

May 31 1968

REPORT

NAME OF MINE

Lower Sixtymile River (gold placer prospect)
Ray McKamey Placer
Yukon Claim Map No. 115-0-12 (revision of December 5, 1967)

METALS

Placer gold

LAND AND OWNERSHIP

PL 2760, special dredging lease issued on December 4, 1967 to J. R. Lerner.

PL 2761, special dredging lease issued on December 4, 1967 to G. Gutrath.

The above leases together cover the lowermost seven miles of the Sixtymile River, including the lowermost 1,000 feet of Tenmile Creek.

It is understood that the above leases will be assigned to Silgold Mines, Ltd., a corporation controlled by Ray McKamey, Whitehorse, Y. T.

CONCLUSION AND RECOMMENDATION

No large scale drilling program is recommended since there is no evidence to indicate that 50,000,000 cubic yards or more of dredgeable ground will be developed. It is true that the leases may contain as much as 110,000,000 cubic yards of gravel but it is expected that the "pay gravel" (if it exists) will be confined to a minor portion of the valley floor.

The potential reserves are estimated to be about 15,000,000 cubic yards. In view of generally favorable dredging conditions the leases are worth preliminary exploration.

Cost of the first, exploratory phase is estimated at \$23,000.00

Cost of developing 15,000,000 cubic yards is estimated to be \$200,000.00

SUMMARY

The leases are located on the lower part of the Sixtymile River, about 40 air miles south of Dawson City, Y.T. The area has had minor prospecting and small scale mining intermittently for some 70 years but production has been small. Thawed gravel and poor drainage have prevented exploration of the river gravels by individual effort.

The river flows through a flat valley floor that is from 600 ft. to a mile wide, bounded by steep bluffs and hills. River gradient is about 8 ft. to the mile. Older river terraces are identifiable immediately to the south of the present river. The valley surface is covered with light vegetation on a thin layer of river silt; underlying gravels are loose and thawed. The river is actively eroding the rock walls of the valley.

Bedrock consists of limestones, meta-sediments and igneous intrusives that are predominantly intermediate to basic.

Fine gold is present on the river bars and bedrock rims but little is known of the possible gold content of the underlying gravels. Since the topography suggests that any gold concentrations in the valley would have been derived from earlier placers at a higher elevation, an erratic paystreak in the river bed should be expected. With the exception of the small, high benches on Tenmile Creek, a tributary of the Sixtymile, there is no record of gold having been found on the old terraces. The estimate of 15,000,000 cubic yards as the potential reserve is based on the assumption that 20% of the gravel downstream from Tenmile Creek might be auriferous.

Mining conditions appear to be favorable; in fact, superior to the known placer deposits in Yukon Territory. Stripping costs will be low and thawing costs may be almost entirely avoided. Water supply is excellent and flood danger can be minimized. However, it is possible that bedrock may be hard and difficult to dig.

It is recommended that a single drill line with from 12 to 20 churn drill holes be used to determine if further development is warranted. If the results from this work are satisfactory, a program for drilling 750 drill holes should be initiated. The first phase would require about six weeks; the major program would extend over a year.

Churn drilling of loose, thawed gravel requires extraordinary care to avoid under-evaluation. Black sands should receive special treatment and laboratory analyses of the finest fraction for finely divided gold and, possibly, platinum.

LOCATION AND ACCESSIBILITY

The lower part of the Sixtymile River is at Lat. $63^{\circ} 32-34' N$; Long. $139^{\circ} 45-56' W$. Confluence of the Sixtymile with the Yukon River is about 40 air miles south of Dawson, Y.T. The area is shown on the Ogilvie, Y.T. 1/50,000 topographic map.

There are no float planes stationed at Dawson, so travel is by small river boat, if one is available. Otherwise, a plane must be chartered out of Mayo, Y.T. Suitable helicopter landing areas in the valley are rare, but heliports can be prepared quickly. At low water stages, helicopters may land on river bars.

Freight amounting to small tonnage may be delivered to the mouth of the Sixtymile by Burien, who bases at Stewart River, or less certainly by the Brainstorm, a river boat that works between Dawson and Old Crow.

Heavy freight such as bulldozers and drills can be moved from Dawson by the Yukon Government's diesel-powered ferry.

