

006051

REPORT OF EXAMINATION

of the

GABBRO MINE,

JORDAN RIVER, B.C.

Property File

092C073

Sunro

To:

F. R. Weekes, Manager,
Porcupine Goldfields D & F. Co. Ltd.,
Montreal, Que.

By:

Chas. C. Starr
O. D. Frith.

Nelson, B. C.
June, 1926.

Property File

092 C 073

Sunro

INTRODUCTION:

In all, five days were spent in examining this property. Camp was made with the Vancouver Island Power Co., at their No. 2 camp, and due to the exceptionally rough topography of the country, considerable time was taken up, in reaching and finding the various workings.

DISTRICT & LOCATION:

The Gabbro group is located in the Jordan River Section of the Victoria Mining Division. It adjoins the Sunloch group on the Jordan River, about 2 miles from the mouth, where the river empties into the Straits of Juan de Fuca.

PROPERTY:

The group consists of twenty-three claims or fractions. These claims are staked in an irregular block, crossing over the Jordan River, and tying to the Sunloch group on the west side, (see map).

The property is owned by the Gabbro Copper Mines Ltd., Sayward Building, Vancouver, B. C. Mr. Geo. E. Winkler is Managing Director.

PRICE & TERMS:

No definite terms have been arrived at.

TRANSPORTATION:

A good motor road runs from Victoria, a distance of 42 miles, to the Vancouver Island Power Co's plant which is about 3 miles from the property. From here the Sunloch Co. have a narrow gauge railway to their tunnels. This follows the Jordan River on the south side, cutting

through the Gabbro property, and is largely, cut out of the solid rock. From the Sunloch tunnels, the workings on the Gabbro claims are reached, by very steep and treacherous switchback trails.

It is unlikely that, the Sunloch railway could be used, if the two properties were not worked under one head, but a new railway could be built to the sea level. Due to the extremely heavy rock work, this would be expensive, but along the steep banks of the Jordan River is the only place that a road or railroad could be constructed to advantage.

An aerial tram way could be constructed but it is possible that power may be required to drive it.

Ore would be shipped by boat, from or near the mouth of the Jordan River, to any sea point.

POWER, WATER, WOOD & CLIMATE:

The property is only three miles from the Vancouver Island Power Co. plant, and abundant electric power could be secured, at a reasonable rate.

Several small creeks cross the property flowing into Jordan River, where a good supply of water could be developed.

There is a good growth of timber on the property, suitable for both building and mining purposes. It is likely that the timber is owned by some timber company, as logging operations were noticed in the vicinity.

There is very little snow in the winter, but the rain fall is exceptionally heavy.

TOPOGRAPHY:

The Jordan River flows through a very steep canyon, whose walls average about 60 degrees for a vertical distance of 600 feet, with cliffs in many places. Above this on each side of the river the ground has a gradual slope. Towards the west the property slopes off gradually to the sea except for several small creek basins.

HISTORY:

The Gabbro and Sunloch groups were originally staked by Geo. E. Winkler, of Victoria, B. C., as one group, who did assessment work on them.

In the spring of 1917, the whole group was bonded to R. H. Stewart and associates, of Vancouver, who organized the Sunloch Mining Co. Ltd.

At some period between 1917 and 1919, the two groups were bonded to the Consolidated Mining and Smelting Co. The Gabbro group was dropped by this Company, and a majority of stock in the Sunloch Co. purchased.

The Gabbro Copper Mines Co. Ltd. were then organized, with Geo. E. Winkler as Managing Director.

The property was later bonded by Augustus Locke and associates, of San Francisco, Cal. After some surface work the bond was relinquished.

BIBLIOGRAPHY:

Very complete reports are to be found in the Minister of Mines Reports on the District, from 1917 to 1925, as follows:

1917: Report on work and geology of Sunloch, with sketch map.

- 1918: Report on work and geology by R. H. Stewart, with map.
- 1919: Report of Sunloch with map. Short note re. Gabbro.
- 1920: Short description of Geology and work on the Gabbro.
- 1921: Report of development on the Gabbro, with good map of surface Development and geological and topographical map.
- 1922: Extensive report on the Gabbro, with map showing claims on Jordan River.
- 1923: Report of Gabbro, with assays.
- 1924: Report, inactivity.
- 1925: Report, Crown Grants obtained on most promising claims.

Memoir 13 Southern Vancouver Island, Geological survey, covers this district, but is not accurate.

No. 80 Geological Series, Sooke and Duncan Map Area, covers adjacent ground, but does not cover the area in which the Gabbro is located.

DEVELOPMENT:

Development has been done by stripping and trenching principally. A small tunnel was driven on what is known as the Winkler zone for about 30 feet, and a short tunnel on the Hornet zone.

Stripping which has been done, is confined principally to the steep side hill and cliffs, where there is little overburden. In many places, it has not broken through the oxides.

GEOLOGY:

The rocks underlying the property are of Tertiary age and consist of the Hatcherian volcanics, largely fine grained basalts, which are intruded by stocks of Sooke Gabbro.

The approximate contacts of the gabbro are shown on the claim map as worked out by Mr. Winkler. These contacts were not checked, except at one or two points, but they are thought to be approximately correct; since the actual contact is nearly always covered with soil no great detail can be obtained.

The basalts are mostly hard compact flows, but there are occasional beds of tuffaceous material, and the whole has been strongly metamorphosed with the development of hornblende.

The gabbro is a massive dark gray to green rock and shows considerable magmatic differentiation. Both the gabbro and the basalts, especially near the contacts and in the shear zones, are intruded by tiny aplitic dikes which are often very numerous and not more than a fraction of an inch across. The gabbro also contains many inclusions of basalt, some of them being of considerable size.

Numerous, but not very intense, zones of shearing cut both the basalts and the gabbro, most of them running approximately parallel to the contacts. So far as known they do not cut the contacts. These shear zones are more highly metamorphosed than the remainder of the rock, probably on account of the aplitic seams which are most highly developed in them, and are mineralized with pyrite, chalcopyrite and pyrrhotite, and have been somewhat silicified although little quartz is to be seen.

