

920/62

EMANCIPATION MINE

MINERAL LEASE M 28

Lat. $49^{\circ}30'$ Long. $121^{\circ}16'$
New Westminster Mining Division

by
A. R. Bullis, P. Eng.

12th May, 1971.

3015

L 3015

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<p>Department of Mines and Petroleum Resources ASSESSMENT REPORT NO. <u>3015</u> MAP.....</p>

PART ONE

INTRODUCTION

Bullis Engineering Ltd. was retained to prepare a geological study of the Emancipation Mine. The writer was on the property for four days in April and was assisted in the field by R.H. Bullis.

The property was more-or-less snow covered at the time of the examination and the work was confined to mapping and sampling of the underground openings.

A compass-and-tape survey was made of all accessible underground openings and a geological study made. A plan and section was drawn on which all pertinent geological data was plotted.

Twenty-two "chip" samples were taken underground to test the gold content of the veins at various points. The sampling results are plotted on the geological plans.

GENERAL

(a) Property

The property consists of Mineral Lease No. M 28, shown on Map # 92H/CW, in the New Westminster Mining Division, Land District New Westminster, and comprised of Sunshine and Raymond Mineral Claims, Lot # 1300 and 1299 respectively.

A 100 percent interest in Mineral Lease No. M 28, is owned by:

Jon Alten Stewart - Box 4, Sardis, B.C.

Myrtle E. Dorko - Box 4, Sardis, B.C.

as set out in a Bill of Sale of Mineral Lease, dated 13th April and recorded by the Mining Recorder, New Westminster on 14th April, 1970.

(b) Location

Latitude 49° 30'

Longitude 121° 16'

The Mineral Lease No. M 28 is situated about three miles north of Jessica which is on the abandoned Canadian Pacific Railway right of way in the Coquihalla River valley (old Kettle Valley Line).

The Emancipation Mine is located about 1,100 feet above the abandoned railway grade, almost opposite the mouth

of Dewdney Creek. The mine portals are located in the Tangent Creek canyon at an elevation of approximately 2,500 feet.

Access to the property is from Hope via a good logging road located on the abandoned railway grade.

The final two miles is accessible on foot up a steep "cat" road and trail which leads to the portals.

CONCLUSIONS

1. The Emancipation Mine has produced gold in the past. About 12,000 tons of vein material have been removed from the Hanging Wall Vein.
2. No ore, in any category, has been left in the mine.
3. The Footwall Vein, where sampled underground, contains little gold and is well below ore-grade.
4. The Hanging Wall Vein and associated Reverse Dipping Veins have a significant gold content.
5. The samples taken by the author and his assistant are not numerous enough, nor representative enough, to be used for the purpose of calculating tons and grade of ore. They are, however, strongly indicative of the order of magnitude of the values to be expected in the Veins.
6. Additional mapping, and sampling, on surface and underground, will be necessary to direct future exploration.

RECOMMENDATIONS

1. The surface of the property should be mapped with emphasis placed on the north-west projection of the Vein zones.
2. All surface outcrops and showings of the Veins should be trenched and sampled.
3. The adit, located in Tangent Creek about one hundred and seventy feet below the Third Level, should be opened if possible and investigated. The Winze should be mapped and sampled.
4. Channel samples should be cut on all veins exposed underground, to check previous work, and to form a basis for ore calculations.
5. Future exploration should be directed to finding ore shoots similar to the Hanging Wall ore-body that has been mined out.

Respectfully submitted,

AR Bullis

A. R. Bullis, P. Eng.

BULLIS ENGINEERING LTD.

12th May, 1971.

Delta, B.C.

PART TWO

HISTORY

The country in the vicinity of Dewdney and Ladner Creeks was prospected by William Teague in 1906 and 1907. Teague discovered a gold bearing vein in Ladner Creek and recorded the claims in 1906 or 1907. By September of 1907, Teague had demonstrated that good gold values were present in quartz veins near the contact of the Ladner slates and the volcanic flows of the Cache Creek group.