Winter travel on the Yukon River ice is treacherous and should be avoided.

There is a tractor road from the Yukon River, just below the mouth of the Sixtymile River, to Tenmile Creek. This road follows the high hills

north of the Sixtymile and does not touch the valley until the vicinity of Tennile Creek is reached. The staging area at the Yukon River is very small.

HISTORY

Gold on the bars of the lower Sixtymile River was probably discovered prior to the discovery of the Klondike in 1897. In about 1898 or 1899 gold was discovered in Tennile Creek (see attached map) and the "French Syndicate" installed an hydraulic plant to work the benches. This was a difficult undertaking as the water supply was poor. It is believed that the project was not successful financially.

Small scale mining on Tennile Creek has continued to the present. Earlier, this work was confined to small drift mines and open cuts; in more recent years attempts to mine the creek with a single bulldozer have been made. Although a few rich spots have been worked, Tennile Creek appears to have very spotty concentrations of gold.

In the lower Sixtymile River valley, from Tennile Creek to the mouth, several attempts at hand mining have been made. At location No. 1 on the attached map a reportedly rich spot was mined to a depth of about eight feet. It is understood that mining could be done only by letting the ground freeze during the winter, as drainage for normal open cut work could not be had. At location No. 2 on the map there has been some hand mining on a bench remnant. The work is reported to have yielded 35¢ in gold per square foot but panning by me indicated a considerably lesser value for the ground remaining. Somewhere in the vicinity of map location No. 3 fairly recent mining is reported to have been done on bars and there is an old report of hand driven prospect holes that had found "pay" with depths of less than eighteen feet to bedrock.

Old cuttings in the Sixtymile Valley suggest that attempts to sink prospect shafts have been common, although old shaft locations were not found. Since the gravel is not frozen, shaft sinking could be done only in cold

weather by "freezing down", a process that permits an advance of only a few inches a day and is not successful if water under pressure is encountered. Probably many shafts were attempted but few were completed.

In their work, the present lease owners found gold averaging about 2¢ per pan (i.e. roughly \$3.60 per cubic yard) along bedrock rims exposed near river level. This information is supplied by Mr. Ray McKamey.

GENERAL DESCRIPTION

The lower Sixtymile River occupies a flat valley bounded on the north by bluffs and steep hills that rise abruptly for 700 - 800 ft. above the valley floor and on the south by steep bluffs that rise for 200-300 ft. above the valley floor to a series of terraces that merge with mature hills that lie to the south. The better developed terrace is at an elevation of 1,400 ft. above sea level (more than 200 ft. above the present valley floor).

The apparent gradient of the Sixtymile River in the portion considered here is about 8 ft. per mile. A similar gradient is apparent on the 1,400 ft. terrace.

The present valley averages about one half mile wide above Tenmile Creek, then it narrows to a width of about 500-600 ft. about a half mile below Tenmile Creek. From there, the valley gradually widens to a mile and will average three quarters of a mile.

A thin cover of river silt overlies loose, medium sized gravel. Vegetation is predominantly small brush with considerable poplar and birch. Patches of white spruce are fairly common, but black spruce is relatively uncommon. The silt and vegetal cover indicate that the underlying gravels are not frozen.

GEOLOGY

Published geological information on the area is slight.

Canadian Geological Survey Summary Report for 1901 (pg. 37A)

states that "gold-bearing rocks" had been found on the upper Sixtymile and on the lower Sixtymile, but that the intervening stretch of river is barren. CGS Memoir 284 (pg. 47) states that six miles above the mouth of the Sixtymile, on a bluff 200 ft. above the valley, there is an eight feet wide, rusty quartz vein that assayed 0.117 oz. in gold per ton.

No geological mapping was attempted during the examination. It was noted that limestones and calcareous schists comprise many of the exposures. A little over a mile from the mouth of the Sixtymile, on the north side of the valley, there is a metamorphosed basic igneous intrusive rock that may be fairly extensive.

Creek gravels are variegated. They contain sediments such as limestones, chert and conglomerates; meta-sediments; some volcanics; and intrusive igneous rocks that range in composition from acid to basic, with the more basic varieties predominating. A few cobbles might be classed as ultrabasic but all seem to have an appreciable feldspar content.

