GEOLOGICAL REPORT

ON

Arjay Claims Nos. 1 to 20 Inclusive

Location

2 Miles East of Sustut Lake

quadrilateral 56°N, 126°W, N.E.
(94, D, 9, d)

FOR

WESTGATE HOLDINGS LIMITED

and W. D. SAVAGE

by

G. L. Holbrooke - October 23rd, 1973

* * *

94D/9W

474

MENARD SYNDICATE

REPORT ON

NAVAGO D.S. GROUP - BUSTUT AREA

OMINECA MINING DIVISION, B.C.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 474 MAP

October 22nd, 1962

G. L. Holbrooke

G. L. HOLBROOKE

CONCLUSIONS

A very limited amount of prospecting and surface trenching has shown an interesting copper mineralization with some silver in a strong, 40 to 50 feet wide, shear zone which can be followed across the property for over 3,500 feet and which can be traced intermittently across the country for over ten miles.

The only samples obtainable are from oxidized and presumably leached vein material. The results from these are sufficiently good to warrant further investigation and it is probable that samples of the unoxidized mineralization would yield better results.

The mineralization occurs in lenticular areas within the shear zone but only one of which has been even partially investigated. This lense has a width of approximately seven feet and can be traced for a length in excess of 200 feet. Assays of representative grab samples of oxidized vein material return copper values from 0.50% to over 3.0% and low silver values in the order of 1 oz. per ton.

Further preliminary exploration of the property is warranted.

RECOMMENDATIONS

It is recommended that a camp for six men be established at the present Bedard campsite in Moose Valley. Using lumber from the McConnell Creek operation some 15 miles to the northeast this is estimated to cost $2,000.

It is recommended that the first step in the exploration of the property be the detailed geologic mapping of the claims.

This is estimated to cost $3,000.

While the mapping is in progress it is further recommended that the 3,500 foot length of mineralized shear zone exposed across the property be cross trenched by hand at regular intervals where possible. The vein material exposed in these trenches should then be drilled off using a portable gas plugger, blasted, and sampled. It is estimated that this work can be completed by a crew of five men in approximately 40 days at a cost of $5,000.

If warranted by the results of the sampling the next step would be the diamond drilling of any sections of the zone showing ore-making possibilities at a depth of about 150 feet. Because of the remoteness of the area and the pumping problem such drilling will be expensive, in the order of $6.00 per foot. It is impossible to estimate the amount of drilling at this time.

* * *

LOCATION, TOPOGRAPHY, ACCESSIBILITY ETC.

The area surrounding the property lies in northern British Columbia between latitudes 56°30' and 56°50'N and longitudes 126°20' and 126°45'W. It covers the southern end of the McConnell Range which crosses the centre of the area. Sustut Peak lies in the southwest corner and the Wrede Range crosses the northeast corner.

The upper parts of the McConnell and Wrede Ranges vary in elevation from 6,000 to 7,000 feet while Sustut Peak reaches 8,100 feet. The McConnell Range is separated from the Sustut Peak Range by 5 to 6 mile wide Moose Valley, which trends southeast across the area, and from the Wrede Range by the upper valley of the Ingenika River. Both valleys are about 4,000 feet above sea level and are filled with overburden to about the 5,000 foot contour. The southern part of the McConnell Range is broken by cross valleys into a series of relatively small mountain masses and these too, below the 5,000 foot level are covered by overburden.

The areais remote and is located about 250 air miles northwest of Prince George and 110 air miles N15°W of Manelton, both on the Prince Rupert branch of the Canadian National Railways. It is best reached by float-equipped aircraft to Sustut Lake in the south-central part of the area, to Thorne Lake in the northwest corner, to McConnell Lake in the north-central part, or to Johanson Lake some 10 miles east of Sustut Lake. The nearest sea-plane bases are at Fort St. James, 100 miles, or Prince George, 250 miles.

Prince George is the transportation centre and principal source of supplies for this section of British Columbia. It lies on the Prince Rupert branch of the Canadian National Railways and forms the northern terminus of the Pacific Great Eastern Railway. It is reached from Vancouver by the 505 mile long Cariboo Highway and is connected to the Alaska Highway at Dawson Creek by the 259 mile long Hart Highway. It is also connected westward to Prince Rupert by a 490 mile long highway which follows the railroad and 70 miles west of Prince George passes through the town of Vanderhoof.

