01	0.03
F3 - 5	<5	184	18	219	10	8	3	1	<0.01	0.37	0.05	1.41	0.04	0.12	<0.01	0.02
F3 - 9	101	272	904	791	44	50	13	3	0.20	0.70	1.26	21%	0.25	0.03	<0.01	0.31
F7 - 1	344	437	1016	1095	62	20	18	3	0.13	0.47	0.85	24%	0.11	<0.01	<0.01	0.25
G - 1	8	187	26	102	7	9	3	<1	<0.01	0.13	0.04	1.32	0.01	0.08	<0.01	0.01
G - 2	<5	244	26	123	15	16	4	1	0.03	0.50	0.09	1.38	0.06	0.20	0.01	0.03
F3 - 7	5	152	50	579	9	392	3	3	0.17	1.19	7.39	2.48	1.31	0.10	0.11	0.24
Minimum Detection	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Maximum Detection	1000	10000	10000	10000	10000	10000	10000	10000	1.00	10.00	10.00	10.00	10.00	10.00	5.00	5.00
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

——=No Test Ins=Insufficient Sample Del=Delay Max=No Estimate Rec=ReCheck m=x1000 %=Estimate % NS=No Sample

Northern Analytical Laboratories ltd.

24/10/97

Assay Certificate

Al.Rudis

WO# 07957

Certified by ________________

Sample #	Au-15g ppb	Au-30g ppb
JL-P1	596	
JL-SLV	98	
LHM-1	8	
LHM-1B	<5	
LHM-2S	5	
15-1F	10	
15-1S	7	
15-2S	6	
15-3SO	8	
15-4MS	<5	
15-6S	7	
15-7'	<5	
15-8SO	<5	
16-1'	<5	
16-4S	<5	
16-5'	<5	
16-6S	<5	
16-7S	7	
16-8SL	<5	
17-2'	<5	
17-3AS	<5	
17-3BQ	<5	
17-5'	<5	
17-6'	<5	
17-8S	<5	
18-1'	<5	
18-2'	<5	
18-4S	6	
18-5S	<5	
18-6S	<5	

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24/10/97 Assay Certificate

Al.Rudis WO# 07957

Certified by ________________

Sample #	Au-15g ppb	Au-30g ppb
19-1S	<5	
19-4S	<5	
19-6'	6	
19-7'	5	
19-8'	<5	
21A	<5	
21A2	<5	
21B	9	
21B2	<5	
21C	15	
21C2	39	
21D	<5	
21E'	<5	
21F	<5	
LHM-1S		11
15-5OWMS		14
16-2S		5
17-1S		<5
18-3S		8
19-2'		<5
19-5S		15

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iPL
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Northern Analytical Laboratories **7 Samples** Out: Nov 04, 1997 In: Oct 28, 1997 [108516:54:14:79110497]

Project : W.O.7957
Shipper : Norm Smith
Shipment: PO#: 332341
Analysis:
Pt/Pd(FA/AAS 30g) ICP(AqR)30

Comment:

CODE	AMOUNT	TYPE	PREPARATION DESCRIPTION	PULP	REJECT
B311	7	Pulp	Received as it is, no sample prep.	12M/Dis	00M/Dis

