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PRELIMINARY REPORT

OTTER CREEK, ATLIN

BRITISH COLUMBIA, CANADA

February, 1974

Dudley L. Davis
Registered Professional
Engineer and Geologist

P R E L I M I N A R Y R E P O R T
OTTER CREEK, ATLIN, BRITISH COLUMBIA, CANADA

February, 1974

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Introduction

Otter Creek is situated 59°40' north latitude and 133° 23' west longitude near Lake Atlin about 110 miles south of Whitehorse, Yukon Territory, Canada. It consists of ten placer mining leases shown on the Department of Mines and Petroleum Resources (Victoria, B.C.) Map 104N/11W (M) Placer amounting to about one square mile of ground. (Leases in B.C. are 1320 ft. by 2640 feet.)

Otter Creek has been mined by hydraulic methods and by underground drifting prior to 1940 and by bulldozing gravel into a sluice box in 1972.

In 1935, the owners offered the property to Consolidated Mining and Smelting Company of Trail, B.C. for \$1,300,000, half down and the balance from production. That deal failed, however, and a lease purchase agreement was made with Walter Johnson, a dredge manufacturer of San Francisco, California. Johnson held the property until his death in 1970.

Johnson tested about one-third of the present leases by drilling, shafting, and a production mine underground. His basic data are used in this report.

Otter Creek, B.C.

D.L.D.
Feb., 1974

Setting

Otter Creek is tributary to Pine Creek where gold was first discovered in the Atlin area in 1898. From 1898 to 1949, record production was \$22,539,892.00, most of which was gold sold at \$20 per ounce; perhaps an additional \$20 million was produced but not recorded. Large nuggets are common in the district, the largest on record weighed 83 ounces; others of 36 and 33 ounces are notable.

The White Pass and Yukon Railway from Skagway to Whitehorse, Yukon Territory passes within 80 miles of the mining area. The railhead is at Carcross, Y.T. A good gravel road runs from Whitehorse to the mine area.

Geologically, the placer gold is found in Tertiary stream channels cut in schist, serpentine and greenstone bedrock. After the gold was deposited, alpine glaciation covered the stream channels with glacial till to depths of 60 to 100 feet. Because of this glacial cover, exploration drilling is expensive and, also, shaft mining is often preferred over hydraulic methods. This is particularly true where the gold is concentrated near the bedrock.

The dredging season is short; it runs from May 15-30 to November 15-30, depending upon the individual year.

Sample Data

The writer became interested in Otter Creek in 1959 while

Otter Creek, B.C.

D.L.D.
Feb., 1974

drilling on Pine Creek for placer gold. A tentative deal with Mr. Walter Johnson in 1962 resulted in the enclosed calculations of yardage available for dredging. However, the deal was not consummated due to inability to arrive at agreeable terms.

The values shown in Table I were calculated at \$35.00 per ounce in 1962 and show 19,500,000 cubic yards valued at \$6,783,500. If these figures are updated to \$140.00 per ounce, the average price today, the same yardage would be worth ^{27,134,000} \$25,134,000 gross value. Over one-half the total yardage is glacial till which runs about 60 cents per yard at today's prices. Walter Johnson estimated that actual mining would recover twice as much gold as was calculated from drill data because the coarse nuggets expected in the upper part of the stream channel cannot be recovered by drilling as performed by the test work. I am in agreement with his judgment because drill logs show churn drilling ahead of the casing which tends to drive gold into the walls of the hole where it is lost from the samples.

There is additional untested channel up stream which could double known gross values.

Table II shows the gross production, cost, royalty and estimated net profit for the years 1974 and 1975. Operating costs include \$500,000 in new equipment plus labor.

Otter Creek, B.C.

D.L.D.
Feb., 1974

A limited program during 1974 is all that can be accomplished since mobilization of equipment and preliminary excavation will take most of the season. During 1975, full-scale production can be attained using equipment and sampling data developed in 1974.

