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*From Vault File  
ref.*

**REPORT**

TO THE

**GRANBY  
CONSOLIDATED  
MINING, SMELTING & POWER  
CO., LTD.**

NAME OF PROPERTY

MOTHERLODE AND SUNSET CLAIMS

DIVISION Greenwood B. C.

OWNERS

Apex Company

EXAMINED BY

A. E. Pike

DATE

802008

MOTHERLODE AND SUNSET CLAIMS

Greenwood, B. C.

To: Mr. W. I. Nelson.

August 15th, 1950

As instructed, I contacted the Apex Gold Mining Co. Ltd. at 626 West Pender St. in Vancouver regarding the above properties. This address is that of McInnes and Arnold, a law firm, and is the registered office of Apex Gold Mining Co. Ltd.

I was referred by that office to Mr. J. W. James of 1996 W. 41st Ave. in Vancouver. He apparently represents the Apex Company in the matter of any deal. A visit was made to Mr. James, who has quite complete data in the way of maps, drill logs etc. He gave the writer some of the early history of the property and was quite conversant with the correspondence between F.A. Gowing of Twain Harte, California, and our Company. He knew of Mr. C. M. Campbell's report in our files (#255) and the large discrepancy between Campbell's figures of available tonnage and that estimated by Gowing. James claims that Campbell told him that the figures were not based on examination, but that they were figures received from the operators at that time. James also stated that Campbell made an examination a few years ago and arrived at a tonnage in excess of 1,500,000 tons.

Should such be the case, then the report in our file is inaccurate and misleading. It should be noted in this regard that in 1916 some 255,000 tons were shipped from the Mother Lode and 10,000 tons from the Sunset, and I believe shipments were continued in some degree up to 1920. The Minister of Mines report for 1915 quotes the General Manager as stating that the "total ore reserve under present conditions is 100,000 tons". It would appear that the ore tonnage was under-estimated in view of later shipments.

A set of plans showing the claim boundaries, glory-hole, level workings and assay plans of dumps was loaned to me by Mr. James.

On August 10th a trip was made to the property by the writer with H. Day as assistant. The purpose was primarily to procure suitable samples for mill tests and to check the district with reference to a possible mill site location and the availability of power and water.

Two samples, each about 150 pounds, were taken and delivered to Allenby. One sample was taken from the south end of the glory hole some 75' north of the shaft, while the second sample was taken from the main dump at the Motherlode. Both showed fairly heavy mineralization of pyrite, magnetite, and some chalcopyrite.

In considering possible mill sites, it is felt that if sufficient tonnage can be assured, then a mill might well be located close to Greenwood and the ore trucked from the mine. The mill location near Greenwood offers the following advantages:



1. Close to West Kootenay power.
2. Close to water which could be taken from Boundary Creek.
3. Close to C.P.R. for shipping concentrates.
4. Minimum of surface plant as no accommodation would be required for employees.
5. Close to labour supply.

A brief reconnaissance of the area suggests that a possible favourable mill site might be on a low ridge on the north east side of Deadwood Creek just behind the old smelter stack. The site is just alongside the road up Deadwood creek to the mine, making it easily accessible and about  $\frac{1}{2}$  mile from Greenwood. The area is clear and there is little overburden on the ridge.

Water might be taken in part from Deadwood Creek and the balance pumped from Boundary Creek. The status of water rights on these creeks would have to be checked with the Commissioner of Water Rights.

Electric power is readily available as the site lies only a few hundred yards from the West Kootenay sub-station, where transformer capacity is far in excess of local demand. No rate for power could be obtained in Greenwood but can be secured from Mr. Lee at Trail.

From the proposed site there is a railroad grade down to the C.P.R. tracks for convenient loading of concentrates.

The question of suitable tailings disposal will require surveying near the site above the old slag pile. It appears that if the water in Deadwood Creek can be used or flumed that the draw of the creek could be filled with tailings. Other draws close by could also be filled to take a quite large tonnage. No attempt was made to determine if such land was owned by individuals, as it was thought that any such local enquiry at this time would be ill advised.

The road to the property from the proposed mill site is about 3 miles long. This road, though narrow, is in good shape, with low grades up to the old town of Deadwood. From Deadwood up to the property the road grade is steeper but is steady at about 10 to 12%. The road is mostly hillside and could easily be widened in most places. There is also the old railway road bed about 5 miles long with a grade of about four percent which could be used, especially for loaded trucks. There are at least two trestles, however, which would have to be rebuilt or the draws filled.

The suggested system of open pit mining is quite feasible and would allow for the reclaiming of the old dumps. A road could be cut down into the bottom of Deadwood Creek from the road to the Motherlode which would allow the main Motherlode dump to be taken. From the old ore bins near the shaft to the edge of the creek draw however is a flat area 250' wide, and it is not known how much overburden covering the bed rock would have to be removed to get to the ore. From the data to hand, it is also not known how far the ore extends south from the shaft. It is known, however, that the 500' level bottomed the ore body.

C.W.S. Tremaine of the Hedley Mascot Co. has shown an interest in the property and is in possession of much data supplied by Mr. James. The Hedley Mascot Co. as such are not interested in the property. Tremaine, on the basis of information supplied by James, made the following estimate of ore reserves in the shaft area at the Motherlode above the 200 level.

	<u>Tons</u>	Ore	<u>Grade</u>	<u>Tons</u>	Dilution	<u>Grade</u>
	413,400		1.51	67,580		0.37
Less	<u>30,000</u>	? removed in shafts, tunnels etc.				
	383,400	tons @ 1.51% cu. 0.05 ozs. au. and 0.20 ozs. ag.				
Plus	<u>67,580</u>	tons of dilution @ 0.37%				
	450,980	tons @ 1.34% copper.				

He estimated as probable 400,000 tons on the dump @ 0.038 ozs. au. 0.21 ozs. ag. and 0.74% copper, and in addition an estimated 100,000 tons in the glory hole of a grade of plus 0.75% copper.