NS=No Sample Rep=Replicate M=Month Dis=Discard

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Analytical Summary

##	Code	Method	Units	Description	Element	Limit Low	Limit High
01	0331	FA/AAS	ppb	Pt FA/AAS finish 30g	Platinum	15	10000
02	0341	FA/AAS	ppb	Pd FA/AAS finish 30g	Palladium	5	10000
03	0721	ICP	ppm	Ag ICP	Silver	0.1	100.0
04	0711	ICP	ppm	Cu ICP	Copper	1	20000
05	0714	ICP	ppm	Pb ICP	Lead	2	20000
06	0730	ICP	ppm	Zn ICP	Zinc	1	20000
07	0703	ICP	ppm	As ICP	Arsenic	5	10000
08	0702	ICP	ppm	Sb ICP	Antimony	5	1000
09	0732	ICP	ppm	Hg ICP	Mercury	3	10000
10	0717	ICP	ppm	Mo ICP	Molydenum	1	1000
11	0747	ICP	ppm	Tl ICP (Incomplete Digestion)	Thallium	10	1000
12	0705	ICP	ppm	Bi ICP	Bismuth	2	10000
13	0707	ICP	ppm	Cd ICP	Cadmium	0.1	100.0
14	0710	ICP	ppm	Co ICP	Cobalt	1	10000
15	0718	ICP	ppm	Ni ICP	Nickel	1	10000
16	0704	ICP	ppm	Ba ICP (Incomplete Digestion)	Barium	2	10000
17	0727	ICP	ppm	W ICP (Incomplete Digestion)	Tungsten	5	1000
18	0709	ICP	ppm	Cr ICP (Incomplete Digestion)	Chromium	1	10000
19	0729	ICP	ppm	V ICP	Vanadium	2	10000
20	0716	ICP	ppm	Mn ICP	Manganese	1	10000
21	0713	ICP	ppm	La ICP (Incomplete Digestion)	Lanthanum	2	10000
22	0723	ICP	ppm	Sr ICP (Incomplete Digestion)	Strontium	1	10000
23	0731	ICP	ppm	Zr ICP	Zirconium	1	10000
24	0736	ICP	ppm	Sc ICP	Scandium	1	10000
25	0726	ICP	%	Ti ICP (Incomplete Digestion)	Titanium	0.01	1.00
26	0701	ICP	%	Al ICP (Incomplete Digestion)	Aluminum	0.01	10.00
27	0708	ICP	%	Ca ICP (Incomplete Digestion)	Calcium	0.01	10.00
28	0712	ICP	%	Fe ICP	Iron	0.01	10.00
29	0715	ICP	%	Mg ICP (Incomplete Digestion)	Magnesium	0.01	10.00
30	0720	ICP	%	K ICP (Incomplete Digestion)	Potassium	0.01	10.00
31	0722	ICP	%	Na ICP (Incomplete Digestion)	Sodium	0.01	5.00
32	0719	ICP	%	P ICP	Phosphorus	0.01	5.00

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Client : Northern Analytical Laboratories
Project: W.O.7957

7 Samples
7=Pulp

[108516:54:14:79110497]

Out: Nov 04, 1997
In : Oct 28, 1997

Sample Name	Type	Pt ppb	Pd ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm
15 - 5owms	Pulp	<15	<5	<0.1	32	16	106	7	<5	<3	2	<10	<2	0.4	14	36	193	<5	43
16 - 2s	Pulp	<15	<5	<0.1	23	15	72	6	5	<3	2	<10	<2	0.3	11	21	226	<5	28
17 - 1s	Pulp	<15	<5	<0.1	15	10	65	<5	<5	<3	1	<10	<2	0.1	11	23	128	<5	27
18 - 3s	Pulp	<15	<5	<0.1	27	14	74	5	<5	<3	2	<10	<2	0.4	13	39	192	<5	50
19 - 2	Pulp	<15	<5	<0.1	34	9	71	<5	5	<3	2	<10	<2	<0.1	22	7	239	<5	88
19 - 5s	Pulp	<15	<5	<0.1	25	11	82	<5	<5	<3	1	<10	<2	0.2	13	25	220	<5	36
LHM - 1s	Pulp	<15	<5	<0.1	19	14	61	<5	<5	<3	1	<10	<2	0.2	10	19	215	<5	23
Minimum Detection		15	5	0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2	5	1
Maximum Detection		10000	10000	100.0	20000	20000	20000	10000	1000	10000	1000	1000	10000	100.0	10000	10000	10000	1000	10000
Method		FA/AAS	FA/AAS	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

—=No Test Ins=Insufficient Sample Del=Delay Max=No Estimate Rec=ReCheck m=x1000 %=Estimate % NS=No Sample

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Client : Northern Analytical Laboratories
Project: W.O.7957

7 Samples
7=Pulp

[108516:54:14:79110497]