The metallic sulphides occur both as disseminations through the rock, and in seams and veinlets roughly parallel to the shearing. Generally the walls of the shear zones are indefinite and not very continuous.

SAMPLING:

(See sample maps)

Channel samples were taken with moils.

A total of 22 samples were secured, as follows:

Caulfield zone 13, Cave zone 6, and the Turnbull zone 3.

The best assay obtained (Sample 1074) shows 4.7% copper. This was massive chalcopyrite but apparently does not continue the same grade in either direction.

Samples 1085 and 1087 contained considerable oxides, while the balance were fairly clean.

Between samples 1090 and 1091 there was a strip of waste 18" wide, which was not sampled.

Sample 1077 was taken on a narrow cross stringer of ore.

Omitting the high grade samples (1074 and 1087) the numerical average of the balance, is 0.78% copper.

DESCRIPTION OF ZONES:

The Cave zone has been rather extensively developed on the Sunloch property east of the river, and what appears to be the same zone extends across the northeast corner of the Vulcan No. 5 claim, striking about N 60 W and dipping about vertical.

At the western end of the exposures there is a streak of fairly good ore, but most of the cuts show very low grade material. Walls are poor or indistinguishable, and the ore of a workable grade is too narrow to be commercial. According to the Minister of Mines Report, 1917, the ore in the Cave tunnel of the Sunloch averages about 2.4% copper.

The Turnbull zone is about 150 feet to the southwest of the Cave zone and runs about parallel to it. Its

copper content is consistently too low to be classed as ore at the seven points where it has been prospected. It is about four feet wide.

The Caulfield zone is on the Black Hornet claim, in the basalt on the south side of the gabbro, a couple of hundred feet from the contact. Its strike is approximately $S 60^{\circ} W$ and the dip 45° north; the hanging wall is generally well defined and the mineralized zone is fifteen to twenty feet wide, but the better part of the mineralization is about half that. Near the east line of the Black Hornet claim a northeast striking shear enters it from the south.

The Winkler zone is on the Vulcan No. 2 claim and strikes in a northeasterly direction. A short tunnel has been driven on it near its intersection with a northwesterly shear, and is said to show several feet of low grade ore.

It lies in the Gabbro, not far from the south contact. The Stewart and Pat zones also lie in the Gabbro several hundred feet from, and more or less parallel, to the contact. They are opened by several shallow cuts and appear fairly well defined and of fair size, but do not show any commercial ore.

EFFECT OF SUNLOCH DEVELOPMENT ON GABBRO PROPERTY:

The portal of the Cave tunnel is about 600 feet from the Gabbro boundary to the northwest along the strike of the zone, and the breast of the tunnel is 400 feet from the Gabbro ground (Gabbro claim) to the south east at a depth of about 300 feet. No definite average value is given for the ore in this tunnel, but it is to be inferred from the Minister of Mines reports and other sources that it is about

2 1/2% copper. To the southeast, the zone is covered on the Gabbro claim but there is no reason to doubt the existence of similar ore there. To the northwest the zone is strong on the Vulcan No. 5 and 6 claims, but the surface samples indicate lower grade ore, or no ore.

To the northward the River zone will not enter the Gabbro property, and the Archibald zone has not been identified there. To the southward the River zone has been developed to within 300 feet of the Gabbro line, at a depth of some 600 feet and shows 2 1/2% copper at the face. This ore, if it continues on the same strike, should enter the Gabbro ground near its sideline, but the zone has not been found there, probably on account of being covered.

CONCLUSION:

The various ore zones have merely been scratched on the surface on the Gabbro group and there is ample space remaining for good shoots of ore to be found. The samples, however, which were taken on the Cave, Turnbull, and Caulfield zones, show material of generally too low grade and too narrow widths to form commercial ore in the present exposures. Admitting that the surface samples are somewhat low on account of oxidation and leaching, it is still improbable that the unaltered material will be sufficiently higher to be interesting.

The Winkler, Stewart and Pat zones were not sampled but they are not cloized, nor do they look, to have as good ore as the ones that were sampled.

Such as they are, the ore zones may reasonably be expected to hold their size and values to considerable

depths, and they are in several instances proved to have a considerable length.

It is entirely probable that exploration on the Gabbro claim, on the strike of the River and Cave zones, will show ore of the approximate size and value as that opened in the Sunloch, which according to the report of the Resident Engineer is sufficient to make pay ore. However, to make the proposition attractive there must be a very large tonnage of ore and cheap working costs.

The Sunloch and Gabbro groups should be worked as one property, both for topographical reasons, and because otherwise the Sunloch No. 6 claim cuts the Gabbro property into two parts, in so far as the River, Archibald, Cave, and Turnbull zones are concerned and conversely, the Gabbro contains the extensions of these zones, leaving a limited area of promising ground for the Sunloch. Under such conditions the total cost of equipping and operating the properties as two units will be very considerably higher per ton than if they were one unit. If both groups were offered for sale they would make a property that would be only moderately attractive, assuming that the workings on the Sunloch have ore of the size and value reported.

Since the Gabbro Group must be considered by itself, it is distinctly unattractive on account of the low grade of the known ore and its position relative to the Sunloch.

Respectfully submitted,

Chas. C. Starr
O. D. Frith

History of the Sunloch-Gabbro

In 1915 George Winkler of Victoria found chalcopryite float on the beach near the mouth of the Jordan River. He succeeded in tracing the float up the river to its source on the east wall of the canyon. On July 30, 1915, Winkler and associates staked the claims later known as the Sunloch and on September 15, 1915, Winkler and associates staked the nucleus of the Gabbro group. Further claims were added to these groups in 1917 when J. M. Turnbull, R. H. Stewart, and Jack Hanna staked the Gabbro, Adaline and the War Eagle.

In 1917 Winkler bonded the Sunloch group to R. H. Stewart and Associates of Vancouver who organized the Sunloch Mining Company. R. H. Stewart was managing director and Jack Hanna was foreman. During 1917 a narrow gauge railway was built and diamond drilling and surface and underground work were done.