The gravels, even the silts, contain a surprisingly large amount of black sand. Although the black sand is largely magnetite, there is a little pale garnet and chromite and a very small amount of barite (?).

At the time of the examination the river was high so the lower bars and bedrock rims, which are the most favorable loci in which to find heavy mineral concentration, were not accessible. Consequently, panning did not prove nor disprove claims that 2¢ pans could be obtained.

The few bars that were accessible all yielded a small amount of very fine small, flattened but not flaky, pieces of gold. The large quantity of black sand, always present, made it difficult to separate the gold particles.

The gold is bright and light colored, corresponding in color to gold that might have a fineness of less than 800.

Panning on the bars and bedrock rims has indicated the presence of gold in interesting quantity for the material panned but this is not evidence that the underlying gravels are auriferous. Normally, river bar concentrations are not more than a few inches deep (nearby examples are the Stewart River and the Fortymile River). At best, the bar and rim prospecting shows that the river drains a gold bearing area.

The placer gold on Tennile Creek and the gold assay reported by the Canadian Geological Survey some six miles from the mouth of the river indicate a possible source of placer gold in the lower Sixtymile and the mature topography south of this section of the river suggests that there may have been sufficient erosion from former gold deposits to provide an accumulation of metal in the present valley.

Because of its low gradient and apparent freedom from major floods, the Sixtymile River is not competent to form placer deposits other than bar and rim deposits. If concentrations of gold exist in the present gravels, they must have been formed from the destruction and reconcentration of earlier placers.

Probably, destruction and reconcentration have been going on through at least two and probably more erosional cycles. Reconcentration is not synchronous with enrichment, in fact some gold is inevitably lost when a placer is destroyed and the tenor of the displaced deposit may be reduced by dilution with barren gravel. Almost without exception, reconcentrated placer deposits are less uniform than the original deposits from which they were derived; discontinuous, crescent-shaped placer deposits are the rule on many low gradient streams in the north.

Following the most recent lowering of base level in the area, the Sixtymile River has cut into bedrock by more than 200 feet and has widened its

valle by attacking the valley walls. The change in base level was accomplished rather rapidly, as is indicated by the steep gradients of the tributary streams after they leave the mature topography, and by the shape of the valley walls. During its displacement, the river partially destroyed a former bench at the 1400 ft. elevation. If that bench had contained placer deposits the heavier gold contained in them would be retained on or near bedrock close to the active lines of erosion and some of the finer gold would be dispersed in the gravel. Erosion of valley walls and concentration of heavy minerals on low bedrock can be seen today.

It is concluded that there is almost not possibility of the lower Sixty mile containing a continuous, primary paystreak such as may be formed during the transition of a youthful stream to maturity (e.g. Goldstream in the Fairbanks district), but it may contain reconcentrations in sufficient number to make a valuable placer. (There are many examples in western North America and in South America.)

A great weakness in the assumption that the river valley may contain gold placers derived from older deposits is the apparent lack of prospecting on the easily prospected terraces (other than the benches on Ternile Creek). In fact, it is not known if the identifiable terraces contain gravel.

MINING CONDITIONS

Water supply is excellent. Flooding may be troublesome but there is ample room to provide protection.

Overburden can be removed cheaply by mechanical stripping. The forest cover is light and the silt cover is thin. With the exception of a few sloughs and ponds the surface will support excavating equipment. The only problem foreseen is some difficulty with a variable silt-gravel interface.

The gravel is small to medium in size. No boulders were seen, but it is true that some may occur at depth. No cementation was noticed and clay,

at least near the surface, was absent. Apparently all, or nearly all, of the gravel is thawed - a rarity in the northern Yukon.

Bedrock may be hard. The few exposures seen along the rims would be difficult to dig. Since the stream bed is recent in origin, softening by weathering has probably not taken place (this is true of the recent channel at the Goodnews Bay platinum placer, although the parallel old channel had soft bedrock).

RESERVES

There are no developed or indicated reserves on the Lower Sixtymile River.

Scanty information on depth to bedrock and gently sloping rims where the rock banks are being eroded indicate that the gravel is thin; very probably the total depth to bedrock is less than 18 ft. The total area of the valley within the leased portions is about 110,000,000 square feet (by planimeter). If the average depth is as much as 18 ft., the volume of gravel would be about 110,000,000 cubic yards, of which 80,000,000 cubic yards are below Tenmile Creek and 30,000,000 cubic yards are upstream from Tenmile Creek.