Out: Nov 04, 1997
In : Oct 28, 1997

Sample Name	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
15 - 5owms	60	473	13	50	1	4	0.10	1.74	0.75	2.84	0.93	0.15	0.03	0.11
16 - 2s	52	338	17	36	3	4	0.07	1.40	0.55	2.34	0.55	0.07	0.03	0.07
17 - 1s	38	304	15	32	2	3	0.06	1.23	0.52	2.21	0.77	0.11	0.02	0.10
18 - 3s	57	430	13	46	2	3	0.08	1.50	0.67	2.50	0.78	0.12	0.03	0.08
19 - 2	90	637	9	78	1	7	0.17	2.63	1.53	3.68	1.84	0.89	0.24	0.12
19 - 5s	59	413	10	42	2	4	0.09	1.66	0.62	2.71	1.03	0.16	0.03	0.07
LHM - 1s	45	250	13	33	2	3	0.07	1.18	0.53	2.13	0.55	0.09	0.03	0.08
Minimum Detection	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Maximum Detection	10000	10000	10000	10000	10000	10000	1.00	10.00	10.00	10.00	10.00	10.00	5.00	5.00
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

—=No Test Ins=Insufficient Sample Del=Delay Max=No Estimate Rec=ReCheck m=x1000 ▼=Estimate ▼ NS=No Sample

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Northern Analytical Laboratories

49 Samples Out: Jul 27, 1998 In: Jul 15, 1998 [068914:25:00:89072798]

Project : WO# 05533
Shipper : Norm Smith
Shipment: PO#:

Analysis:
Hg(CVA)

Comment:
Pulps from 97J1084 & 97J1085

CODE	AMOUNT	TYPE	PREPARATION DESCRIPTION	PULP	REJECT
B311	49	Pulp	Pulp received as it is, no sample prep.	12M/Dis	00M/Dis

NS=No Sample Rep=Replicate M=Month Dis=Discard

Analytical Summary

##	Code	Method	Units	Description	Element	Limit Low	Limit High
01	0520	CVA	ppb	Hg Cold Vapor/AAS	Mercury	5	10000

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Client : Northern Analytical Laboratories
Project: WO# 05533

49 Samples
49=Pulp

[068914:25:00:89072798]

Out: Jul 27, 1998
In : Jul 15, 1998

Sample Name		Hg ppb	Sample Name		Hg ppb	Sample Name	Hg ppb	Sample Name	Hg ppb	Sample Name	Hg ppb	Sample Name	Hg ppb
15 - 1f	P	65	LHM - 1	P	15								
15 - 1s	P	75	LHM - 1b	P	15								
15 - 2s	P	50	LHM - 2s	P	40								
15 - 3so	P	20	15 - 5owms	P	75								
15 - 4ms	P	15	16 - 2s	P	65								
15 - 6s	P	20	17 - 1s	P	25								
15 - 7	P	30	18 - 3s	P	50								
15 - 8so	P	25	19 - 2	P	60								
16 - 1	P	20	19 - 5s	P	30								
16 - 4s	P	10	LHM - 1s	P	35								
16 - 5	P	10											
16 - 6s	P	5											
16 - 7s	P	5											
16 - 8s1	P	25											
17 - 2	P	30											
17 - 3as	P	25											
17 - 3bq	P	40											
17 - 5	P	15											
17 - 6	P	10											
17 - 8s	P	145											
18 - 1	P	20											
18 - 2	P	25											
18 - 4s	P	30											
18 - 5s	P	35											
18 - 6s	P	60											
19 - 1s	P	25											
19 - 4s	P	50											
19 - 6	P	35											
19 - 7	P	15											
19 - 8	P	15											
21A	P	5											
21A2	P	5											
21B	P	15											
21B2	P	5											
21C	P	15											
21C2	P	45											
21D	P	5											
21E	P	<5											
21F	P	5											
Min Limit		5			5								
Max Reported*		10000			10000								
Method		CVA			CVA								

——=No Test Ins=Insufficient Sample Del=Delay Max=No Estimate Rec=ReCheck m=x1000 %=Estimate % NS=No SampleP=Pulp

INTERNATIONAL PLASMA LABORATORY LTD.