In 1919, The Consolidated Mining and Smelting Company acquired a majority interest in the Sunloch. W. M. Archibald, Chief Consulting Engineer for the Consolidated was appointed General Manager and Jack Hanna, Superintendent.

In 1920 further drilling, cross-cutting and drifting was done. The erection of a concentrating plant was postponed because of high costs and an unfavourable copper market. Jack Hanna resigned and George Kilbourne succeeded him. The property was left in charge of a caretaker.

The Gabbro Copper Mines Ltd. was organized in 1920

PROPERTY FILE

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with George Winkler as managing director to explore the Gabbro group. Surface prospecting and some underground work was carried out in the next few years.

The properties lay idle until 1949 when the Sunloch and Gabbro were optioned from their owners by Hedley Mascot Gold Mines. Hedley Mascot did extensive diamond drilling on the property during 1949 and 1950.

In 1956 the two properties were consolidated under the name Sunro Mines Limited.

In 1957 an adit was started to explore the downward extension of an extensive shear zone. This adit was driven a total of 7,805 feet.

In 1960 an operating lease was obtained from the Consolidated Mining and Smelting Company by Cowichan Copper Company Ltd.

In 1961 rehabilitation of the surface plant was commenced and underground mill installation was begun.

In 1962 the underground mill was completed and production started on May 1, 1962.

In 1963 production ceased because of flooding. The total production from May 1, 1962 to December, 1963 was 411,684 tons yielding 3,034 ounces of gold, 33,311 ounces of silver, and 13,123,221 pounds of copper.

In 1965 Sheep Creek Mines Limited agreed to provide management for Cowichan Copper.

Sheep Creek Mines, Ltd. changed its name to Aetna Investment Corporation Limited in 1965.

JORDAN RIVER MINES LTD — SUNRO MINE

NORTHGATE

MONTHLY REPORT

PROPERTY FILE 92C073(8E)

GEOLOGY DEPARTMENT

G. MEUSY — @ Mine

DATE : JUL 1973

The access ramp to the Cave Zone was brought up to 5425 Level and broken through into the Alimak Raise. The last rounds exposed mineralization of the Cave A.

The last lift in the River C Shrinkage Stope was completed and breasting was discontinued due to ground support problems, creating excessive dilution.

Production went on in the Cave A longhole stope with slightly better results.

The exploration drilling program was completed and established the discontinuity of the Cave B towards the north west. Definition drilling has been resumed in the Cave A Zone on 5400, from the upramp.

I - RAMPING

Map 1

79 feet were driven, resulting in the breakthrough in the Alimak raise on 5425 level. The tectonic features exposed include the eastern limb of #1 Branch West, a fault striking north and dipping 15 degrees east and the Cave Fault. Secondary faults and fractures between the major accidents account for a fairly shattered ground. Mineralization was mapped past the Cave Fault in two main shoots, as it was expected.

The eastern limb, probably connected to the main body to the north, is fairly high in Pyrrhotite stringers and veinlets (general trend N 20 degrees W) with little disseminated Chalco-pyrite in specks and tension fractures filling. Chip sampling on the walls returned 20' at 1.00% Cu (northern wall) and 15' at .79% Cu (southern wall).

The western limb seems richer in copper and the face is still in it.

Diamond drilling in progress on Section 1100 will clarify the relations between these two oreshoots to the north of the ramp,

II - RAISING

Raising in the Cave A South from 52 to 53 was resumed at the end of the month, and 6 feet were driven.

III - STOPING

III - A - CAVE A STOPE

Longhole drilling and blasting went on in the Cave A Stope (southern part). A total of 20,263 Tons were pulled and muck sampling averages .83% Cu to July 26th (last samples not assayed to date).

NS

54.1100 DD Stat

Major Fault

87

Minor Fault

BRANCH

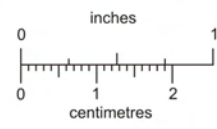
A

Fault probably related to erratic mineralization of A East Limb

EAST

1.00
20'

CAVE A



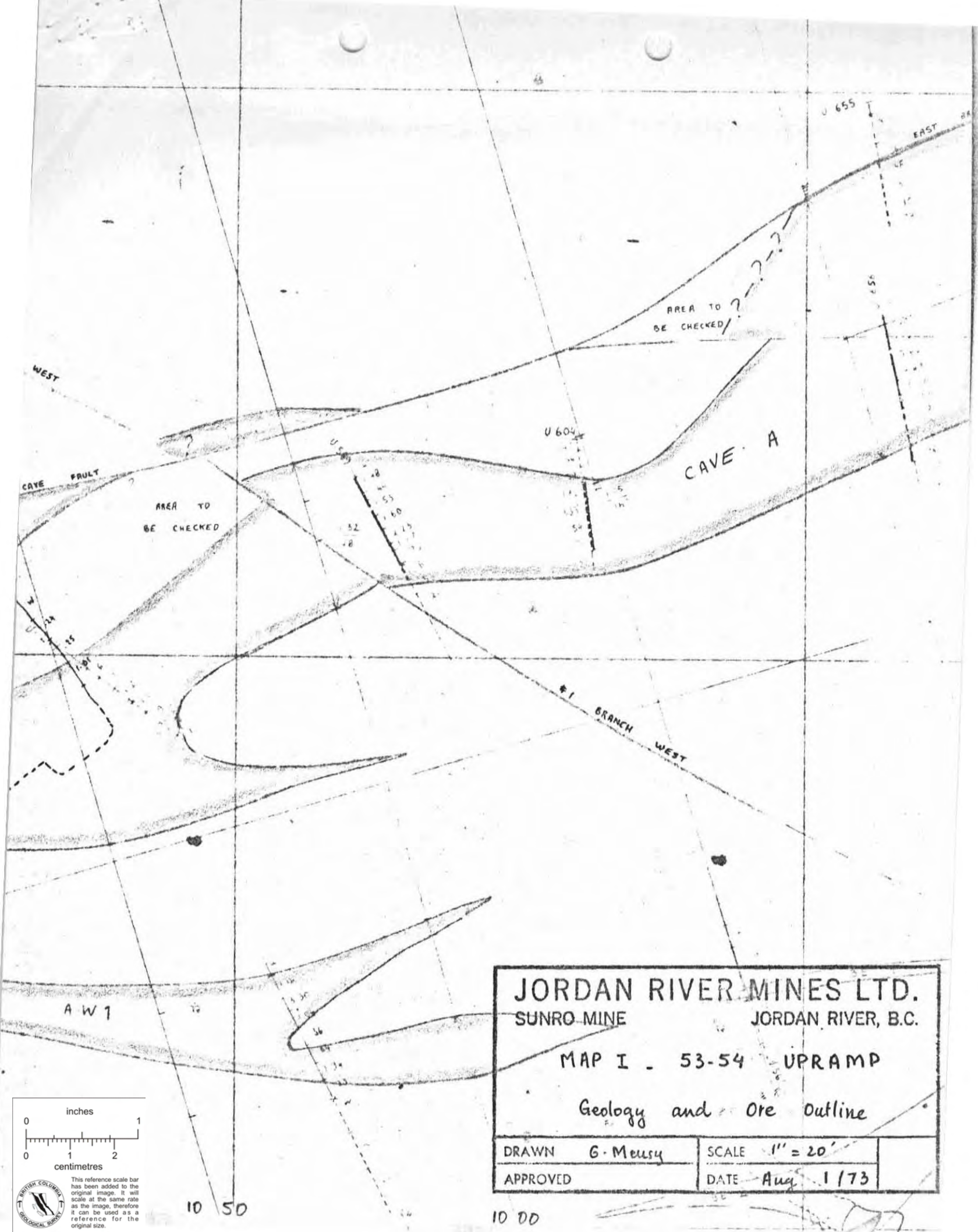
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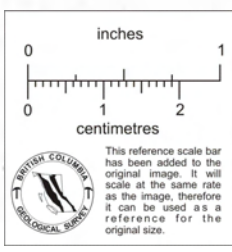
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JORDAN RIVER MINES LTD.
 SUNRO MINE JORDAN RIVER, B.C.
 MAP I - 53-54 UPRAMP
 Geology and Ore Outline