With reference to mining, Tremaine mentioned that he had talked to a contracting company in Vancouver and that the ore breakage and haulage could be contracted for at a price of around 75 cents per ton.

Contracting the mining and haulage would result in capital expenditure being required for the mill only. No estimate of the cost of a suitable mill can be made until tests on the ore are complete and the flow sheet worked out.

The proposition as presented by Gowing is of decided interest providing his tonnage estimates can be substantiated. Incomplete data to hand, together with the fact that the underground workings are at present inaccessible, does not allow for a check of his tonnage estimates and grades. It is suggested therefore that Mr. Gowing be asked to supply detailed information as to how he arrived at his tonnage estimate. This information should include assay plans, sections, and any other pertinent data. His estimates could then be checked and if desired the workings could be re-opened for sampling and perhaps additional holes drilled to confirm the grade of ore that could be mined.

The purchase price of the property was stated by Mr. J.W. James to be \$500,000.00. He mentioned that a deal for the property was almost completed in 1939 with American interests at which time a \$10,000.00 down payment was to be made with the balance being paid for on a royalty basis. It is possible therefore that some similar sort of deal could be made at this time.

The property in my opinion offers definite possibilities, providing the Gowing tonnage and grade estimates can be substantiated, a suitable deal made, and a satisfactory recovery made in the mill tests.

Respectfully submitted,



cc. ASB:RSD:KCF:VANG:

A. E. Pike.  
Copper Mountain, B. C.  
August 15, 1950









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## FLOTATION TEST

### LOG SHEET

Greenwood Glory Hole

Test No. 326

		HEADS	PRODUCTS	TAILS
WEIGHT	Grams	2,035.8	Rougher Conc. 270.8	1765
ASSAY	Cu. %	1.07	7.50	.083
	Ag Oz.		1.40	.05
	Au. Oz.		.210	.03
	Fe %	9.6	34.4	5.8
	Insol			
	S %	5.8	39.0	.73
METAL CONTENTS	Cu. Grams	21.77	20.31	1.46
	Ag. Oz.	.234	.190	.044
	Au. Oz.	.054	.028	.026
	Fe Grams	195.6	93.2	102.4
	Insol			
	S	118.5	105.6	12.9
	Cu. % of Total	100.0	93.3	6.7
	Ag.		81.2	18.8
	Au.		51.9	48.1
	Fe		47.6	52.4
	Insol.			
	"		89.1	10.9

Time of Grind	First Froth	Second Froth	Third Froth
Reagents before Gr.	Time 13 $\frac{1}{2}$ '		Grind
1# lime			65 m 0.7
.02 Na <sub>2</sub> S	A-25 .05		100 3.5
.05 KCN	Z-4 .05		150 9.4
	p. o 4		200 10.5
			-200 75.9

### REMARKS

.05 #/ton KCN added for depressing of pyrite.

Froth medium, light bronze, chalcopryrite showing in froth after A-25 added pH 8.1

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## FLOTATION TEST

### LOG SHEET

Test No. 327

		HEADS	PRODUCTS	TAILS
WEIGHT	Grams	2047	Rougher Conc. 237	1810
ASSAY	Cu. %	1.11	8.85	.100
	Ag. Oz.		.90	.05
	Au. Oz.		.240	.005
	Fe %	9.1	33.3	5.90
	Insol.			
	S	4.8	37.8	.50
METAL CONTENTS	Cu. Grams	22.78	20.97	1.81
	Ag. Oz	.152	.107	.045
	Au. Oz.	.033	.028	.005
	Fe Grams	185.7	78.9	106.8
	Insol.			
	S	98.7	89.6	9.1
	Cu% of total	100.0	92.1	7.9
	Ag. "		70.4	29.6
	Au		84.8	15.2
	Fe		42.5	57.5
	Insol			
	S		90.8	9.2

Time of Grind 25'	First Froth	Grind
Reagents before Gr.	Time 13 1/2'	65 m 0.5
1# lime	A-25 .05	100 2.8
.02 Na <sub>2</sub> S	Z-4 .05	150 8.0
.10 KCN	p. o. 4 <sup>d</sup>	200 12.0
		-200 76.7

#### REMARKS

.10 #/ton KCN added for depressing pyrite  
froth medium light bronze, very little chalcopyrite showing in froth after  
A-25 added.

Pyrite visible on walls of cell after float

pH 8.2



COPY

## FLOTATION TEST

		LOG SHEET		Test 328
		HEADS	PRODUCTS	TAILS
		Calc.	Rougher Conc.	
WEIGHT	Grams	2032.5	149.5	1883
ASSAY	Cu %	1.10	13.95	.08
	Ag .oz		2.70	.02
	Au. .oz		.650	.005
	Fe %	9.7	31.7	8.0
	Insol			
	S %	3.0	38.0	.20
METAL CONTENTS	Cu. Grams	22.37	20.86	1.51
	Ag. Oz.	.221	.202	.019
	Au. Oz.	.054	.049	.005
	Fe Grams	198.0	47.4	150.6
	Insol.			
	S	60.6	56.8	3.8
	Cu. % of Total	100.0	93.2	6.8
	Ag. "		91.4	8.6
	Au. "		90.7	9.3
	Fe "		23.9	76.1
	Insol			
	S		93.7	6.3
Time of Grind	First Froth	Grind		
Reagents before	Time 13 1/2'	65 m 0.6		
Grind	A-25 .05	100 3.3		
1# lime	Z-4 .05	150 9.1		
.02 Na <sub>2</sub> S	p.o 4 <sup>d</sup>	200 10.7		
.20 KCN		-200 76.3		

## REMARKS

.20 #/ton KCN added for depressing pyrite.

No chalcopyrite showing in froth after A-25 added but shows after Z-4 added.