From Vanderhoof an all weather gravel highway runs 178 miles north and northwestward through Fort St. James and Germansen Landing to Osilinka Lake. From Osilinka Lake a cat road continues some 40 miles westward to Aiken Lake and from there a rough cat trail runs across upland meadows through Ingenika Summit and enters McConnell Creek Valley via Jensen Creek. The distance from Aiken Lake to the area is approximately 65 miles.

The climate of the area is relatively mild. Winter temperatures in the valleys seldom fall below zero fahrenheit and are usually in the 10° to 20° range. Summers are cool, usually between 60° and 70° with rare, short hot periods up to 90°. Precipitation consists of from 2½ to 3 feet of snow in the winter and almost daily showers the rest of the year. In the valleys winter usually starts about the end of October and lasts until mid-April but in the higher elevations is about three weeks earlier and lasts about a month longer.

The D.S. property lies near the centre of the general area described above near latitude 56°42' north, longitude 126°25'W. It consists of a block of twenty contiguous mineral claims covering a rectangular area 10 claims, or 15,000 feet, long in a northwest direction and 2 claims, or 3,000 feet, wide. The claims are known as D.S. Nos. 1 to 20 inclusive.

The property covers the northern part of one of the smaller, isolated mountain masses at the southern end of the McConnell Range and elevations vary from a high of 6,700 feet near the centre of the group to about 4,700 feet at the northwestern and southeastern ends. At the northwestern end a small lake lies in a glacial cirque and drains northward and then northeastward into the upper Ingenika River. At the southeastern end a second cirque opens eastward and a small creek flowing in that direction from this cirque forms the headwaters of the Ingenika River. The 1½ mile long area between the two cirques rises abruptly to over 6,500 feet and above 5,000 feet the rocks are well exposed.

Other than by helicopter access to the property is from the cat trail between Aiken Lake and McConnell Creek. About 12½ miles south of McConnell Creek the trail passes within a mile of the head of the southeastern cirque on the property and a switchback trail leads from this cirque to the showings on the higher reaches of the property.

The tree line in this area is just below the 5,000 foot elevation so that there is very little timber of any sort on the property except near the outlet of the southeastern cirque where scrub jackpine would provide some shelter for a campsite. Water for drilling or other preliminary needs is available in either of the two cirques but any work in the vicinity of the vein showings would require pumping against a head of at least 1,500 feet.

DEVELOPMENT

Aside from prospecting the only development on the property consists of shallow, hand-dug trenches across the mineralized zone on claims D.S.4 and D.S.2.

GEOLOGY OF THE AREA

The area is underlain by a thick, folded sequence of andesitic and basaltic lavas, tuffs, and fragmentals with minor interbedded sedimentary material belonging to the Takla Group of early Mesozoic age. A narrow belt of late Paleozoic sediments and acid lavas is exposed along an anticlinal axis which strikes N45°W across the southwestern section of the area.

The anticlinal axis along which the Paleozoic rocks are exposed is the southeastern continuation across this area of the

regional, Yukon geanticline. The companion, parallel, Wolf Lake geosyncline crosses the area about 15 miles to the northeast and the bedded rocks of the area are locally contorted in minor, subsidiary folds developed on the limbs of these major, regional structures.

The bedded rocks are intruded by a number of plutons and small batholiths of granitic rock varying in composition from diorite to granite. These minor intrusions lie just off the northwestern nose of the major Omineca batholith which stretches southeastward for over a hundred miles from a point 16 miles southeast of Sustut Lake. It is probable that the minor granitic bodies represent exposed spires or cupolas of the main batholithic mass which in this area has not yet been uncovered by erosion.

Extensive faulting is indicated in the area but is largely masked by the overburden in the valleys. The northwestern continuation of the Omineca-Carruthers fault crosses the southwest corner of the area with a N50°W strike and the continuation of the north-striking Osnlyd branch of the Omineca fault probably underlies the upper Ingenika Valley and McConnell Creek and lakes. In the southern part of the area cross faulting in a northeast direction is also indicated. A strong, steeply dipping, shear zone can be traced for over 10 miles in a S37°E direction from near the head of Menard Creek and corresponds to the strong shear traversing the small mountain mass at the headwaters of the Ingenika River. A second strong vertical shear zone strikes S35°E from just west of the head of Menard Creek and apparently continues in that direction for approximately 10 miles to the foot of Sustut Lake.

GEOLOGY OF THE PROPERTY

The property is underlain by andesitic and basaltic lavas, tuffs, and fragmentals of the Takla series of early Mesozoic age intruded by a small pluton of granodiorite.