DRAWN G. Meusy	SCALE 1" = 20'
APPROVED	DATE Aug 1/73



91
Grade forecast allowing for 10% dilution was .95 Cu. Total dilution (actual) is therefore about 22%.

III - B - CAVE B STOPE

1,808 Tons were drawn from this stope, for which muck sampling indicates .87% Cu (Sampling efficiency equals 42%). Grade estimate for this muck was .85% Cu.

III - C - RIVER C STOPE

MAP III - C

4,574 Tons were broken in the shrinkage stope this month. (Average grade 1.75% Cu.)

A fairly heavy dilution was encountered which in addition to ground support problems, led to the abandon of this stope.

The geological plan on Map III - C has to be considered to understand the problem: cc' is a shear diatreme with 2 to 6 inches of soft muddy gouge and a sub-vertical dip; mineralization adjacent to this accident pinched out completely on 5320 elevation.

BB' is a sulphide vein with a very sharp contact to the south-west; its dip is sub-vertical and the mineralized width varies from over a foot to the north west down to 1-2 inches to the south east.

These two accidents CC' and BB' outline a heavily shattered zone with three sets of joints:

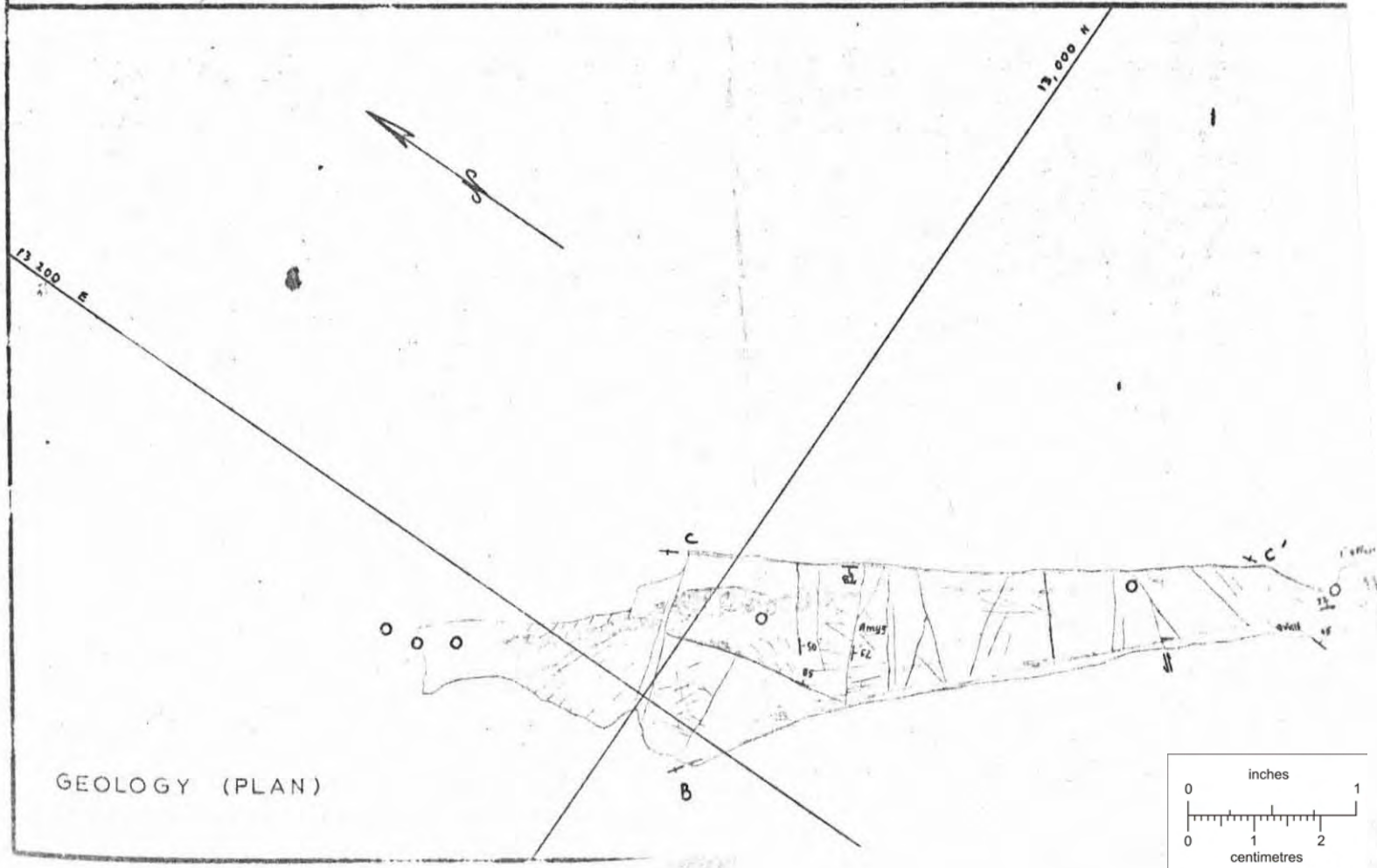