Much pyrite visible on cell walls after float

pH 8.3 medium, light bronze

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## FLOTATION TEST

LOG SHEET

Test No. 329

		HEADS		PRODUCTS		TAILS
			Rougher Conc.	Cleaner Conc.	Cleaner Tail	
WEIGHT	Grams	2043	298	101	197	1745
ASSAY	Cu %	1.08	6.91	18.40	1.02	.087
	Ag. Oz.			2.20	.50	.05
	Au. Oz.			.520	.100	.005
	Fe %	9.1		28.6	35.0	5.0
	Insol S	5.4		30.2	36.9	.42
METAL CONTENTS	Cu. Grams	22.11	20.59	18.58	2.01	1.52
	Ag. Oz.	.204	.160	.111	.049	.044
	Au. Oz.	.040	.036	.026	.010	.004
	Fe Grams	185.1	97.9	28.9	69.0	87.2
	Insol S	110.5	103.2	30.5	72.7	7.3
	Cu% of total	100.0	93.1	84.0	9.1	6.9
	Ag. "		78.4	54.4	24.0	21.6
	Au. "		90.0	65.0	25.0	10.0
	Fe "		52.9	15.6	37.3	47.1
	Insol. S		93.4	27.6	65.8	6.6

Time of Grind	25'	First Froth	Cleaner	
			Second Froth	Third Froth
Reagents before gr.		Time 13 1/2'	Time 5'	Grind
l# lime		Reagents	Reagents	
.02 Na2S		A-25 .05 G	KCN .05 g	65 m 0.9
		Z-4 .05	= .33 #/t of	100 3.6
		p. o. 4 7	Rougher Conc.	150 8.5
				200 12.4
				-200 74.6

### REMARKS

Rougher conc. conditioned for 4 min. with .05 grams of KCN to depress pyrite and raise grade of cleaner concentrate

pH rougher 8.2  
pH cleaner 8.1



COPY

FLOTATION TEST

Greenwood Glory Hole

LOG SHEET

Test No. 333

		HEADS	PRODUCTS	TAILS
		Calc.	Conc.	
WEIGHT	Grams	2044.4	274.4	1770
ASSAY	Cu. %	1.04	7.40	.057
	Ag. Oz.		1.50	.08
	Au. Oz.		.320	.01
	Fe %	10.2	35.6	6.30
	Insol. %			
	S. %	5.7	39.4	0.52
METAL CONTENTS	Cu. Grams	21.32	20.31	1.01
	Ag. Oz.	.277	.206	.071
	Au. Oz.	.053	.044	.009
	Fe Grams	209.2	97.7	111.5
	Insol			
	S	117.3	108.1	9.2
	Cu. % of Total	100.0	95.3	4.7
	Ag. "		74.4	25.6
	Au. "		83.0	17.0
	Fe "		46.7	53.3
	Insol.			
	S		92.2	7.8

Time of Grind 25'	First Froth	Third Froth
Reagents before gr.		
3# lime	A-25 .05	Grind
	Z-4 .05	65 M 0.8
	p, o 2 <sup>d</sup>	100 3.9
		150 9.3
		200 12.4
		-200 73.6

REMARKS

pH out of thymol blue range - over 9.6

Very few flocs showing before adding collectors.  
 Not much mineral showing after adding A-25  
 but more showing after adding Z-4

bronze froth with greenish tint.

COPY

FLOTATION TEST

LOG SHEET

Greenwood Glory Hole

Sample No. 334

		PRODUCTS				
		HEADS	Cleaner	Cleaner	Calc.	TAILS
		Calc.	Conc.	Tail	Rougher	
					Conc.	
WEIGHT	Grams	2042.5	121.5	172	293.5	1749
ASSAY	Cu. %		14.40	0.75	6.40	.057
	Ag. Oz.		1.80	.80	1.21	.06
	Au. Oz.		.340	.160	.596	.01
	Fe %		35.75	32.85	34.4	5.35
	Insol.					
	S %		42.0	35.6	38.2	0.28
METAL	Cu. Grams	19.79	17.50	1.29	18.79	1.00
CONTENTS	Ag. Oz.	.230	.109	.069	.178	.052
	Au. Oz.	.044	.021	.014	.035	.009
	Fe Grams	193.5	43.4	56.5	10.09	93.6
	Insol.					
	S	117.1	51.0	61.2	112.2	4.9
	Cu. % of total	100.0	88.4	6.5	95.9	4.1
	Ag. "		47.4	30.0	77.4	22.6
	Au. "		47.7	31.8	79.5	20.5
	Fe		22.4	29.2	51.6	48.4
	Insol					
	S		43.6	52.3	95.9	4.1

Time of Grind 25'	First Froth	Second Froth	Grind
	Time 13 1/2'		Reagents
Reagents before Gr.	Reagents	Reagents	65 m 0.9
1# lime	A-25 .05	Lime Zg	100 3.8
	Z-4 .05		150 8.6
	p. o. 4 <sup>d</sup>		200 12.3
			-200 74.4

REMARKS

Rougher concentrate conditioned with lime added to bring pH close to 11, .5 g. lime pH 9.2 plus .25 g pH 9.5, plus .25 g pH over 9.6, plus .5 g.