The following is a pro forma operating budget for the 1974 season:

New Equipment to be purchased and assembled...	\$300,000*
Salaries and Wages, 10,000 per month, 5 mo....	50,000
Supplies and Miscellaneous, \$10,000 per mo....	50,000
Washing plant & related facilities.....	80,000
Buildings, drain ditch, tailings, disposal area.....	20,000
TOTAL.....	\$500,000

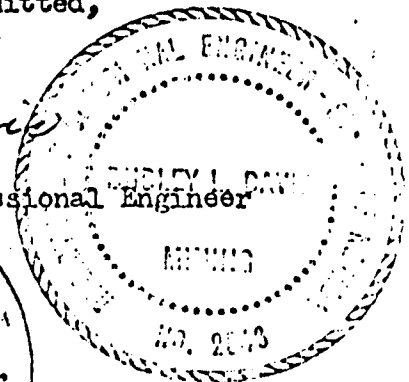
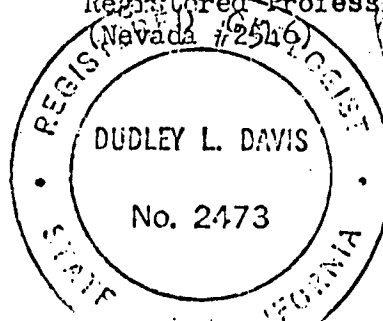
Income during September and October.....	\$300,000
Less Royalty @ 20%.....	60,000 (prepaid)
Net from production....	\$240,000

*Some rental purchase

Respectfully submitted,

Dudley L. Davis

DUDLEY L. DAVIS
Registered Professional Engineer
(Nevada #2546)



Enclosures

DLD:bd

Table I

OTTER CREEK, ATLIN, B.C.
DREDGING SECTION YARDAGE SCHEDULE

<u>Block</u> <u>Between</u>	<u>Dist.</u> <u>Yds.</u>	<u>Av. Sec.</u> <u>Sq.Yds.</u>	<u>Vol.Cu.Yds.</u>	<u>Val.</u> <u>Cu.Yd.</u>	<u>Gross \$Value</u>	<u>Gross Value</u> <u>@ \$140.000</u>
Station 16-11605 to Line 5	66	1600	105,600	\$2.20	\$ 232,000.00	\$ 928,000.00
Line 5 to Sta. 20 Plus 75'	92	1600	147,200	2.20	326,000.00	1,304,000.00
(1) Sta. 20 plus 75' to Sta. 23 plus 90'	105	1950	204,800	1.186	243,000.00	972,000.00
Sta. 23 plus 90' to Sta. 29	170	2150	365,500	1.186	433,500.00	1,734,000.00
Sub-Total	433		823,000		\$1,234,500.00	\$4,938,000.00
Sta. 29 & Line "A"	133	1623	215,860	84.3	182,000.00	728,000.00
**Line "A" & Line 3	800	1622	1,297,600	47.6	618,000.00	2,472,000.00
(2) Line 3 & Line 1	333	1923	640,360	49.4	316,000.00	1,264,000.00
Line 1 & Line 4	3703	1620	6,000,000	47.6	2,856,000.00	11,424,000.00
Total for Drilled Area: 8,153,820					\$3,972,000.00	\$15,888,000.00

RECAPITULATION

No. 1	823,000	\$1,236,500.00	\$ 4,938,000.00
No. 2	8,153,820	3,972,000.00	15,888,000.00
Estimated Total Glacial Till	10,500,000	1,575,000.00	6,300,000.00
TOTAL CU. YDS.	19,500,000	\$6,783,500.00	\$27,126,000.00

(Average Value - 35.25¢ per cu.yd.) NOW \$1.41 (0.01)

**Drill holes on line "A" did not reach bedrock, a value of 47.6 ¢ per cu.yd, the same as the values on Line 1, has been assumed for Line "A".

September 18, 1962

TABLE II

The prospected section of Otter Creek lies between Drill Line #5 near the lower end of the creek and extending upstream to Line #4, a distance of 2.8 miles. The channel 200' from Line #5 and extending upstream 1200' was partially drifted, producing \$200,000 from 4 levels but mostly from the Strand level 20' above bed rock. Our Underground sampling shows 34,944,000 remaining in this channel section. The channel upstream has been drilled for 2-1/2 miles and contains \$16,000,000. Due to the coarseness of the gold this section may overrun the drill values by 50% or more. Line #5 just below the partially drifted section should average, when mined, over \$8.00 per cubic yard. The channel may extend down stream two to three hundred feet below Line #5 before being cut out by the glacier that made Surprise Lake and should average 4,000 per linear foot of channel.