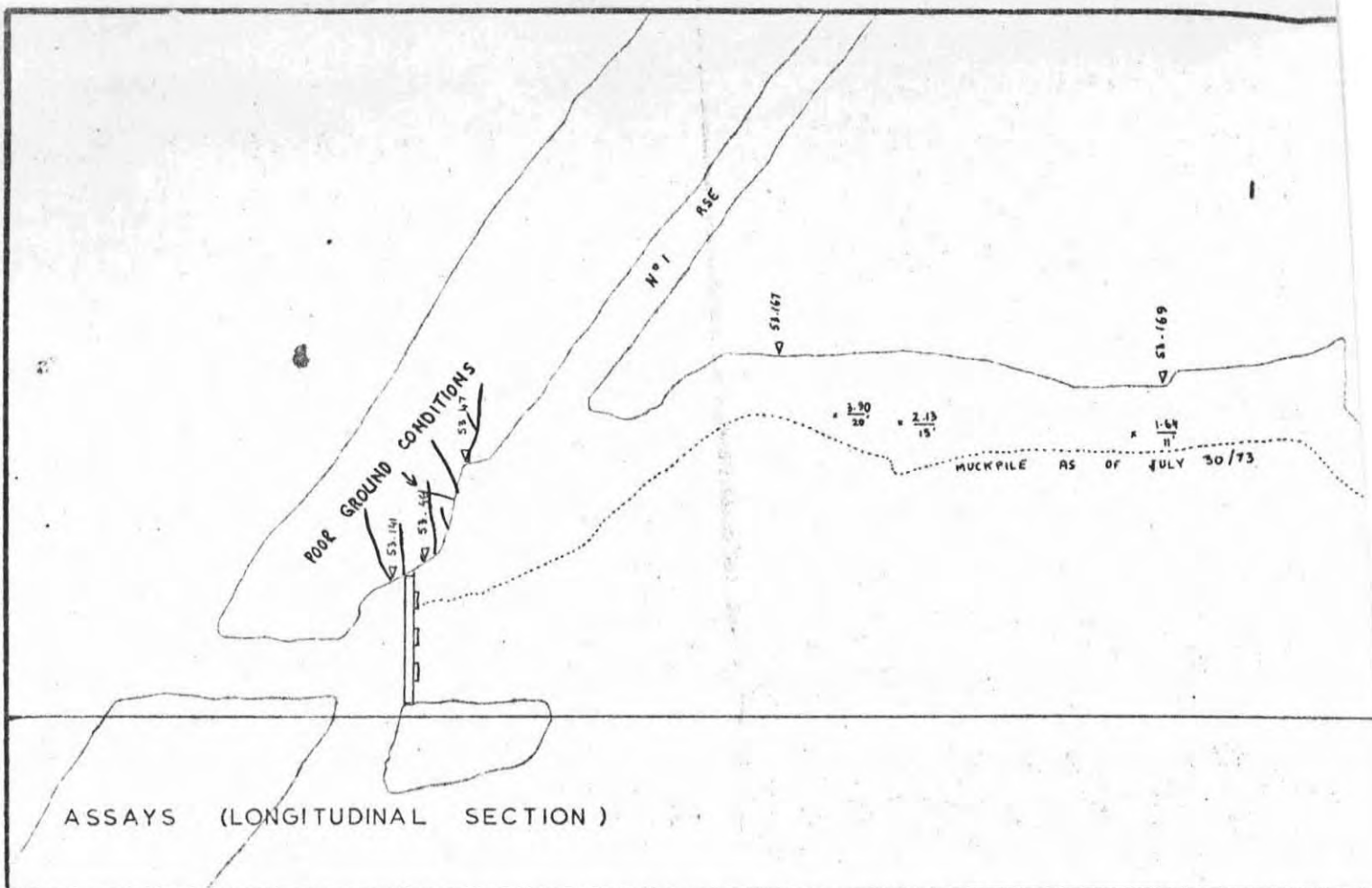
- N 45 - 60 degrees East, 50 to 70 degrees south
- N 0 - 10 degrees East, vertical
- Flat joints.

In addition, a limited number of cross-fractures (N 10-20 degrees East, vertical) are present. The mineralization is contained in this zone, with the richest part (Massive and breccia ore) located about 4 feet from the CC' fault.

91
Below 5320, the mineralization spread from CC' to BB', with an average grade generally over 1.80% Cu. The mining procedure was therefore very easy: blast holes were drilled approximately 6 inches inside the two contacts, and the ore would naturally peel off, reducing dilution to nothing and leaving a strong smooth wall.

Above 5320, the economic mineralization being concentrated in the central part of the shear zone, it became quickly impossible to mine from contact to contact without introducing a heavy dilution (30% and over). Attempts were made to cut down the mining width, but due to the discontinuity of the rock cohesion caused by the two diatremes BB' and CC', sloughing in occurred: several large barren fragments came off the walls, diluting the ore, creating hang-ups, hazards and endangering the mining crews.