Good froths, but somewhat brassy



# COPY

## FLOTATION TEST

## LOG SHEETS

Greenwood Glory Hole

Test No. 335

		HEADS	PRODUCTS			TAILS
		Calc.	Cleaner Conc.	Cleaner Tail	Rougher Conc. (calc)	
WEIGHT	Grams	2045.5	58.5	238	296.5	1749
ASSAY	Cu. %	1.03	29.25	1.20	6.74	.057
	Ag. Oz.		4.70	.80	1.56	.06
	Au. Oz.		.950	.120	.283	.005
	Fe %	8.8	29.20	35.35	34.13	4.50
	Insol					
	S %	5.9	33.20	40.0	38.65	0.30
METAL CONTENTS	Cu. Grams	20.97	17.11	2.86	19.97	1.00
	Ag. Oz.	.284	.137	.095	.232	.052
	Au. Oz.	.046	.028	.014	.042	.004
	Fe Grams	179.9	17.1	84.1	101.2	78.7
	Insol					
	S	119.8	19.4	95.2	114.6	5.2
	Cu % of Total	100.0	81.6	13.6	95.2	4.8
	Ag. "		48.2	33.5	81.7	18.3
	Au. "		60.9	30.4	91.3	8.7
	Fe "		9.5	46.7	56.2	43.8
	Insol					
	S		16.2	79.5	95.7	4.3

Time of Grind	25'	First Froth	Second Froth	Grind
Reagents before Gr.		Time 13 1/2'	Time 5'	65 M 0.8
1# lime		Reagents	Reagents	100-3.5
		A-25 .05	Line 1 g to mill	150 - 8.3
		Z-4 .05	plus 1.5 g to cell	200 - 12.5
		p. d. 4 <sup>d</sup>	p. o. 1 <sup>d</sup>	-200 - 74.9

## REMARKS

Rougher conc. reground for 5 minutes with 1 g lime pH 9.6.  
Additional 1.5 g lime added to cell in .25 g lots to raise pH to an estimated 11.

Cleaner froth bronze

Reground rougher concentrate all - 100 mesh.

# COPY

## FLOTATION TEST

### LOG SHEET

Greenwood Glory Hole

Test No. 336

		HEADS	P R O D U C T S				
			Cleaner Conc.	Cleaner Tail	Rougher Conc.	Pyrite Conc.	Rougher TAILS
weight	Grams	2045.7	47.5	149.2	196.7	100	1749
ASSAY	Cu. %	1.03	28.20	4.33	10.2	.050	.050
	Ag. Oz.		4.50	1.30	2.07	.10	.08
	Au. Oz.		1.07	.140	.356	.10	.005
	Fe %						
	Insol. %						
METAL	Cu. Grams	21.08	13.40	6.76	20.16	.05	.87
CONTENTS	Ag. Oz.	.279	.107	.097	.204	.005	.070
	Au. Oz.	.044	.025	.010	.035	.005	.004
	Fe Grams						
	Insol.						
	Cu% Total	100.0	63.6	32.1	95.7	0.2	4.1
	Ag.		38.4	34.7	73.1	1.8	25.1
	Au.		56.8	22.7	79.5	11.4	9.1
	Fe						
	Insol						

Time of Grind 25'	First Froth	Second Froth	Cleaner Third Froth
Reagents before grind	Time 13 1/2'	Time 6'	Time 5'
1# Lime	Reagents	Reagents	Reagents
	A-25 .075	Z-4	p. o. 1 <sup>d</sup>
	p. o. 3 <sup>d</sup>		

REMARKS:

Rougher conc. drawn with only A-25 and pine oil added, then Z-4 @ .10 added and additional conc. drawn for 6 min. which appeared to be pyrite only.

The rougher conc. was reground for 5 min. and refloated for 5 min.



COPY

Allenby, B.C.  
August 18th, 1950

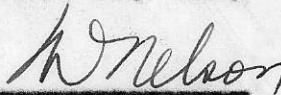
Mr. F.A. Gowing  
Twain Harte  
California

Dear Mr. Gowing:

We have had an engineer inspect the Mother Lode and Sunset Mines at Greenwood, B.C. with a view of possible operations. Our engineer had a talk with Mr. J.W. James in Vancouver, but is unable to obtain the data upon which you based your estimate of the grade and tonnages available in the glory hole and in the block of ground surrounding the Mother Lode shaft. Apparently you were the last engineer who was able to sample on the 200 foot level before caving stopped access to these workings and therefore you are the only one who has authentic data on what pillars and other ore there might be available.

Could you supply us with the details of your estimate of the 2,450,000 tons estimated to be available above the 200 foot level, particularly the items of 1,350,000 tons on the south end of its glory hole and the 400,000 tons above the 50 foot level of the Sunset orebody giving grades also for the various blocks.

Yours very truly



W.I. Nelson.

ra:ASB:KCF:AP:VANC:2-file

COPY

Allenby, B. C. December 19 50

Mr. L. H. McKay

H. T. Hansen

GREENWOOD EXPLORATION SAMPLE:

Dear Sir:

The three Greenwood samples (main dump coarse, main dump fines, and glory hole) were crushed to ball mill feed size fairly easily.

The main dump fines sample was small and was held until some flotation scheme could be worked out from the results of the larger samples. Because the main dump coarse sample and the glory hole sample appeared similar in their flotability, most the tests were run on the largest, the glory hole sample.

"Main dump coarse"

Grindability - 30 minute grind 79.7% -200 mesh compared with Granby 65% - about 25% easier grinding.

Floatability - easily floated, Aerofloat 25 and one of the Xanthates as collectors, and lime to ball mill for conditioning should give a rougher recovery of 92% (with 70% -200 m grind)

"Glory Hole"

Grindability - about 30% easier grinding than Granby ore. All tests ground for 25 minutes gave 75% -200 mesh.

Floatability - similar to "Main Dump - coarse", the rougher concentrates can be easily graded up above 25% copper by regrinding. The use of reagents such as cyanide for depressing pyrite or high lime additions to raise the pH will probably not succeed in raising the grade of concentrate much above 15% cu. Some of the gold and silver results were erratic but it seems that they will follow the copper fairly closely.

Testing was stopped on these Greenwood samples in the second week of September when samples from River Jordan were received and the remaining samples are being held until the interest in the property is dropped or further testing is asked for.

Yours truly,

HTH:sk  
cc:  
WIN  
4 extra

Harris T. Hansen  
Flotation Engineer



THE GRANBY CONSOLIDATED MINING, SMELTING & POWER CO.? LIMITED

Certificate of Assay

Allenby, B. C.