The mining operation at a rate of 5,000 cu. yd. daily starting below Line #5 should, during the first full season, mine 700,000 cu. yds. of channel gravel containing.....	CALCULATIONS	
	<u>1962</u>	<u>1974 & 1975</u>
	\$1,150,000	\$4,600,000
	<u>90,000</u>	<u>360,000</u>
	\$1,240,000	\$4,960,000
Operating Costs.....	\$242,000	975,000
Royalty @ 5% (20%).....	62,000	992,000
	<u>304,000</u>	<u>992,000</u>
PROFIT	\$ 936,000	\$2,993,000

The first full year's production and costs are based on mining averaging 5,000 cu. yds. per day for a 165-day season.

The area to be mined the first year including 200' of virgin channel below Line 5 was prospected underground and will result in our most productive season unless the ground above overruns the drilling as we believe will be the case.

Walter W. Johnson

Dated September 18, 1962
 (Updated February, 1974 - D. L. Davis)

REPORT

on

PRELIMINARY SURVEYS & GEOLOGICAL EXAMINATIONS

of

PLACER & LODE MINING PROSPECTS

near

ATLIN, B.C., ATLIN MINING DIVISION
BRITISH COLUMBIA

(N.T.S. MAPS 104N/11W-1/2; 104N/12E-1/2)

for

SURPRISE* RESOURCES LTD. (N.P.L.)
VANCOUVER, B.C., CANADA

by

W.M. Sharp, M.A.Sc., P.Eng. (B.C.)

during

June, 1973

* * *

SECT. 1 - OTTER CREEK

GENERAL

Fig. 1 and Dwg. No. 0-1 supplement this section of the report.

Otter Creek flows northward into Surprise Lake, joining it approximately 1/2 mile from its west end. From Atlin, Otter Creek (bridge) is reached by 12.2 miles of good gravel road.

A narrow, locally steep dirt/gravel road departs from the Surprise Lake road closely west of the bridge and leads to the upper Otter Creek workings. Most of the up-stream section is only accessible via foot-travel; however, the latter is relatively easy in most areas.

Considering the latitude (close to 60°N) of the area, the climate is relatively moderate. In past years hydraulic mining was normally carried out between May 15th and October 15th.

Within the Atlin 'dry belt' the forest cover mainly comprises open stands of small lodgepole pine and spruce, with relatively light underbrush. Major swampy areas (water reservoirs) occur along the upper parts of creeks - particularly in the generally flat summit-headwater regions.

Most of the local mountains have been rounded by continental glaciation. Glacial drift covers all but local areas of bedrock right up to summit elevations, and thick deposits of boulder-clay till and intercalated fluvio-glacial sand and silt occur within most of the modern drainage courses. Down-cutting by post-glacial (modern) creeks has left bank exposures of these deposits up to 150-feet high.

Otter Creek, including its upper west-flowing part, is about 9 miles long. In this distance it drops 1600 feet - an average gradient of 178 ft./mi. The present Otter Creek drainage area, or watershed, amounts to 16-1/2 sq.mi.; of this about 40% is drained by the upper west-flowing part of the creek.

HISTORY

Placer mining commenced on the upper part of the creek about 1899, and until 1903 was carried out via small-scale surface and underground methods. Within one early-worked interval of the creek the average yield of pay-gravels was about \$1 per c.y. (1900 basis) from a pay-channel with 80' x 4' cross-sectional

dimensions. The writer estimates, from the very sketchy records available, that the 1906-11 production from upper Otter Creek amounted to 1560 oz. (reported) gold from 210,000 c.y. of overburden and gravel, of which it appears that approximately 54,000 c.y. comprised pay gravel. From this the following unit values are estimated:

Gold content (a) gravel ----- approx. 60¢/c.y.
(b) overburden & gravel --- " 15¢/c.y.

With gold at \$120 per ounce, the present-day equivalents of the above would be about (a) \$3.60 per c.y., (b) 90¢ per c.y. Also, judging from even sketchier records, it appears that much of the overlying glacial drift yielded 4¢-8¢ per c.y. (gold at \$20 per oz.).