In addition, minor cave-in occurred in the northern pillar between No.1 Raise and the empty C longhole stope.



inches

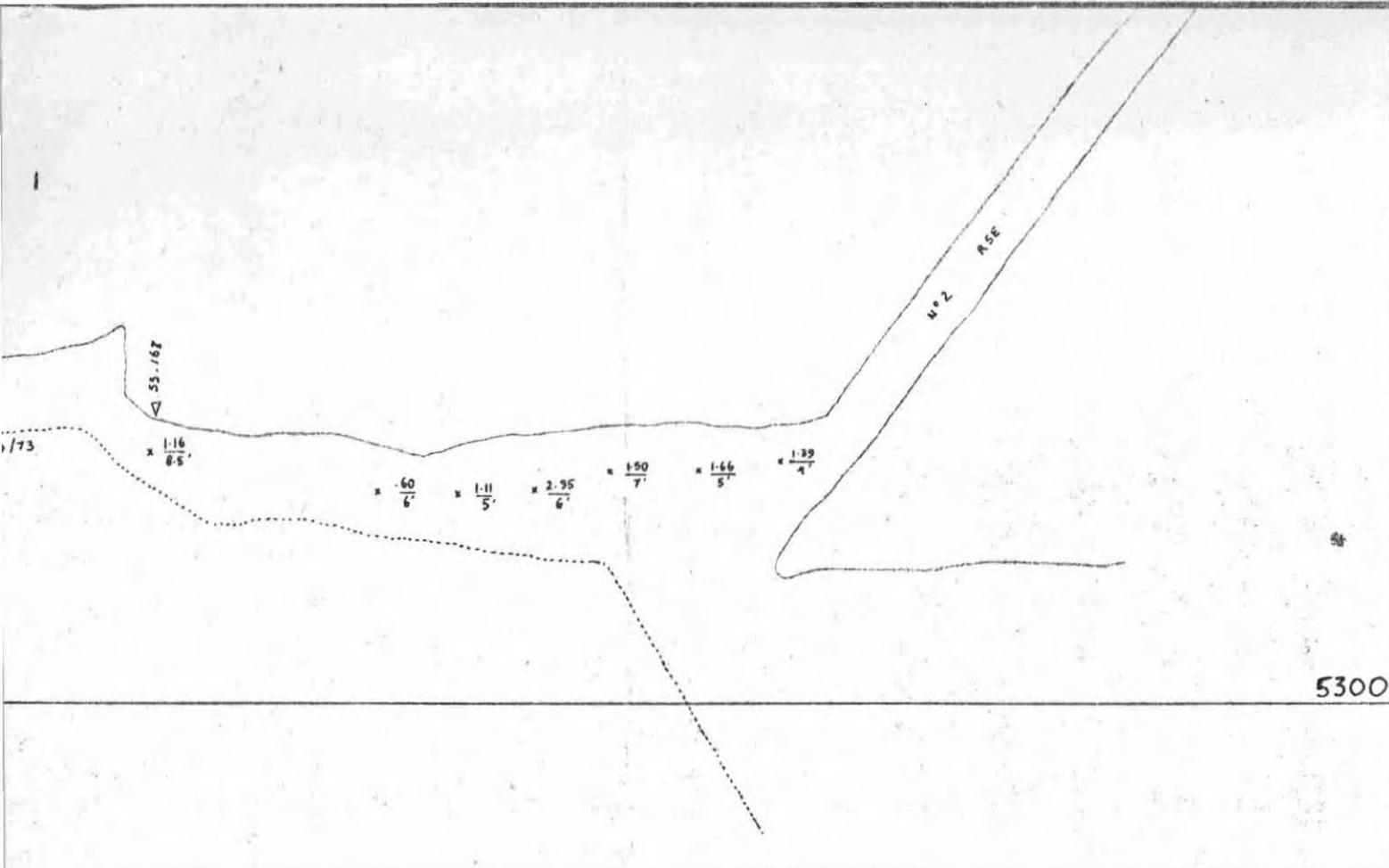
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centimetres

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BRITISH COLUMBIA GEOLOGICAL SURVEY

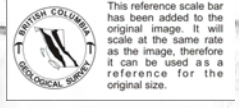
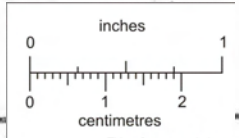
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JORDAN RIVER MINES LTD.
 SUNRO MINE JORDAN RIVER, B.C.

MAP III - C - RIVER C
SHRINKAGE STOPE

DRAWN G. MEUSY	SCALE 1" = 20 FT
APPROVED	DATE Aug. 2nd /73



This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

In the south-eastern part of the zone (past No. 2 Raise), the sulphide vein allowed a mining width of only 4 feet and under, which has proved impossible to maintain.

Stoping was therefor discontinued and the stope is being drawn empty.

The draw of the southern portion began in July with 1,286 Tons at 1.40% Cu (forecast was 2,221 Tons at 1.52). The draw of the remaining muck should yield a better grade, since reserves are estimated at:

Broken ore - 12,441 Tons at 1.88

IV - DIAMOND DRILLING

Total Footage - 715
Holes - U.690, U.699, U.702
Recovery - 92%

Shortage in manpower (one driller left this month), and mechanical problems (valve burnt on JV 1, necessary overhaul of both pumps) account for the poor performance in July.

The exploration drilling program has been completed nevertheless; the north-western extension of the Cave Zone has been tested to about 150 feet past the last known informations.

Results establish that there is no economic mineralization along the contact volcanics-intrusive to the north-west.

Very low grade and erratic mineralization, fairly rich in Pyrrhotite has been cored on strike of the Cave A to the north-west of the main haulage, confirming the fact that this Zone is devoid of interest for mining purpose.

Definition drilling has been resumed on 54, from the upramp, to outline and grade the Cave A Zone on Section 1100 (See Map I).

V - MISCELLANEOUS

The core of the diamond drill hole IS - 1 drilled at -58 degrees on the claims of R. J. Syndicate has been examined on July 18th/73.

The hole went through a pile of basalt (Metchosin Volcanics) displaying an abnormally high amount of Epidote and Pyrite. Several fault zones were cut, all of them mineralized in Pyrite. Except in the fault zones where Epidote - Calcite - Argillite are present, no hydrothermal alteration has been seen.