Assay of Samples from Greenwood

DESCRIPTION	Cu. Wet	Oz. per ton Silver	% Gold	% Insol.	% Silica	Iron Total	% Lime	% Sulphur	% Alumina	% Magnesia	Iron Sol.
Dump (Coarse)	.62	.20	.020	53.7	36.0	13.0	21.0	3.01	7.40	2.57	8.80
Dump (Fines)	.72	.30	.030	57.0	37.2	13.0	20.2	1.98	8.00	3.54	8.70
Glory Hole	.95	.30	.060	56.6	30.4	14.90	20.6	5.50	9.00	3.62	8.90

THE GRANBY CONSOLIDATED M. S. & P. CO., LIMITED  
S U M M A R Y

COPY

Sample No.	Main Dump (Coarse)		Greenwood		Rec. %	Ratio of Cu	Tailings		
	Grind Min.	H % Cu.	C % Cu.	T % Cu.			%/100	%-200	
310	30	.71	8.15	.120	84.4	13.5	2.7	79.7	Standard, mill reagents
311	25	.68	7.00	.063	91.6	11.2	8.2	69.5	Lime & Na <sub>2</sub> S to mill, A-25 & Z-5
312	25	.68	7.15	.060	91.9	11.4	7.4	70.7	Lime & Na <sub>2</sub> S to mill, 404 cell
313	25	.67	7.05	.050	93.2	11.2	5.9	72.9	lime & Na <sub>2</sub> S to mill, Z-8 cell
314	25	.67	7.05	.053	92.8	11.4	6.8	70.5	Lime & Na <sub>2</sub> S to mill, Z-8 cell
319	25	.71	7.50	.047	93.9	11.2	7.3	70.2	Lime & Na <sub>2</sub> S to mill, A-25 & Z-4 cell

Glory Hole - Greenwood

315	25	.98	6.65	.05	95.6	7.1	5.0	74.2	Lime and Na <sub>2</sub> S to mill, A-25 & Z-5 cell
316	25	.98	6.55	.047	95.9	7.0	4.5	75.9	" " Z-8
317	25	1.00	6.70	.053	95.5	7.0	4.1	75.1	" " 404
318	25	.99	6.60	.05	95.7	7.0	4.3	76.0	" " A-25, Z-8, 404
320	25	1.06	7.05	.07	94.3	7.0	3.9	75.4	Lime and Na <sub>2</sub> S to mill, A-25, Z-4 (.025)
321	25	1.08	6.95	.067	94.7	6.8	3.3	77.9	" " Z-4 (.05)
322	25	1.06	6.83	.070	94.4	6.8	3.5	76.7	" " Z-4 (.05)
323	25	1.10	6.85	.073	94.4	6.6	3.4	77.2	" " Z-4 (.02)
324	25	1.06	10.10	.087	92.6	10.2	4.6	74.2	Lime to mill, A-25 No Na <sub>2</sub> S
325	25	1.11	10.40	.100	91.9	10.2	4.4	74.2	Lime & Na <sub>2</sub> S to mill, A-25
326	25	1.07	7.50	.083	93.3	7.5	4.2	75.9	Lime, Na <sub>2</sub> S, KCN (.05) mill, A-25, Z-4
327	25	1.11	8.85	.100	92.1	8.6	3.3	76.7	" " KCN (.10) " "
328	25	1.10	13.95	.080	93.2	13.6	3.9	76.3	" " KCN (.20) " "
329	25	1.08	6.91	.087	93.1	6.9	4.5	74.6	Lime, Na <sub>2</sub> S mill, A-25, Z-4, cell
(Cleaner float			18.40	1.02	84.0				.05 KCN to cleaner
330	25	1.06	6.89	.067	94.6	6.9	4.2	75.3	Same as 329, except rougher conc. reground
(cleaner			26.75	2.05	72.0				
331	25	1.04	6.75	.077	93.7	6.9	4.3	74.7	Lime to mill, Z-4 (.10) cell cleaned 5 min, no regrind
(cleaner			8.05	2.16	87.1	8.9			
332	25	1.04	8.99	.053	95.5	9.1	4.3	75.2	Same as 331, except A-25 (.075) Instead of Z-4
(Cleaner			14.10	1.35	89.7	15.2			
333	25	1.04	7.40	.057	95.3	7.4	4.7	73.6	3# lime to mill, A-25, Z-4 to cell, pH 10-11
334	25	.98	6.46	.057	95.0	7.0	4.7	74.4	1# lime to mill, A-25, Z-4 to cell lime to cleaner cell pH 10-11
(cleaner			14.40	.75	87.7	16.8			
335	25	1.03	6.74	.057	95.2	6.90			same as 334 except rougher conc. Reground
(cleaner			29.25	1.20	81.6	35.0			
336	25	1.03	10.20	.05	95.1		4.9	73.9	Lime to mill, A-25 (.075) Z-4 at end of float raised pyrite conc. with no copper. rougher conc. reground.
(cleaner			28.20	4.53	63.2				lime to mill, A-25 Z-4 to cell (rougher conc. reground, floated (with 5.8 grams Na <sub>2</sub> SO <sub>3</sub>
337	25		5.87						
Cleaner			23.90	1.37					



April 30/55

Re Motherlode & Sunset.

These properties were discussed today with Robt. Seraphin, geologist who has spent considerable time in the area in recent years studying geology of the old deposits around Greenwood.

It is his opinion that no appreciable ore exists around the old workings of either of the above properties.

He feels that at Deadwood, however there is a possibility which could be tested by a pattern of core holes which would have to penetrate gravel to depths of over 100 feet which lies above the basin, one corner of which is exposed.

RC Fel.

Nov. 29, 1955

Mr. L.T. Postle

J. Sullivan

Mother Lode (Apex Mines Ltd)

Dear Sir:

The following is a summary of the situation at the Mother Lode Mine in the Deadwood area.