On lower Otter Creek the old channel, east of the present channel, was profitably worked by underground methods. However, large-scale hydraulic operations in this section were never able to get down to the pay-horizon; hence were commercially unsuccessful. The sparse gold content of the general glacial overburden is indicated by the 1921 results. During that year some \$10,000 in gold was derived from 200,000 c.y. of material moved - for a (1921) yield of 5¢ per c.y. (present value approx. 30¢ per c.y.).

The middle interval of the creek has not been mined, but has been drilled over a long period of years. It is reported that 21 holes were drilled (with a Keystone churn-drill) in 1921, and that all returned values wherever bedrock was reached. An average channel depth of 44 feet (reference?) was reported.

Drift mining being carried on in 1938 opened a 40' width of good pay-gravel below the layer of typically firm, silty hardpan; however, as the workings could not be held open because of squeezing ground conditions no significant production resulted.

Finally, drilling during 1950, on the east bank of the creek, at about 1 mile from Surprise Lake, found bedrock at a depth of about 140 ft. The writer estimates that this was done on the east bench at a location approximately across from sta. 6 of his upper traverse.

CLAIMS

Those originally staked, and recently staked or layed out for staking are shown on Fig. 1. To safely cover the projected, or tentatively-indicated trend of the old channel under the east bank of the creek it would be advisable to stake claims adjoining the east boundaries of P.M.L's 1702, 1699, 1688, and 1704.

FIELD WORK

- June 4, arrive in Atlin and plan field work with T. Connolly.
- June 5, on reconnaissance of Otter Creek, including random magnetometer tests; start control traverse.
- June 6, continue traverse and topog. surveys.
- June 7, continue surveys, with geological mapping; search for and tie in claim posts - noting errors in existing claim plots.
- June 8, search out and tie in claim posts with T. Connolly; survey Drain Lease, with detailing; review claim situation with T. Connolly in evening.
- June 9, (a.m.) with crew - establishing claim posts and location lines for protective-staking. (p.m.-Wright Cr.).

Dwg. No. 0-1, correlating the writer's surveys and the 100-scale detail, adequately covers the bottom end of the property. However, the important up-creek extensions of it could be covered more efficiently and economically via a smaller scale but adequately detailed (approx. 10' contour-interval) topographic map. A 1"=800' map derived from 1 in.=1/4 mi. air photography, if available, would provide excellent control for both the preliminary surveys and any follow-up exploratory and/or mining operations on Otter Creek.

LOCAL GEOLOGY (ref. Dwg. No. 0-1)

The drift cover is predominantly cobble/boulder-clay till with varied proportions of silty or sandy fines. The typically near-vertical slope of creek banks of this material, with faces locally over 100 feet in height, indicate the firm, coherent character of the material. Some sections of it are well stratified, while others are massive. In places the vertical section contains generally conformable, gently-dipping lensy layers of thin-bedded silty sediments; at other places it includes layers or lenses of silty to sandy cross-bedded outwash (delta-foreset) material.

Within one relatively short interval of the present Otter Creek (sta. 31 + 15 - 33 + 15) the mass of drift is underlain by fine open gravel, silty hardpan, and a basal layer of tighter (clay), somewhat rusty gravel. It is probable that this basal material comprises old, pay-channel gravels adjacent to the westerly (quartzite) rim of that channel. Section B-B on Dwg. No. 0-1 represents the surficial geology in this locality. Section C-C, close to B-B but incorporating drill intersections of bedrock to the east of the present creek, depicts the writer's preliminary interpretation of a wider cross-section - tentatively indicating the old channel. Section A-A depicts a typical section of till about the lower (lake) pit.

Over most of the lower Otter Creek area bedrock is not exposed. However, where it is well exposed along a 1700-foot interval of the creek it is predominantly massive to ribby-bedded quartzite and argillaceous quartzite. Only one relatively narrow panel of talc and serpentine-altered schist was seen within this section. If G.S.C. Map 1082A is correct the latter rock type should predominate within the one-mile interval of the creek upstream of the last outcrop observed by the writer. On the basis of the observed spatial relationships between the exposures of

basal gravels and quartzites noted above, the writer is inclined to interpret the latter as rim-rock comprising the west edge of the old pay-channel. If this is true, the main channel axis would situate in and under the east bank of the creek - possibly in a section of softer rocks abutting the panel of quartzitic rocks exposed within the above-noted 1700-foot interval.