The core shows only a few sections of diabase and none of the characters of persistent mineralization at depth.

VI - MID-YEAR ORE RESERVES CALCULATION

Ore reserves in the mine have been blocked out at the end of June 1973 and re-calculated with the same basic principles as in previous estimates.

For cut-off grade calculation, the following factors have been used, based on the milling figures from April 1972 to April 1973:

- Metal recovery equals 93%
- Concentrate Grade equals 25% Cu.
- Ocean shipping, smelting, refining and marketing charges estimated at 20¢ per pound of copper produced.
- Mining, milling, overhead and royalties costs estimated at 32¢ per pound of copper produced (These last two figures were communicated).
- LME Copper price was blocked at 70¢/lb. (which is more than offset by today's price).

The cut-off grades computed from this data are:

- .78% Cu. for ore zones wider than 12 Feet
- 1.20% Cu. for ore zones where 5 Ft ≤ width ≤ 12 Ft.

The results of the calculation is presented in a tabulated form on the accompanying chart.

In addition, a closer estimation of the possible reserves has been carried out, taking in account for the River Zone the recent results of the exploration drilling program.

Possible ore in Cave Zone between 54 and 57: 160, 400 Tons @ 1.07

Possible ore in River Zone below 51 Level: 156,032 Tons @ 1.48

All the other figures on possible ore given in my 1972 Annual Report remain unchanged.

Analysis of the Ore Reserves Variations:

Reserves in June 1973	-	46,439,507	Lbs. Cu.
+ Mined out Jan - June	-	2,816,572	Lbs. Cu.
		<hr/>	
		49,256,079	Lbs. Cu.
- Reserves in January 1973	-	48,655,843	Lbs. Cu.
= NET CHANGE	=	+ 600,236	Lbs. Cu.

This means that the equivalent of 24,600 Tons @ 1.22 of new ore has been found and outlined during the first five months of the year on top of the tonnage equivalent to the production during the same period.

GM/ic
August 3/73

G. Meusy,
Mine Geologist.



SUNRO MINE

ORE RESE

ZONE & BLOCK		HEIGHT	LENGTH	BROKEN			PRO
Name	Feet	Feet	TONS	% Cu	T x G	TONS	%
CAVE A	600	800	5,450	.91	4,959	542,705	1
CAVE B	400	500	5,705	1.04	5,933	61,955	
TOTAL CAVE			11,155	.98	10,892	604,660	
RIVER A 1	470	100	NIL	--	--	10,220	
RIVER A 2	400	200	NIL	--	--	120,998	
RIVER A 3	270	75	NIL	--	--	10,233	
TOTAL RIVER A			NIL	--	--	141,451	
B BARR. PSE PILLAR	470	50	NIL	--	--	92,900	
B SILL PILLAR	400	100	NIL	--	--	30,100	
LOWER B	350	300	NIL	--	--	200,000	
B SOUTH	200	180	NIL	--	--	10,653	
B SOUTH-EAST	470	100	NIL	--	--	34,191	
TOTAL RIVER B			NIL	--	--	364,844	
UPPER C	700	570	9,280	2.19	20,104	25,285	
LOWER C	200	100	NIL	--	--	NIL	
TOTAL RIVER C			9,280	2.19	20,104	25,285	
TOTAL RIVER ZONE			9,280	2.19	20,104	531,580	
TOTAL CAVE & RIVER			20,935	1.59	10,996	1,136,240	
NEW ZONE	150	300	NIL	--	--	NIL	
LAND ZONE	200	300	NIL	--	--	NIL	
SUB-TOTALS			21,235	1.58	10,996	1,136,240	

PROVEN			PROBABLE			TOTAL		
S	% Cu	T x G	TONS	% Cu	T x G	TONS	% Cu	T x G
05	1.18	643,170	226,145	1.21	346,068	834,300	1.19	994,197
55	1.53	95,190	26,865	1.49	43,061	96,525	1.49	144,184
60	1.22	738,360	315,010	1.23	389,129	930,325	1.22	1,138,381
20	2.40	24,528	NIL	--	--	10,220	2.40	24,528
08	1.32	159,997	18,762	1.37	25,766	139,760	1.33	185,763
33	1.56	15,963	NIL	--	--	10,233	1.56	15,963
51	1.42	200,488	18,762	1.37	25,766	160,213	1.41	226,254
00	1.89	173,691	NIL	--	--	91,900	1.89	173,691
00	2.25	67,725	NIL	--	--	30,100	2.25	67,725
00	1.84	368,000	NIL	--	--	200,000	1.84	368,000
53	2.34	43,726	18,192	2.35	42,935	26,215	2.35	86,561
91	1.40	38,705	NIL	--	--	24,191	1.40	38,705
64	1.90	691,947	18,192	2.35	42,935	383,026	1.92	734,682
85	1.83	45,271	30,101	1.15	34,616	64,566	1.56	100,991
	--	--	32,500	1.76	57,200	32,500	1.76	57,200
85	1.83	45,271	68,402	1.47	91,814	97,046	1.63	148,191
80	1.76	938,606	79,555	1.81	260,417	640,315	1.75	1,169,127
240	1.17	1,676,946	44,565	1.32	349,846	1,571,140	1.14	2,257,802
	--	--	25,844	1.67	43,120	25,844	1.67	43,320
	--	--	26,775	1.10	29,452	26,775	1.10	29,452
240	1.17	1,676,946	447,184	1.33	622,318	1,643,759	1.13	2,330,240

240 1.17 = 1,919,551 Tons 1.22 Calculated by : J. M. M. M.

COMPARISON OF FORECAST TONNAGES AND GRADES (CALCULATED WITH DIAMOND DRILLING INFORMATION) AND ACTUAL TONNAGES (MEASURED) AND GRADES (ESTIMATED WITH MUCK OR CHIP SAMPLING RESULTS) FOR JULY 1973.