The mine was the chief source of ore for the B.C. Copper Co.'s smelter at Greenwood. This company dropped the property when mining indicated the ore was depleted.

The property has since had various owners. The present ones are Messrs James, Hutton, and Dockstader. Mr. (Jess) James is formerly of this district but now resides in Vancouver. The other gentlemen all live in Grand Forks.

These men formed Apex Mines Ltd., then optioned the property to Surity Minerals and Oil, Montreal. "Surity" has engaged the services of Hogan and McQuaig, Consulting Geologists, Montreal, to explore and develop the mine.

The Property has had a magnetometer survey on a 50' by 100' grid. This survey is being followed up with exploratory drilling and rehabilitation of some of the workings on the Sunset claim.

The magnetometer survey shows two strong anomalies, one between the Mother Lode and Sunset claims and another around the old Sunset workings. The first anomaly has been explored by 8 drill holes, indicating an ore shoot 40 ft. wide, 400 ft. long and 200 ft. deep. The grade is 1.05% Cu.

The second large anomaly around the Sunset is to be investigated from underground thus the rehabilitation of the old workings.

Two small anomalies have also been intersected with one hole each, but only magnetite was found.

( cont'd )



Nov. 29, 1955

LTP

JS

Mother Lode (cont'd)

In addition to the above results, there is an indicated 300,000 tons of 0.8% Cu. in the old Mother Lode dumps, plus an undetermined amount of salvage material in the Mother Lode workings. However, it is hoped that this salvage will be something in the order of 300,000 tons grading from 0.8 to 1.0% Cu.

There appears to be a good chance that this group of claims has well over a million tons of copper in the order of 1.0%.

Respectfully,

J.Sullivan.

cc JACR.



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**SURETY OILS  
&  
MINERALS LIMITED**

MARCH 13th, 1956

# SURETY OILS & MINERALS LIMITED

HEAD OFFICE:

SUITE 1024 - 85 RICHMOND STREET WEST  
TORONTO 1, ONTARIO

TO THE SHAREHOLDERS

Dear Sir or Madam:

In view of the significant results obtained in exploration and development work at the British Columbia copper property of your company since the beginning of the year, your directors are of the opinion that a special progress report, at this time, should be sent to shareholders ... not only to bring them up to date, but to indicate the favorable outlook for SURETY OILS AND MINERALS LIMITED in the early future.

As a basis for this progress report, your directors have decided to provide you with a resume of the important features carried in a report prepared as of March 1st, 1956, by the firm of Hogan & McCuaig, Mining Consultants, who are consulting geologists to SURETY OILS AND MINERALS LIMITED and who, in that capacity, have been supervising the aforementioned exploration and development program in B.C.

## FEATURE NO. 1 ... 1000 Ton Mill Recommended

Drs. Hogan and McCuaig, prior to the preparation of their March 1st report, spent a considerable period of time at the B.C. copper property of SURETY OILS AND MINERALS LIMITED; during which they started conversations for the purpose of taking the property into production at the earliest opportunity. During these conversations, they obtained sufficient detailed data to indicate the cost of erecting a 1000 ton mill.

Conclusion: Your directors are happy to report, based on the foregoing, that the property of SURETY OILS AND MINERALS in British Columbia appears to have indicated sufficient commercial grade ore, to date, to warrant a start on production plans. It is the further opinion of your directors that SURETY OILS AND MINERALS may be in production before the end of the current year.

## FEATURE NO. 2 ... Adequate Power Available

Dr. McCuaig has informed SURETY OILS AND MINERALS LIMITED that the West Kootenay Power and Light Company are willing to install an electric power line into the Company's copper property for the sum of \$30,000.

Twenty-five per cent (25%) of this amount would be refunded to the company at the end of each year of service for a period of four years.

## FEATURE NO. 3 ... Smelter Contract Possible

Your directors believe that SURETY OILS AND MINERALS LIMITED may have early confirmation with respect to the signing of a smelter contract with a major company. Covering this particular phase of the immediate plans for SURETY OILS AND MINERALS, the Hogan and McCuaig report states:

"The two closest copper smelters to the property are the A.S. and R. (American Smelting and Refining) plant at Tacoma, Washington, and the Anaconda plant at Great Falls, Montana.

A new freight schedule has recently come into effect and the freight rate to the Anaconda plant may be less than that to the A.S. and R. plant.

"American Smelting and Refining and the Anaconda plant have requested a sample of the concentrate before they will make any offer, but a tentative offer has been submitted by A.S. and R.

"Mr. R.K. Cheng, of Takahashi Limited, has left recently for Japan and will return early in March. While in Japan he will discuss our concentrates with the company officials."

Dr. McCuaig further states that International Metals Limited and British Metals have been contacted, as well, with respect to a contract and he concludes this phase of the report as follows: "The writer (Dr. McCuaig) does not anticipate any problem in selling the concentrates."

#### FEATURE NO. 4 ... Estimated Profit

The Hogan and McCuaig report devotes a complete page under the title of: "Estimated Profit Based on General Smelter Schedule at Tacoma."

This estimate is arrived at on the basis that one ton of concentrates contains 408 lbs. of copper less 26 lbs. for smelter deduction, leaving 382 lbs. of copper.

The value of such copper in one ton of concentrates is estimated at \$164.26 to which is added \$25.67 in gold values, for a total of \$189.93. Making due allowances for base smelter charge, freight, transportation tax and switching charge (which total \$33.12), the value of one ton of concentrates leaving the mill is estimated at \$156.81.

The value per ton of ore (allowing 1.3% grade and 92% recovery) would therefore approximate \$8.60 which -- after mining costs, milling, hauling and general overhead -- indicates a net profit of \$6.10 per ton.