PRELIMINARY APPRAISAL

Some aspects of the property which relate to its potential as a productive placer operation are:

1. The gold content of the placers derives from a significantly large source area of (eroded) mineralized bedrock.
2. Favourable conditions for placer-gold concentration occur over much of the 9-mile length of the creek.
3. A significantly large pay-channel is indicated - old reports noting a 200' x 40' cross-section within a lower central part of the creek, and an 80-foot width containing a 4-foot paystreak with a present value (Au @ \$120/oz.) of \$6 per cu.yd.
4. With the 1906-11 operations on upper Otter Creek giving a reported (2/3 of actual ?) yield of 1560 oz. of gold from 54,000 c.y. of gravel in 210,000 c.y. of overburden and gravel, the following present values are indicated:

gravel -----	\$3.60 per c.y.
overburden plus gravel -----	.90 per c.y.
5. The potential of the lower Otter Creek interval of the channel is partly indicated by the results of underground operations, which delineated a part-width of 40 feet of reportedly good pay gravel.
6. Large-scale hydraulic mining operations carried out over a long period of years on lower Otter Creek were financially

unsuccessful; however, they were, at the same time, physically unsuccessful in that they never reached down to the old channel indicated by concurrent and subsequent underground operations (and test-drilling?).

7. The sum of the current information indicates that mining operations on the lower and central parts of the creek might encounter waste-to-pay gravel ratios of 10 to 1, or slightly more or less. However, such an operation could be economically successful if pay gravels grading \$5-\$6 per c.y. were present, and mining and capital costs not in excess of those currently envisioned.

Following his serious consideration of all of the above aspects, the writer believes that the property warrants at least a limited programme of exploration, which could lead to a large-scale mechanical/hydraulic mining operation.

TECHNICAL CONSIDERATIONS

The following estimates are presented as a comparison of the relative stripping capacities of hydraulic and mechanical equipment.

(A) Hydraulic Equipment

May 25-Oct. 15, 1907. (100 10-hr. working days):

1 - No. 3 Giant on cutting down.

1 - No. 3 monitor for bank-water (by-water).

20,000 c.y. moved.

Stripping rate for 1 - No. 3 Giant = 200 c.y./day.

May-Oct. 1908, 30,000 c.y. moved.

Stripping rate for 1 - No. 3 Giant = 270 c.y./day.

May-Oct. 1908 - Lower Otter Creek.

Equipment, 2 - No. 4 Giants plus wash-monitors against 60'-100' banks.

Production - 112,000 c.y. moved in 100 days.

Stripping Rate per single No. 4 Giant = 560 c.y./day.

(B) Mechanical Equipment

(1) Bulldozers:

(Manufacturers performance data for ripping/stripping.

firm, coherent clay containing small boulders)

Basic, 200-foot passes and ripping 1/3 of cycle.

D-7, per 10-hour shift: gross, 700 c.y.; avg. net, 550 c.y.

D-8, " " " " gross, 850 c.y.; avg. net, 680 c.y.

- (2) 2-1/2 c.y. Power Shovel: @ 50% of normal capacity in loose, clean material and 2 hours down-time = 1200 c.y./10-hr. day.

PRELIMINARY RECOMMENDATIONS

1. Complete survey (chainage) checks on existing claims.
2. Stake protective claims, where indicated by (1).
3. Carry out a geological reconnaissance examination and inspection of exposures and workings over at least the next 1-mile (up-stream) interval of Otter Creek.
4. Commence detailed delineation of the pay-channel, beginning at the up-stream end of the Drain Lease. Note that the reconnaissance phase of this project might be done adequately and economically by combining overburden-drill and geophysical (resistivity) profiling methods.
5. Sample indicated channel sections via (6") Keystone churn-drill.

WILLIAM M. SHARP, M.A.Sc., P.Eng.
CONSULTING GEOLOGICAL ENGINEER
171 W. ESPLANADE, NORTH VANCOUVER, B.C.

June 24, 1974

Mr. Rutherford Day,
Director of Companies,
1118 Southwest 8th Terrace,
Fort Lauderdale, Florida 33315,
U.S.A.