For a reasonable target it is assumed that some 20% of the area below Tenmile Creek may contain reconcentrated gold in sufficient quantity to make dredging profitable. Present information does not justify a more optimistic figure.

It is concluded that the leases may develop 15 to 20 million cubic yards of mineable gravel.

DEVELOPMENT

Although it is practically certain that any mineable placer deposits on the Lower Sixtymile would have been formed by the reconcentration of material derived from earlier deposits it is normal for areas of reconcentration to be aligned in a paystreak that will vary in width and tenor of gravel but which

will follow a fairly straight course. For this reason it is recommended that a single line of drill holes be drilled at a presumably favorable location in order to determine if further development is warranted.

The location of a proposed drill line is shown on the attached map. This line, which is a little over a mile upstream from the mouth of the Sixtymile River, is accessible with only minor difficulty and it will cut the present valley at a place where an older terrace has been at least partially destroyed.

Twelve drill holes at 200 ft. spacing will be enough to indicate the possible presence or absence of mineable gravel in sufficient quantity to support a mining operation. If pay gravel is indicated, drilling should be completed at a drill hole spacing of 100 ft. within the apparent limits of pay.

A rented six-inch churn drill and a small bulldozer can be delivered by the Yukon Government ferry to the mouth of the Sixtymile and moved along the north side of the valley to the drill line location. Minor road building and corduroying over swampy areas will be required. Move-in, drilling of about 20 drill holes, and move out should be done within a six week period.

Estimated cost of the proposed drilling is:

Drill and small tractor rental	4,000
Camp equipment, small tools	800
Fuel and supplies	2,000
Labor - foreman, driller, panner, cook-helper, all costs	7,400
Transportation - air fares, boat hire	1,500
Ferry charter	500
Communications, assaying, engineering, home office, contingencies	<u>6,800</u>

\$ 23,000

If the exploratory phase shows that the property has promise, the second phase should be undertaken with three modern churn drills and a larger bulldozer. About 750 drill holes would be required to develop 15,000,000 cubic yards and the program would take about a year (excluding the period from November 1st to March 1st). Moving would be somewhat difficult and part of the

drilling would have to be done when the surface and river are frozen. The cost of equipment depreciation and rental, transportation, airstrip construction, drilling and engineering is estimated to be \$200,000.

DRILLING AND SAMPLING METHODS

The gravel appears to be thawed and loosely packed. Material of this nature is difficult to evaluate as drill hole recovery is normally low and the true value may be considerably in excess of that indicated by drilling. In addition, the large amount of black sand and small size of gold particles will make it difficult for panners to save and separate all gold.

Drilling must be done carefully and the volume of material recovered from each drill run must be accurately measured and recorded. Drilling a few inches below the shoe before casing is driven is permissible if the recovered volumes are less than 50% of the theoretical volumes.