In addition to the foregoing net profit per ton estimate, your directors, based on a previous report prepared by Hogan and McCuaig, are of the opinion that a greater net profit per ton could accrue to SURETY OILS AND MINERALS LIMITED when iron values are added to those estimated above for copper and gold. A Hogan and McCuaig report, issued in the final quarter of 1955, made this comment with respect to the significance of the iron values disclosed by SURETY during the exploration of its copper property:

"The iron occurs mainly in the form of magnetite and milling tests carried out by the former owners (of the property) indicate that a concentrate can be obtained free from unfavorable impurities. They state that the final magnetite concentrate will contain about 65 to 67% iron. Magnetite containing 65 to 67% iron is worth approximately \$10 per ton. The iron assays obtained include iron obtained in the sulphides as well as in the magnetite. The writer estimates that in the first four holes, the amount of iron present in the form of magnetite is about 20% and therefore as a byproduct will add \$2 to \$3 per ton to the gross value."

#### FEATURE NO. 5 ... Diamond Drilling Continues

The Hogan and McCuaig report includes a detailed map, showing the pattern of current diamond drilling operations being continued at your company's property. Two drills are presently employed; one of which is operating from underground on the 60-foot level; and one operating from the surface.



## FEATURE NO. 6 ... SURETY'S Indicated Ore Reserves

Since the beginning of the current year, the shares of SURETY OILS AND MINERALS LIMITED have been listed on The Toronto Stock Exchange, where they are quoted daily. It will interest shareholders to learn that the listing statement of SURETY carried a table estimating the company's assured, indicated and inferred ore reserves. The total amounts to 5,491,000 tons, as indicated in the following table taken from the listing statement:

MINE ORE	ORE RESERVE TABLE									
	ASSURED			INDICATED			INFERRED			
	Tons	% Cu	Oz. Au	Tons	% Cu	Oz. Au	Tons	% Cu	Oz. Au	
Shaft ore block.....	430,000	1.02	0.05	110,000	1.00	0.05	—	—	—	
Main Pit block, West part.....	806,000	0.90	0.03	—	—	—	—	—	—	
Main Pit block, East part.....	—	—	—	520,000	0.80	0.03	950,000	0.55	0.02	
Main Pit block Higrade Quarry Pillar (West)....	30,000	1.75	0.04	—	—	—	—	—	—	
North Pit area—"Highline Area".....	—	—	—	100,000	1.00	0.05	100,000	1.00	0.05	
"Sulfide" Block, S.E. of shaft.....	—	—	—	150,000	0.71	0.05	200,000	0.71	0.05	
Below 200 Level, Mother Lode Mine.....	—	—	—	700,000	0.90	0.04	400,000	0.90	0.04	
Sunset Pit Area.....	150,000	0.91	0.04	150,000	0.91	0.04	—	—	—	
Other Surface Ore between Mother Lode and Sunset Area.....	—	—	—	—	—	—	500,000	0.90	0.04	
Totals.....	1,416,000	0.95	0.04	1,730,000	0.87	0.04	1,200,000 and 950,000	0.88 0.55	0.045 0.02	
"Waste" Dumps—							Total Inferred.....	( 2,150,000	0.73	0.034
Main.....	140,000	0.55	0.02				Total Indicated.....	1,730,000	0.87	0.04
to 0.80							Total Assured.....	1,416,000	0.95	0.04
Long.....	26,000	0.45	0.02				Total Dumps.....	195,000	0.65	0.02
to 0.80							Total All Classes..	5,491,000	0.83	0.038
Sunset Trestle.....	17,000	0.35	0.02							
to 0.70										
C.O.D. Trestle.....	12,000	0.64	0.02							
to 0.70										
	195,000	0.65	0.02							

Note: The mine ore also contains from 0.3 to 0.4 ounce silver per ton. The Waste Dumps contain 0.2 ounce silver per ton.

### SUMMARY CONSENSUS

Your directors are gratified to be able to present this favorable report covering the highlights of recent exploration and development operations at the copper property of SURETY OILS AND MINERALS LIMITED in British Columbia.

It becomes self-evident, in reading the foregoing, that your company can be regarded as a copper producer in-the-making, with important added values in gold and iron. As stated previously in this report, your directors are confident that the SURETY property may be in production before the end of the current year.

In the near future, it is the plan of your directors to send shareholders a further report summarizing the significance of the new diamond drilling program currently under way. We are equally confident that this will be favorable, since at the time of writing important values have been disclosed in all of the first five drill holes.

On Behalf of the Board of Directors

*Stanley B. Landell*

Stanley B. Landell

Woodgreen Copper

MONTHLY ESTIMATE OF PRODUCTION - YEAR 1957

Mo.	No. of Last Car	No. of Cars	Tons Concs Produced		Production Assays			GROSS CONTENTS			DEDUCTIONS			SALEABLE CONTENTS		
			Wet	Dry	Gold	Silver	Copper	Gold Ozs.	Silver Ozs.	Copper Lbs.	Gold Ozs.	Silver Ozs.	Copper Lbs.	Gold Ozs.	Silver Ozs.	Copper Lbs.
Jan.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar.	5	5	344	312	.372	2.092	13.015	116.346	653.67	81326	3.781	312.44	8123	112.565	341.23	73203
/Qr.	5	5	344	312	.372	2.092	13.015	116.346	653.67	81326	3.781	312.44	8123	112.565	341.23	73203
Apr.	14	9	589	545	.681	4.205	22.516	371.020	2291.85	245422	12.058	545.00	14168	358.962	1746.85	231254
May	22	8	520	474	.720	3.315	22.770	341.340	1571.58	215896	11.090	474.08	12326	330.250	1097.50	203570
June	33	11	497	454	.800	3.500	25.220	371.860	1626.90	228891	12.090	464.83	11799	359.770	1162.07	217092
/Qr.	33	28	1606	1473	.736	3.727	23.429	1084.220	5190.33	690209	35.238	1483.91	38293	1048.982	4006.42	651916
July	45	12	498	455	.850	3.957	26.510	386.960	1801.39	241369	12.580	455.24	11836	374.380	1346.15	229533
Aug.																
Sept.																
Oct.																
Nov.																
Dec.																
/Qr.																
YEAR																