CERTIFICATE OF ANALYSIS
iPL 97J1084

2036 Columbia Street
Vancouver, B.C.
Canada V5Y 3E1
Phone (604) 879-7878
Fax (604) 879-7898

Northern Analytical Laboratories **44 Samples** Out: Oct 31, 1997 In: Oct 28, 1997 [108412:42:36:79103197]

Project : W.O.7957
Shipper : Norm Smith
Shipment: PO#: 332341
Analysis:
ICP(AqR)30

Comment:

CODE	AMOUNT	TYPE	PREPARATION DESCRIPTION	PULP	REJECT
B311	44	Pulp	Received as it is, no sample prep.	12M/Dis	00M/Dis

NS=No Sample Rep=Replicate M=Month Dis=Discard

Document Distribution

1 Northern Analytical Laboratories
105 Copper Road
Whitehorse
YT Y1A 2Z7
Canada
Att: Norm Smith

EN	RT	CC	IN	FX
1	2	2	2	1
DL	3D	EM	BT	BL
0	0	0	0	0

Ph:403/668-4968
Fx:403/668-4890
Em:NAL@hypertech.yk.ca

Analytical Summary

##	Code	Method	Units	Description	Element	Limit Low	Limit High
01	0721	ICP	ppm	Ag ICP	Silver	0.1	99.9
02	0711	ICP	ppm	Cu ICP	Copper	1	20000
03	0714	ICP	ppm	Pb ICP	Lead	2	20000
04	0730	ICP	ppm	Zn ICP	Zinc	1	20000
05	0703	ICP	ppm	As ICP	Arsenic	5	9999
06	0702	ICP	ppm	Sb ICP	Antimony	5	999
07	0732	ICP	ppm	Hg ICP	Mercury	3	9999
08	0717	ICP	ppm	Mo ICP	Molydenum	1	999
09	0747	ICP	ppm	Tl ICP (Incomplete Digestion)	Thallium	10	999
10	0705	ICP	ppm	Bi ICP	Bismuth	2	9999
11	0707	ICP	ppm	Cd ICP	Cadmium	0.1	99.9
12	0710	ICP	ppm	Co ICP	Cobalt	1	9999
13	0718	ICP	ppm	Ni ICP	Nickel	1	9999
14	0704	ICP	ppm	Ba ICP (Incomplete Digestion)	Barium	2	9999
15	0727	ICP	ppm	W ICP (Incomplete Digestion)	Tungsten	5	999
16	0709	ICP	ppm	Cr ICP (Incomplete Digestion)	Chromium	1	9999
17	0729	ICP	ppm	V ICP	Vanadium	2	9999
18	0716	ICP	ppm	Mn ICP	Manganese	1	9999
19	0713	ICP	ppm	La ICP (Incomplete Digestion)	Lanthanum	2	9999
20	0723	ICP	ppm	Sr ICP (Incomplete Digestion)	Strontium	1	9999
21	0731	ICP	ppm	Zr ICP	Zirconium	1	9999
22	0736	ICP	ppm	Sc ICP	Scandium	1	9999
23	0726	ICP	%	Ti ICP (Incomplete Digestion)	Titanium	0.01	1.00
24	0701	ICP	%	Al ICP (Incomplete Digestion)	Aluminum	0.01	9.99
25	0708	ICP	%	Ca ICP (Incomplete Digestion)	Calcium	0.01	9.99
26	0712	ICP	%	Fe ICP	Iron	0.01	9.99
27	0715	ICP	%	Mg ICP (Incomplete Digestion)	Magnesium	0.01	9.99
28	0720	ICP	%	K ICP (Incomplete Digestion)	Potassium	0.01	9.99
29	0722	ICP	%	Na ICP (Incomplete Digestion)	Sodium	0.01	5.00
30	0719	ICP	%	P ICP	Phosphorus	0.01	5.00

EN=Envelope # RT=Report Style CC=Copies IN=Invoices Fx=Fax(1=Yes 0=No) Totals: 2=Copy 2=Invoice 0=3½ Disk
DL=Download 3D=3½ Disk EM=E-Mail BT=BBS Type BL=BBS(1=Yes 0=No) ID=C030901
* Our liability is limited solely to the analytical cost of these analyses.