The bedded rocks are locally folded, particularly on the southern claims of the group, but have a general northwest trend and exhibit flat dips to the southwest of from 15° to 20°. They are thus lying on the northeast limb of a minor syncline developed on the northeast limb of the major Yukon geanticline whose axis trends northwest about five miles to the southwest.

The granodiorite occurs near the centre of the property as a small, roughly circular plug about 2,200 feet in diameter. It underlies practically all of claim D.S.2 and its greater resistance to erosion is apparently responsible for the higher elevations of this section of the area.

ECONOMIC GEOLOGY

Within the area a number of copper occurrences are known in the Takla volcanics, usually in the vicinity of an intrusive body of granitic rock. The mineralisation consists of pyrite and chalcopyrite, often with bornite and chalcocite, and occasionally with tetrahedrite. It is usually found as disseminations in shear zones and as a replacements of favourable tuff beds. Very little serious work has been done on these occurrences but where examined they appear to have a general tenor of about 3% copper over widths up to 15 feet. Silver and gold are generally low but occasional assays up to 1.80 ounces gold and 83.20 ounces silver per ton have been obtained.

On the D.S. property a strong, 40 to 50 foot wide, vertical, shear zone has been traced for over 3,500 feet across claims D.S.2 and D.S.4 in the vicinity of the granodiorite plug. This same shear zone can also be traced intermittently for some 10½ miles northeastward to near the head of Menard Creek and it is one of the main zones of weakness in the area. It strikes N43°W and probably represents a fault of considerable magnitude but the displacement has not been determined. On claim D.S.2 it cuts through the granodiorite plug and is thus somewhat later in age than the intrusive.

Where it is exposed on the D.S. property the shear zone carries a medium to strong pyrite-chalcopyrite-bornite mineralisation in lenticular disseminations and one at least is over seven feet wide and can be followed for two hundred feet or more along the strike. This lense of mineralisation lies in the shear zone in dark green, chloritized volcanics about 300 feet northwest of the granodiorite plug. Similar mineralisation is noted elsewhere along and across the shear, both in the volcanics and the granodiorite, but has not been explored.

The lense described above lies on claim D.S.4 near its south boundary and has been investigated by two shallow trenches. Where it is exposed the sulphides are heavily oxidized and considerable azurite and malachite with limonite can be seen. No systematic sampling has been done but a number of grab samples of the oxidized, and presumably leached, vein material have returned copper values from 0.5% to 3.11% copper with traces of gold and low silver values in the order of 1 ounce per ton. Such material is below ore grade in this remote locality unless a very large deposit can be developed but as noted the samples are of leached vein matter and the unoxidized mineralisation could well show more copper and considerably higher silver values.

The very limited exploration of the property has been confined to the one lense of mineralisation described above. Mineralisation is known elsewhere along the zone but the potential of the structure is essentially unknown. From the indications to date further investigation is warranted.

G. L. Holbrooke

October 22nd, 1962 G. L. Holbrooke

CERTIFICATE

I, G. L. Holbrooke, of 160 Bay Street, in the City of Toronto, in the Province of Ontario, do hereby certify as follows:

1. That I am a consulting geologist and a member of the Association of Professional Engineers of Ontario.

2. That I am a graduate of McGill University with degrees of B. Sc. and M. Sc. in 1927 and 1928 and have been practising my profession continuously since graduation.