FINAL SETTLEMENT RESULTS - YEAR 1957

Jan.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar.	5	5	344	312	.372	2.092	13.015	116.346	653.67	81,326	3.781	312.44	8123	112.565	341.23	73203
/Qr.	5	5	344	312	.372	2.092	13.015	116.346	653.67	81,326	3.781	312.44	8123	112.565	341.23	73203
Apr.	14	9	589	545	.681	4.205	22.516	371.020	2291.85	245,422	12.058	545.00	14168	358.962	1746.85	231254
May	22	8	520	474	.722	3.317	22.768	342.208	1572.38	215,878	11.122	474.08	12326	331.086	1098.30	203552
June																
/Qr.																
July																
Aug.																
Sept.																
Oct.																
Nov.																
Dec.																
/Qr.																
YEAR																

NOTE: No production data available for Jan. or Feb.  
Mar. & Apr. figures in top section from final returns.

SBL: JAMcF: JAMcQ: RAB: JE: GLG: AWS: File  
B 1-Page 2.

Woodgreen

MONTHLY ESTIMATE OF PRODUCTION (CONT'D) - YEAR 1957

Mo.	Prices			Gross Values				Deductions					Net Value of Conct's.
	Gold £	Silver ¢	Copper ¢	Gold	Silver	Copper	Total	Smelting		Conv. & Refining	Freight Cust. & Umpire	Total	
								Rate	Amount				
Jan.	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb.	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar.	34.9125	91.375	29.705	3929.93	311.73	21744.95	25986.61	13.403	4187.72	1830.21	4209.49	10227.42	15759.19
1/Or.	34.9125	91.375	29.705	3929.93	311.73	21744.95	25986.61	13.403	4187.72	1830.21	4209.49	10227.42	15759.19
Apr.	34.9125	91.068	29.172	12532.26	1590.83	67461.42	81584.51	13.395	7300.43	5781.60	7750.62	20832.65	60751.86
May	34.9125	90.456	28.410	11529.85	990.95	57834.24	70355.04	13.500	6400.09	5089.25	6776.51	18265.85	52089.19
June	34.9125	90.625	29.300	12560.47	1053.13	63607.96	77221.56	13.631	6185.61	5427.30	6473.96	18086.87	59134.69
2/Or.	34.9125	90.727	28.977	36622.58	3624.91	188903.62	229161.11	13.500	19886.13	16298.15	21001.09	57185.37	171975.74
July													
Aug.													
Sept.													
3/Or.													
Oct.													
Nov.													
Dec.													
4/Or.													
Year													

FINAL SETTLEMENT RESULTS (CONT'D) - YEAR 1957.

Jan.	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb.	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar.	34.9125	91.375	29.705	3929.93	311.73	21744.95	25986.61	13.403	4187.72	1830.21	4209.49	10227.42	15759.19
1/Or.	34.9125	91.375	29.705	3929.93	311.73	21744.95	25986.61	13.403	4187.72	1830.21	4209.49	10227.42	15759.19
Apr.	34.9125	91.068	29.172	12532.26	1590.83	67461.42	81584.51	13.395	7300.43	5781.60	7750.62	20832.65	60751.86
May													
June													
2/Or.													
July													
Aug.													
Sept.													
2/Or.													
Oct.													
Nov.													
Dec.													
4/Or.													
Year													

NOTE: No production data available for Jan. & Feb.  
Mar. & Apr. figures in top section from final returns.



SUMMARY OF MILLING COST - YEAR 1957.

*Woodgreen Copper*

1957	No of Days	Avg. Per Day	Dry Tons Milled	Coarse Crushing		Fine Crushing		Screening		Conveying		Primary Grinding		Secondary Grinding		Flotation	
				Amount	¢PT	Amount	¢PT	Amount	¢PT	Amount	¢PT	Amount	¢PT	Amount	¢PT	Amount	¢PT
Jan.																	
Feb.																	
Mar.																	
1/Qu.																	
Apr.																	
May																	
June	30	898	26948	1915.59	7.1	3983.35	14.8	522.32	1.9	2525.78	9.4	7593.44	28.2	1581.33	5.9	8039.99	29.8
2/Qu.																	
July	30	902	27064	2230.34	8.2	4002.14	14.8	1515.25	5.6	2523.62	9.3	6856.10	25.3	17.20	-	5924.30	21.9
Aug.																	
Sept.																	
3/Qu.																	
Oct.																	
Nov.																	
Dec.																	
4/Qu.																	
Year																	

*2c. Tailings Disposal? Power? Heat?*

1957	Dewatering		Stock-Pile Dozing		Gen. Repairs & Maintenance		General Mill Expense		Freight		Employees Insurance		Vacation		Statutory Holiday		Total	
	Amount	¢PT	Amount	¢PT	Amount	¢PT	Amount	¢PT	Amount	¢PT	Amount	¢PT	Amount	¢PT	Amount	¢PT	Amount	¢PT
Jan.																		
Feb.																		
Mar.																		
1/Qu.																		
Apr.																		
May																		
June	1106.44	4.1	3919.29	14.5	1130.82	4.2	10832.61	40.2	791.18	2.9	1578.04	5.9	472.82	1.8	To May 31, 1957	-	212278.47	-
2/Qu.																	45993.00	170.7
July	361.08	1.3	3638.43	13.4	2519.58	9.3	9184.20	34.0	433.86	1.6	2053.17	7.6	1017.05	3.8	826.05	3.1	43102.37	159.2
Aug.																		
Sept.																		
3/Qu.																		
Oct.																		
Nov.																		
Dec.																		
4/Qu.																		
Year.																		

\* No Distribution Figures Available to May 31, 1957.