BC Certified Assayer: David Chiu

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44 Samples
44=Pulp

[108412:42:36:79103197]

Out: Oct 31, 1997
In : Oct 28, 1997

Sample Name		Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
15 - 1f	P	<	13	21	69	<	<	<	5	<	<	0.5	7	16	1178	<	122	45	1461	121	75	53	4	0.01	0.80	0.77	2.24	0.10	0.49	0.15	0.09
15 - 1s	P	<	26	16	77	5	5	<	2	<	<	0.2	12	37	190	<	35	49	408	12	43	3	3	0.07	1.41	0.63	2.40	0.77	0.10	0.03	0.07
15 - 2s	P	<	26	18	75	<	<	<	2	<	<	0.2	12	34	161	<	36	47	393	12	42	2	3	0.07	1.32	0.57	2.35	0.77	0.11	0.03	0.08
15 - 3so	P	<	32	22	107	<	<	<	2	<	<	<	24	18	307	<	24	148	817	23	41	2	7	0.14	2.61	0.91	5.68	1.43	0.54	0.02	0.23
15 - 4ms	P	<	26	17	80	<	<	<	1	<	<	0.3	13	36	167	<	52	56	398	14	46	1	3	0.09	1.45	0.71	2.63	0.77	0.13	0.03	0.12
15 - 6s	P	0.2	47	28	88	10	<	<	3	<	<	0.6	17	53	273	<	47	64	740	19	71	2	4	0.08	1.81	1.08	2.99	0.91	0.12	0.03	0.07
15 - 7	P	<	12	9	103	<	<	<	2	<	<	<	35	14	286	<	27	293	638	5	56	2	12	0.49	3.92	1.17	8.16	2.48	1.64	0.02	0.22
15 - 8so	P	<	50	15	69	<	6	<	3	<	<	<	9	17	178	<	98	79	399	5	22	2	4	0.16	1.80	0.53	3.12	1.19	0.28	0.03	0.09
16 - 1	P	<	6	<	21	<	<	<	2	<	<	<	1	2	30	<	73	5	142	48	5	3	1	0.01	0.20	0.04	1.04	0.05	0.10	0.06	<
16 - 4s	P	<	19	11	62	<	<	<	1	<	<	1.0	9	16	189	<	23	43	291	14	30	3	3	0.06	1.14	0.48	2.00	0.47	0.06	0.02	0.07
16 - 5	P	<	5	10	47	<	<	<	1	<	<	<	3	4	52	<	76	10	343	35	21	5	1	0.04	0.64	0.61	1.31	0.27	0.23	0.05	0.03
16 - 6s	P	<	19	11	63	5	<	<	1	<	<	0.2	9	18	201	<	24	45	209	12	29	3	3	0.06	1.27	0.41	2.02	0.49	0.05	0.03	0.07
16 - 7s	P	<	21	25	60	6	<	<	1	<	<	0.2	10	18	216	<	23	47	284	12	33	2	3	0.06	1.25	0.51	2.12	0.49	0.05	0.03	0.07
16 - 8s1	P	<	8	<	21	<	<	<	3	<	<	<	1	3	25	<	156	3	95	48	3	3	1	<	0.47	0.02	1.06	0.15	0.10	0.12	0.01
17 - 2	P	<	62	11	104	<	5	<	3	<	<	0.2	11	48	231	<	144	76	389	7	23	1	3	0.16	1.70	0.58	2.71	1.05	0.47	0.04	0.08
17 - 3as	P	<	61	8	113	<	6	<	3	<	<	0.2	16	38	729	<	122	85	421	2	17	1	3	0.17	1.98	0.41	2.93	1.46	1.02	0.06	0.09
17 - 3bq	P	<	77	13	35	<	9	<	4	<	<	0.1	12	28	92	<	414	19	199	3	17	1	2	0.09	0.62	1.29	2.10	0.36	0.22	0.02	0.03
17 - 5	P	<	4	9	85	8	<	<	2	<	<	<	3	6	47	<	73	4	482	87	24	10	1	0.04	1.52	0.67	1.35	1.42	1.14	0.05	<
17 - 6	P	0.3	45	22	141	<	<	<	10	<	<	0.4	15	61	184	<	109	93	637	26	54	7	7	0.12	2.07	1.70	3.17	2.15	0.78	0.03	0.06