WORKING PLACE	FORECAST		ACTUAL		REMARKS
	Tonnage	Grade	Tonnage	Grade	
<u>DEVELOPMENT</u>					
52 Cave A Rse			21	.78	TO COB 16
<u>STOPPING</u>					
CAVE A (LINES 12 → 27)	31,116 <small>29,560</small>	.95	20,263	.83 <small>47</small>	Allowed for 10% dilution on forecast 16,312
CAVE B	950 <small>807</small>	.85	1,808	.87 <small>42</small>	1573
RIVER C (Swell)	1,260 <small>2495</small>	1.98	INCLUDED IN	FIGURE BELOW	
RIVER C South	2,221 <small>3376</small>	1.52	1,286	1.40 <small>50</small>	1800
<u>WASTE</u>					
53-54 Ramp			893	WASTE	IN C STOPPE
RIVER B DP			80	.10	TO COB 8
52-53 MUCK RAISE DRAW			100	.10	TO COB 10
	35,547	1.02	23,558	.86	MILLED: 20,225 25,671 T @ .838

DIAMOND DRILLING SUMMARY

715-F₁

- July - 73

HOLE	FROM	TO	TOTAL	LOCATION	CODE	MACHINE	REMARKS
JUNE 28/73 - July 12/73							
U-702	517	754	237	51 HANNA ZONE XCUT	01.01.01	JVI	TOTAL FOOTAGE JUNE 28/73 To July 12/73 339 FT.
U-699	0	102	102	51 HANNA ZONE XCUT	01.01.01	JVI	
TOTAL			339		01.01.01		
				COST CODE →	010101	100%	
JULY 13/73 - JULY 30/73							
U-699	102	438	336	51 HANNA ZONE X CUT	01.01.01	JVI	TOTAL FOOTAGE JULY 13/73 To JULY 30/73 376 FT.
U-690	0	40	40	54-1100 RAMP	01.01.01	JVI	
TOTAL			376		01.01.01		
				FOR MONTH COST CODE:	01.01.01	715 FT. - 100%	

FIRST PERIOD: JUNE 28/73 - July 12/73 TOTAL FOOTAGE: 339

DRILLER	FOOTAGE	TOTAL HRS	COMP.	CONT.	BONUS	FT/HR	FT/SHIFT	FT/CONT. HR	BONUS SHFT
ANDERSON	73	24	12	12	65.65	3.04	24.33	6.08	21.88
ODDYK	48	26	14.5	11.5	40.55	1.85	14.77	4.17	12.48
GWILLIAM	218	80	25	55	168.00	2.73	21.80	3.96	16.80
Tot + Av.	339	130	51.5	78.5	274.20	2.54	20.30	4.74	17.05

DIRECT COST:

	TOTAL	PER FT
LABOUR @ 4.44/HR x 130	574.60	1.69
BONUS	274.20	.81
DIAMOND		.38
CORE BOXES		.01
SLUDGE SAMPLING		
MISC.		
TOTAL:		2.89

COMPANY TIME:

MOVING / SET UP	3	6%
REPAIRS	23.5	46%
NO AIR OR WATER	1.0	No AIR 2%
PIPE FITTING FREEZING UP SURVEY or SUPERVISION	12.0	23%
MISC	12.0	23%
TOTAL	51.5	37.6% OF TOTAL TIME

SECOND PERIOD: July 15/73 - July 30/73 TOTAL FOOTAGE: 376

DRILLER	FOOTAGE	TOTAL HRS.	COMP	CONTR.	BONUS	FT/HR	FT/SHIFT	FT/CONT. HR	BONUS SHFT
GWILLIAM	376	96	42	54	242.15	3.92	31.33	6.96	20.18
Tot + Av.	376	96	42	54	242.15	3.92	31.33	6.96	20.18

DIRECT COST:

	TOTAL	PER FOOT
LABOUR @ 4.42/HR x 96	424.32	1.13
BONUS	243.48	.65
DIAMOND		.38
CORE BOXES		.01
SLUDGE SAMPLING		
MISC.		
TOTAL :		2.18

COMPANY TIME:

MOVING / SET UP	15	36%
REPAIRS	11	26%
NO AIR AND WATER	4	10%
PIPE FITTING	7	17% STRAIGHTEN RODS
SURVEY or SUPERVISION		
MISC MOVE GEAR TO SHOP	5	11%
TOTAL :	42	43.75% OF TOTAL TIME

COWICHAN COPPER CO. LTD. (N.P.L.)

MINE OFFICE:
RIVER JORDON, B. C.

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92C/18E

92C-73

July 31, 1962

3110

DEPT. OF MINES AND PETROLEUM RESOURCES		
Rec'd AUG 2 1962		
<i>HS</i>		

Mr. Neil McKechnie,
Department of Mines,
Parliament Bldgs.,
Victoria, B.C.

Dear Neil,

As yet we have not washed down the old adits, but I have not forgotten them. The problem is to find someone to do it.

Enclosed is a sketch of 5300 level and the diamond drill holes showing the dykes. This is the level which you mapped a couple of months ago. I have marked all the intersections of dyke and indicated what, to me, seems the most logical way to join them. The result is an amazing sinuous, serpentine dyke. Since these configurations have no apparent effect on either the faults or the ore they must be pre-ore. *NDW/CK*

I very much doubt, that the dyke has been folded into this shape, or that it is following an older structure in the basalts. The basalts, except in the immediate vicinity of the ore, are hard, massive and fresh in appearance. There is no schistosity nor metamorphism, which one would normally find with such tight and complex folding. Then, what caused this? -

I am wondering if perhaps the dykes are not intrusive, but are part of the flows and that this peculiar configuration is a flow structure developed during the final stage of advance when the flow was viscous. This seems more probable and could explain why the dyke is so difficult to differentiate from the basalts.

To those who might argue that this peculiar structure occurs only in the ore zone and hence has a bearing on the ore deposition, I would point out, that it is only in the ore zone, that sufficient close drilling has been done to delineate the structure. This structure probably extends into the wall rocks, but has not been traced.

What are your thoughts about this? Have you encountered any comparable structures? I would like to hear your suggestions as well as those of any one else whom you can interest.

Best Regards

COWICHAN COPPER COMPANY LIMITED (NPL)

Kenn Rose
KENNETH C. ROSE, P. ENG.

PROPERTY FILE