Dear Mr. Day:

INTERIM REPORT
FIELD INVESTIGATIONS, ATLIN, B.C. PROPERTIES
JUNE 4-12, 1974.

* * * * *

OTTER CREEK

At Whitehorse, en-route to Atlin, the writer visited Mr. Clive Boyd of General Enterprises Ltd. to discuss stripping and mining situations relating to the Atlin deposits. At the same time a list of General Enterprises' excavating equipment was compiled.

Subsequently, Messrs. Day, Sharp, and Connolly visited Mr. Boyd for a fuller discussion of possible contract work by General Enterprises. In the course of these talks Mr. Boyd indicated that his company would probably employ '621' or '631' motor-scrappers, push-loaded by Cat. D-9 units.

At Atlin, Messrs. Klimke and Kullik inspected the deposits exposed in the banks of Otter Creek (vic. of 1973 sta. 35+00) and in the walls of the old hydraulic pit on the Drain Lease. From this, they concluded that the exposed material could be rapidly excavated and moved by bucket-wheel, and that it might handle pay-material in the floor of the pit unless the latter contained a significantly larger proportion of boulders or unusual water problems arose. In any event, it was agreed that any specific mining plan should be based on evidence obtained by systematic drill-testing and sampling.

The following is a preliminary mining estimate based on Composite Cross-Section A-B (old print #4), and applying to a currently-developed section of Lower Otter pit between old base-line stations '15' and '30' (old print #1), and including the previously-mined volumes (drifts).

Gross pay-vol. = 500 yds. x avg. 1800 c.y. per lin.-yd. = 900,000 c.y.
Strip-Vol. = 500 yds. x avg. 3000 c.y. " " " = 1,500,000 c.y.
Pay-value, per column value, @ \$150/oz. = \$10.30 per c.y.

Estimated stripping cost (1975) = \$ 0.75 per c.y.
" mining cost (") = \$ 1.50 per c.y.

Unit costs:

Stripping	3000 x \$0.75 =	\$2250
Mining	1800 x \$1.50 =	\$2700
Total		<u>\$4950</u>
Gross mining cost =	<u>\$4950</u>	= \$2.75 per c.y.
	1800	
Washing & miscell.	= 0.50 " " "	<u>\$3.25 per c.y.</u>

For above 500-yard length only,
gross profit before royalties & taxes \$7.05 per c.y.

Following discussions with McLeod White, who had personal experience with the former mining operations, the writer re-established his 1973 base-line stations, and made a detailed magnetometer survey of the upper half of the Drain Lease pit-floor. Some anomalous areas were delineated; however, these showed no correspondence with the assumed bedrock channel. The results probably reflect erratic runs of black-sand at relatively shallow depths within the total pay-section, and also the possible removal of deep-channel black sands during the period of drift-mining.

WILLIAM M. SHARP, M.A.Sc., P.Eng.
CONSULTING GEOLOGICAL ENGINEER
171 W. ESPLANADE, NORTH VANCOUVER, B.C.

August 15, 1974

Mr. Rutherford Day,
1118 Southwest 8th Terrace,
Fort Lauderdale, Florida 33315,
U.S.A.

Dear Ruddy:

In order to provide a statement of the required drill pattern and number of holes necessary to establish the existence of sufficient placer material to justify the program with General Enterprises, I have compiled our more pertinent data on a suitably scaled set of working drawings - No's 1-D/S and 1-U/S (1-down-stream and up-stream, respectively). On these, the proposed drill holes are detailed on co-ordinated plans and cross-sections; elevations are based on the included long-profile (longitudinal vertical-section) following our base-lines. Churn-drill holes are indicated where the pay-zones and old workings have been fairly well delineated; O.D. (overburden-drill) holes are suggested where a cheaper method of preliminary bedrock or channel-delineation is required. Pending the results of a more detailed control-survey, I would recommend the pattern of churn-drill and overburden-drill holes shown on Dwgs. No's 1-D/S and 1-U/S, and summarized via the following schedule:

CROSS-SECT. NO.	TYPE OF HOLE	NO. OF HOLES ON X-SECT.	RANGE, TOTAL FT. LENGTHS ON X-SECT.		ESTIM. COST PER FT.	ESTIM. COST @ X-SECT.
9 + 00	Churn	6	65'-125'	525	\$10.00	\$ 5,250
10 + 20	Churn	5	65'-105'	430	10.00	4,300
11 + 90	Churn	5	70'-155'	505	10.00	5,050
G.F.P.2400	Churn	4	120'-160'	570	10.00	5,700
G.F.P.2600	Churn	2	160',165'	325	10.00	3,250
G.F.P.2800	Churn	2	165',180'	345	10.00	3,450
SUB-TOTAL, CHURN-DRILL TEST HOLES						\$27,000
G.F.P.2400	O.D.	1	160'	160	3.00	480
G.F.P.2600	O.D.	4	160'-170'	670	3.00	2,010
G.F.P.2800	O.D.	4	160'-180'	675	3.00	2,025
SUB-TOTAL, O.D. TEST HOLES						\$ 4,515

Churn-drill holes would be 5½" or 6" diameter, inside the casing.

The O.D. equipment would probably drill a 3½" diam. hole, via a 2" diam. bit operating inside a casing pipe with a 3½" diam. ring-bit or shoe. Based on general experience, a gross drilling cost of about \$3.00 per ft. would be expected.

Estimate of Churn-Drill Costs:

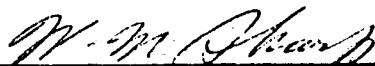
- Equipment:
- (a) Churn-drill, tools (drill-string), and casing.
 - (b) Service vehicle (pick-up truck).
 - (c) D-7 Cat., as required for site-prep. and moving.
 - (d) Hand-tools.
 - (e) Tentatively a Denver 'Gold-Pan' to handle samples.

Drilling Rate - estimated at an over-all average of 15' per 8-hour drill-shift - subject to revision via actual operating experience. The field-established cost will bear directly on the scope of the currently-recommended program.

Costs:	Wages, driller @ \$5.50/hr.	\$44.00/shift	
	sampler @ \$4.00/hr.	32.00/ "	
	Pay-roll charges @ 15%	11.40/ "	
	Gross wages, drill crews	87.40/ "	\$ 5.83/ft.
	Churn-drill & tools rental (local)	\$30.00/day	2.00/ "
	Truck rental, based on mileage - allowance to a local owner	\$ 7.50/day	0.50/ "
	Fuel, based on 10 gal./shift		0.50/ "
	D-7 Cat, occasional use		0.25/ "
	Drill repairs & maintenance		0.15/ "
	Gen. supervision & engineering		0.50/ "
	Contingencies and extras		<u>0.27/ "</u>
	Total Drilling Cost - - - - -		\$10.00/ "

As drilling proceeds, some substitutions within, and/or additions to the currently-recommended program should be anticipated.

Respectfully submitted,



W. M. Sharp, P.Eng.

WILLIAM M. SHARP, M.A.Sc., P.Eng.
CONSULTING GEOLOGICAL ENGINEER
XXXXXXXXXXXXXXXXXXXXXXXXXXXX
3280 Chesterfield Ave., North Vancouver, B.C.
V7N 3M9

Nov. 5, 1974

Mr. Rutherford Day, Pres.,
Surprise Resources Ltd., (N.P.L.),
1118 Southwest 8th Terrace,
Fort Lauderdale, Florida 33315

Dear Ruddy:

The following estimates of Otter Creek placer reserves are based on churn-drill and underground sample data provided by the old company map-prints #1 and #4. Grade estimates are based on a gold price of \$160 per oz.

A) Probable Reserves

1. Within Drain Lease, over base-line interval 13+00- 25+00:
 (= the up-stream half of the claim)
 Below pit-floor = (60 x 27 x 400) yds. = 648,000c.y. @ \$12.34 per c.y.
2. Up-stream of Drain Lease @ 25 + 00 - 31 + 00:
 Below pit - floor horizon = (60 x 27 x 200) yds = 324,000 @ \$12.34/c.y.
 Above " " " = (100 x 30 x 200)yds = 600,000 @ \$0.686/c.y.
 Total Probable Reserves = 1,572,000 c.y. @ \$7.90 per c.y.

B) Possible Reserves

(Based on gross X-sect. @ 3000 x 0.686 + 1620 x 12.34, for \$4.77/c.y.)
For channel-interval 31 + 00 - 55 + 00,
=(4620 x 800)c.y. = 3,496,000c.y. @ \$4.77 per c.y.