17 - 8s	P	<	20	12	73	<	<	<	1	<	<	0.3	12	20	182	<	31	52	403	12	38	2	3	0.07	1.37	0.51	2.46	0.87	0.14	0.02	0.07
18 - 1	P	<	8	21	20	61	5	<	2	<	<	0.1	10	42	20	<	300	150	174	5	511	4	1	0.33	8.29	6.09	3.04	0.11	0.04	0.47	0.09
18 - 2	P	<	43	12	52	<	6	<	2	<	<	0.4	6	9	51	<	88	23	274	11	16	2	2	0.14	1.34	0.29	2.65	0.60	0.40	0.02	0.04
18 - 4s	P	<	34	28	82	10	<	<	2	<	<	0.4	15	41	242	<	41	60	547	12	55	1	4	0.08	1.77	0.75	2.70	0.88	0.13	0.03	0.06
18 - 5s	P	<	29	21	79	7	<	<	1	<	<	0.3	15	41	231	<	42	58	494	12	47	2	4	0.08	1.68	0.65	2.64	0.87	0.10	0.03	0.06
18 - 6s	P	0.1	32	18	96	9	<	<	2	<	<	0.5	15	45	189	<	43	58	646	14	70	2	4	0.08	1.73	0.78	2.81	0.90	0.10	0.03	0.07
19 - 1s	P	<	41	32	92	<	<	<	1	<	<	0.5	14	25	289	<	37	59	360	13	78	3	4	0.08	1.76	1.08	2.69	1.00	0.16	0.03	0.06
19 - 4s	P	<	31	13	78	<	<	<	1	<	<	0.2	13	21	238	<	30	58	399	10	50	2	4	0.07	1.59	0.72	2.68	0.90	0.11	0.03	0.06
19 - 6	P	<	17	13	24	<	<	<	2	<	<	<	2	3	24	<	81	5	139	47	15	2	1	0.02	0.60	0.36	2.86	0.17	0.11	0.03	0.01
19 - 7	P	<	4	<	16	<	<	<	<	<	<	<	<	2	41	<	65	2	29	10	6	2	<	<	0.22	0.05	0.70	0.06	0.15	0.03	0.01
19 - 8	P	<	28	6	69	<	<	<	2	<	<	<	13	7	598	<	47	127	1386	2	49	1	17	0.19	1.90	4.76	3.16	1.89	1.04	0.06	0.05
21A	P	<	<	4	71	<	<	<	2	<	<	<	20	5	69	<	23	137	1249	24	141	2	7	0.01	3.08	4.03	5.14	3.02	0.15	0.03	0.22
21A2	P	<	<	10	42	<	<	<	3	<	<	<	13	4	57	<	18	84	1318	18	196	5	5	0.06	1.93	4.94	4.30	1.93	0.14	0.02	0.19
21B	P	0.3	49	5	45	53	5	<	<	<	<	<	<	2	142	<	61	7	132	10	8	7	1	<	0.19	0.11	0.59	0.04	0.16	0.02	0.04
21B2	P	0.1	4	68	165	<	<	<	2	<	<	<	12	19	51	<	60	107	945	15	124	3	9	0.05	3.37	3.30	5.55	3.41	0.43	0.04	0.13
21C	P	<	6	3	4	<	6	<	1	<	<	0.1	<	4	104	<	117	5	36	5	4	3	<	<	0.15	0.02	0.25	0.02	0.09	0.01	0.01
21C2	P	5.8	36	2367	26	33	<	<	20	<	<	<	43	4	94	<	22	81	137	5	94	3	4	0.17	0.96	0.83	3.99	0.58	0.18	0.06	0.31
21D	P	<	7	25	54	<	<	<	1	<	<	<	5	5	133	<	49	123	279	2	40	2	6	0.09	1.09	0.86	3.24	0.88	0.12	0.04	0.28
21E	P	<	26	20	53	<	<	<	1	<	<	0.1	12	23	119	<	103	114	235	15	48	4	1	0.14	1.14	0.59	2.67	0.96	0.67	0.14	0.14
21F	P	<	2	6	54	<	<	<	2	<	<	<	6	2	80	<	16	97	706	3	68	2	5	0.06	2.00	1.38	3.16	1.23	0.17	0.10	0.25
Min Limit		0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max Reported*		99.9	20000	20000	20000	9999	999	9999	999	999	9999	99.9	9999	9999	9999	999	9999	9999	9999	9999	9999	9999	9999	1.00	9.99	9.99	9.99	9.99	9.99	5.00	5.00
Method		ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