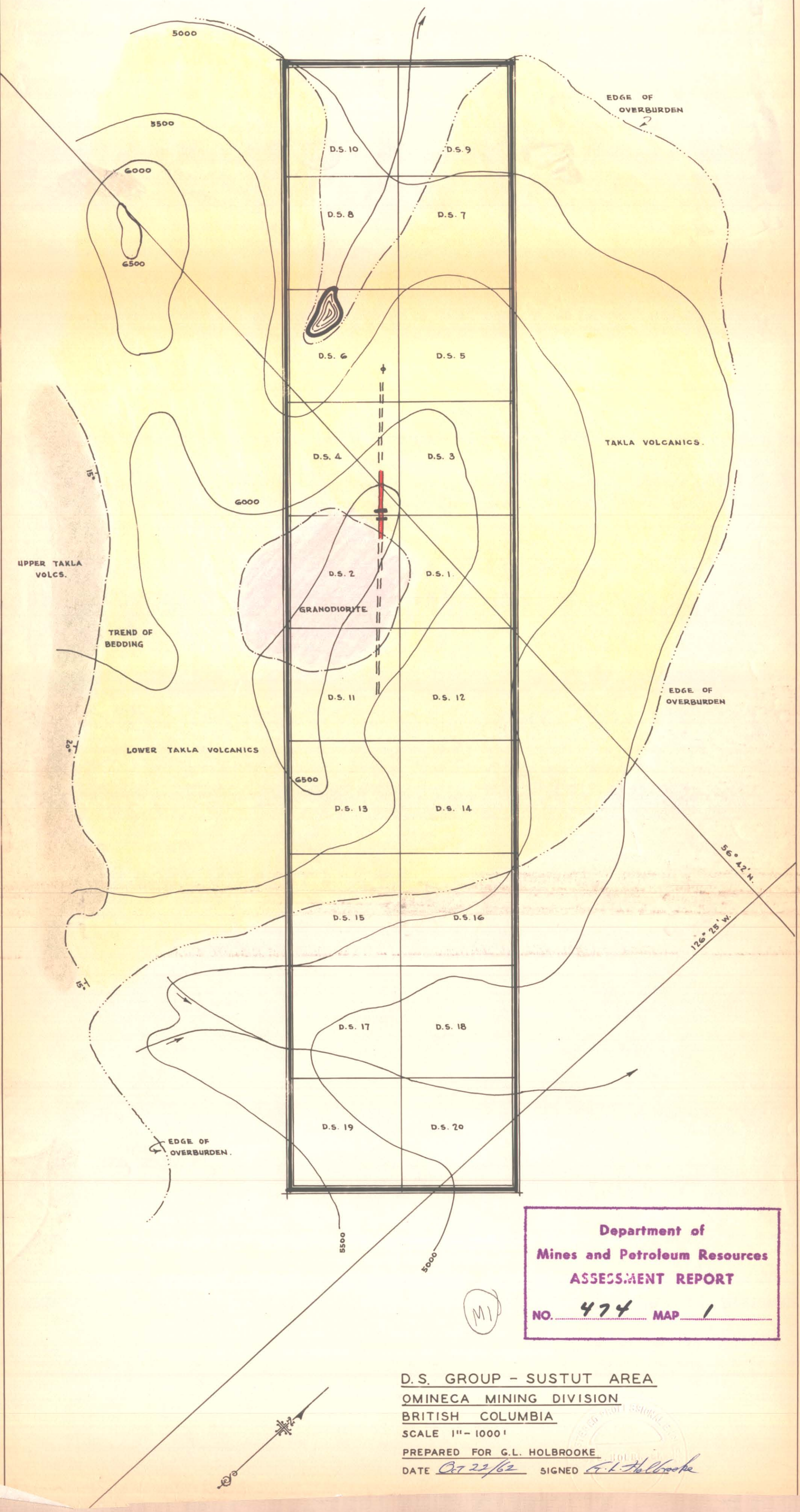
3. That the accompanying report is based on Geological Survey of Canada Memoir 251 entitled McConnell Creek Map Area, Cassiar District, British Columbia; on personal communications from W. D. Savage; on a personal knowledge of the area; and on an examination and sketch mapping of the property between October 1st and 10th, 1962.

4. That I have no direct or indirect interest whatsoever in the properties or securities of the company, nor do I expect to receive any such interest.

G. L. Holbrooke

G. L. Holbrooke,
Consulting Geologist.

Dated this 22nd day of October, 1962


5000
3500
6000
6500
EDGE OF OVERBURDEN
D.S. 10
D.S. 9
D.S. 8
D.S. 7
D.S. 6
D.S. 5
D.S. 4
D.S. 3
TAKLA VOLCANICS.
15°
6000
UPPER TAKLA VOLCS.
D.S. 2
D.S. 1
GRANODIORITE
TREND OF BEDDING
D.S. 11
D.S. 12
EDGE OF OVERBURDEN
20°
LOWER TAKLA VOLCANICS
6500
D.S. 13
D.S. 14
56° 42' N.
D.S. 15
D.S. 16
126° 25' W.
5°
D.S. 17
D.S. 18
D.S. 19
D.S. 20
EDGE OF OVERBURDEN.
5500
5000
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 474 MAP 1
M1
D.S. GROUP - SUSTUT AREA
OMINECA MINING DIVISION
BRITISH COLUMBIA
SCALE 1" - 1000'
PREPARED FOR G.L. HOLBROOKE
DATE Oct 22/62 SIGNED G.L. Holbrooke