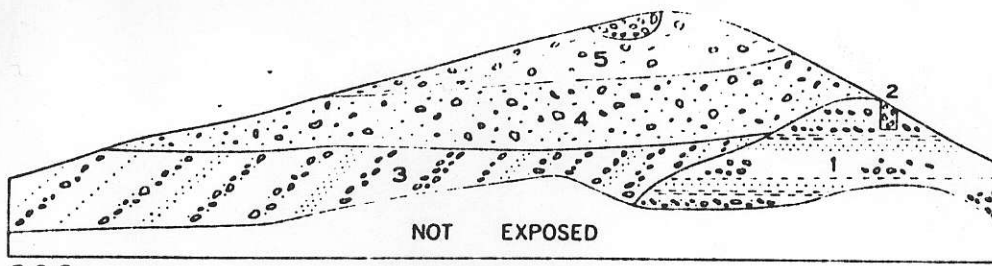
SUMMARY

Estimated gross reserves over 13 + 00 - 55 + 00 (0.8 mi.) = 5,068,000c.y.
The gross-length of the drilled-interval, or area, is about 1 1/4 mi.
For this, Mr. Dudley Davis (Feb., 1974) has estimated a total potential of 8,153,820 c.y. - which, on the basis of the above estimates and the additional length of only superficially-tested ground, appears very reasonable.

Respectfully submitted,

W.M. Sharp.

W.M. Sharp, P.Eng.



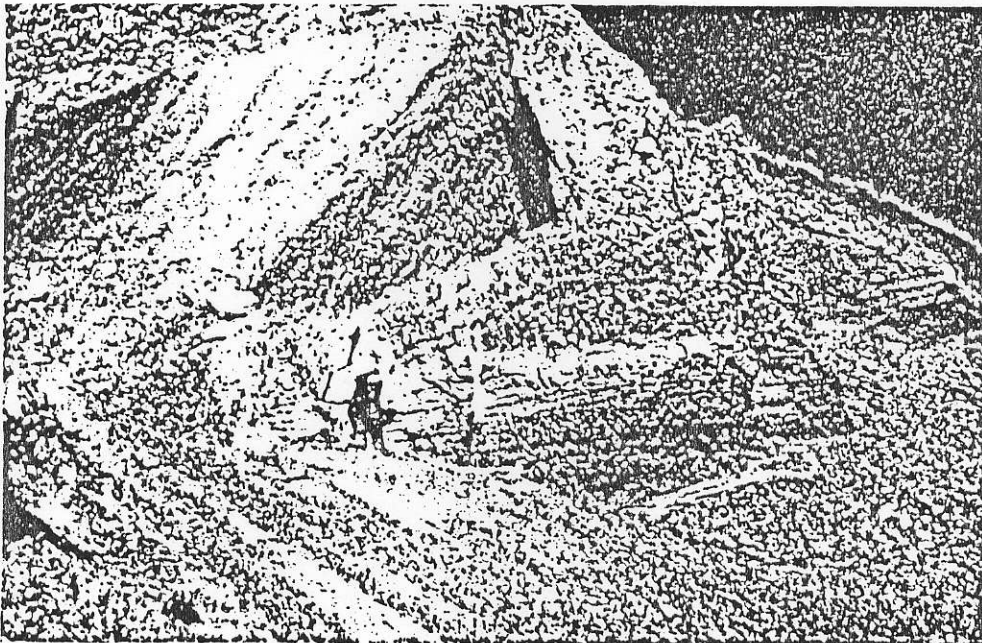
G. S. C.

Vertical and Horizontal Scale of Feet
50 0 50

- A. Sketch of the lowest cutbank on the east side of Otter Creek (see p. 6).
 Explanation: (1) Bedded lake sands and silts with rafted cobbles. Outwash gravels at base.
 (2) Coarse gravel filling vertical-walled cut-in (1).
 (3) Delta foreset beds of gravel and sand.
 (4) Weakly stratified, washed grey till.
 (5) Buff, clay-rich till.

Plate II

- B. Photograph of part of the bank illustrated in (A). Shows bedded lake sands and silts with rafted cobbles (1), overlain by steeply inclined delta foreset beds (3), and above them weakly stratified till (4).



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