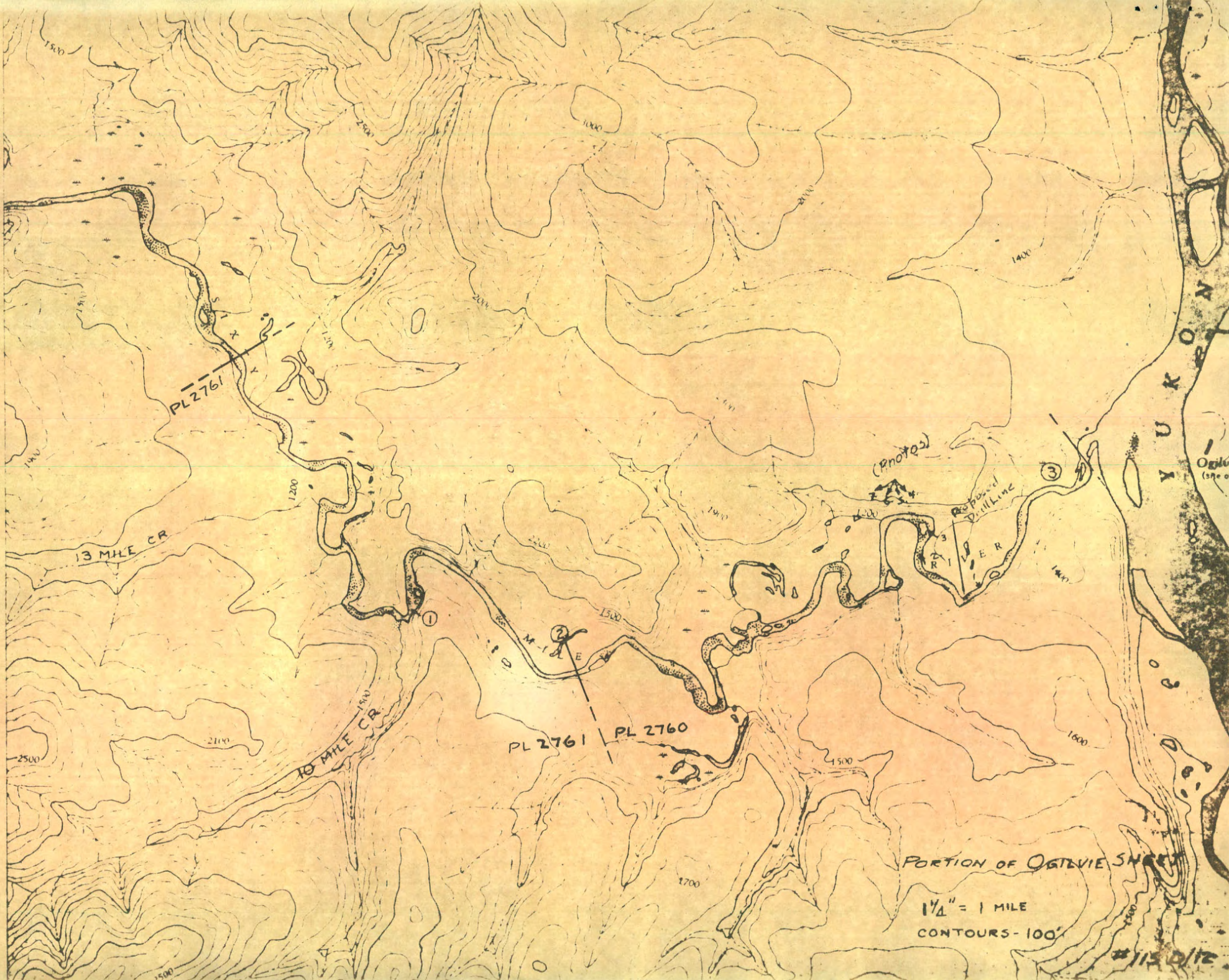
Rocker concentrates should be saved, dried and screened through 20 mesh and through 80 mesh. The coarser fractions should be re-panned and the fine fraction should be weighed and saved for spot assays for gold and platinum. This last step is rarely done during development of a placer deposit but recent improvements in recovery of very fine gold and platinum on dredges make it advisable to determine if finely divided metal is present.

Although platinum has not been reported from the Sixtymile area, the presence of basic rocks, large amounts of black sand and some chromite suggest the possibility of its occurrence. It is noted that platinum has been found on Walhalla Creek, about fifty miles southeasterly from the mouth of the Sixtymile.

Charles F. Herbert

May 31, 1968

Lat
63° 35'



PORTION OF OGILVIE SHEET

1 1/4" = 1 MILE
CONTOURS - 100'

#112 DIT

CYPRUS EXPLORATION CORPORATION, LTD.

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July 11, 1973

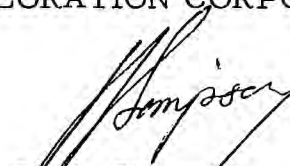
Dr. Uldis Jansons,
Exploration Department,
Anvil Mining Corporation Ltd.,
P.O. Box 1000,
FARO, Yukon

Dear Jake:

Herewith a copy of the Sixty-Mile report for your perusal. My feeling is that while there is gold in these placers, it would be difficult to get at on a large scale operating basis, and that while hot spots undoubtedly occur, other areas would not dredge out. However, I am no placer man and would be interested if anyone comes up with a better idea. Here again is an area where a joint venture might be considered if favourable targets can be generated.

Yours very truly,

CYPRUS EXPLORATION CORPORATION, LTD.



J. G. Simpson
Regional Manager - Western Canada

JGS/jel

Encl.