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[108412:42:36:79103197]

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Sample Name		Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
LHM - 1	P	<	33	44	115	<	5	<	1	<	<	<	9	20	77	<	154	16	390	10	11	1	1	0.06	0.82	0.77	1.69	0.36	0.22	0.04	0.02
LHM - 1b	P	<	20	8	47	<	<	<	2	<	<	0.1	6	18	87	<	66	9	271	32	10	1	1	0.03	0.49	0.69	1.09	0.20	0.16	0.03	0.02
LHM - 2s	P	<	13	12	67	<	<	<	2	<	<	0.1	9	15	178	<	21	43	344	30	24	1	3	0.09	1.33	0.53	2.32	0.54	0.17	0.03	0.11
JL - p1	P	<	17	8	14	10	5	<	1	<	<	<	4	17	102	<	91	15	36	8	11	2	1	0.02	0.90	0.10	0.56	0.33	0.11	0.02	<
JL - slv	P	0.8	21	6	14	<	<	<	2	<	<	<	117	13	14	<	39	21	837	<	85	3	5	<	0.48	5.82	14%	0.36	0.02	0.01	0.01
Min Limit		0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max Reported*		99.9	20000	20000	20000	9999	999	9999	999	999	9999	99.9	9999	9999	9999	999	9999	9999	9999	9999	9999	9999	9999	1.00	9.99	9.99	9.99	9.99	9.99	5.00	5.00
Method		ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

—=No Test Ins=Insufficient Sample Del=Delay Max=No Estimate Rec=ReCheck m=x1000 %=Estimate % NS=No Sample P=Pulp

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E-mail: NAL@hypertech.yk.ca

22/09/98

Certificate of Analysis

RJAS Mineral Inc.

WO# 05610

Al Rudis

Certified by

	Sample #	Au ppb
r	F3-1b	<5
r	F3-1c	<5
r	F3-2	<5
r	F3-6	<5
r	F3-10	<5
r	F5-3	<5
r	F5-4	<5
r	F9-2	<5
r	G-3	<5
r	G-4	<5

APPENDIX 5:

CERTIFICATION OF COSTS OF EVALUATION
LEASE ID00100

On behalf of the lease holders, the following expenditures are *Certified* by Albert Rudis to have been made in the evaluations of Placer Leases ID00097, ID00098, ID00099, ID00100:

Helicopter Services (6.7 hours)	$5,769.73
Assay Costs	2,252.37
Camp Supplies and Expenses	1,498.39
Inflatable Raft Rental	481.50
Satellite Phone Rental (only satellite phone works in area)	571.17
Pump For Long Tom (commercial lease rate)	240.00
Trenching ($250/day X 40 man-days)	10,000.00
Evaluation And Report Writing ($325/day X 17 days	5525.00
TOTAL:	$26,338.16

I hereby certify that over $ 3,000 of the above costs has been expended on placer lease ID00100 for the benefit of its lease holder Albert Rudis.

Albert Rudis