The Emancipation deposits were staked about 1913 by Messrs. Merrick, Thompson and Beach and the development and mining of the property continued under various owners until 1926 or 1927.

Production records from the early years of mining are not complete; a partial list of ore shipments is given below:

<u>Year</u>	<u>Tons shipped</u>	<u>Value in Dollars</u>
1916	3	"About \$ 1,500"
1917	61	\$21,000
1918	19	\$ 9,250

The ore shipped was all hand sorted material. The gold was paid for at \$20.00 per Troy ounce.

Some development work was done in the decades preceding and following World War II, but the records in the literature are sparse for this period. The road was built from the railway grade to the lowest portal with the aid of a bulldozer after the War; it is now overgrown and sloughed in places but still useful as an access trail to the workings.

GEOLOGY OF AREA

The region in the vicinity of the junction between the Coquihalla River and Ladner Creek is underlain by the older Cache Creek (Hozameen) group and the younger Ladner Creek Slate formation. Intrusive rocks, related to the Coast Range-Batholith, cut both the Cache Creek group and the Ladner slates; the intrusives are small stocks of "plugs" of diorite and andesite porphyry with dykes and/or sills of felspathic composition (syenite porphyries).

The Cache Creek (Hozameen) group lie south-west of the overlying Ladner Slate and is composed of lava flows (greenstone) of andesitic composition. They have a regional trend of N 25° W and dip to the south-west. The greenstone has been intruded and intensely altered by dyke-like "plugs" of diorite. The alteration zones are found around or near

the contacts of the diorite with the greenstone. The effect is especially noticeable where the greenstone-slate contact is close to the intrusive diorite bodies. The upper parts of the flow, which are more acid in composition, have been impregnated with sulphides and altered to a complex of chloritic and saussuritic products with calcite replacing the feldspar. Serpentine has been developed in the greenstone within the zones of alteration.

The Ladner Slate, which trends about N 25° W and dips 70 degrees to the south-west, unconformably overly the Cache Creek greenstone, according to Cairnes (1924). However, recent work by McTaggart and Thompson shows that a steeply-dipping fault separates the two units (1967). The slaty cleavage developed in the rock is more-or-less parallel to the original bedding in the vicinity of the Emancipation mine except where intense folds and crenulations have been produced by local shearing and faulting.

Several important faults are recognized in the area of Ladner Creek; these were produced by the regional deformation that took place during late Cretaceous or early Tertiary times. Steep-dipping thrust faults have been noted in Ladner Creek and the fault located near the mine workings in Tangent Creek may be similar to the thrust faults found elsewhere. The faults generally strike and dip nearly parallel to the trend of the formations.

ECONOMIC GEOLOGY

The gold bearing deposits of the Emancipation mine are, for the most part, quartz veins and silicified zones that lie along, or near, the slate-greenstone contact.

Two distinct veins are seen in the underground workings and are referred to as the Hanging Wall Vein (Dyke Vein) and the Footwall Vein (Big or Boulder Vein). Several reverse-dipping veins of limited length were noted between the Footwall and the Hanging Wall Vein. Most of the veins exposed underground are located within the greenstone; the Footwall Vein lies along the slate-greenstone contact for part of its length, where it is exposed in the north-west end of the mine. Both the Hanging Wall and the Footwall Veins strike N 20° W in the mine but there the similarity ends.

The Hanging Wall Vein has been the most important; it has been stoped for a length of 280 feet along strike and for 140 feet down dip from near the surface above the First Level down to the Fourth Level. Level pillars and small stope pillars are all that remain of the Hanging Wall Vein in the stoped area. The Hanging Wall Vein is composed of quartz braided and ribboned, which fills a fault-fissure that varies in width from a few inches to two feet. The

wall-rocks are greenstone (flows) that are brecciated and silicified. The dip of the Vein flattens from a maximum 40° above the First Level to a horizontal, undulating fault at the Fourth Level. The quartz and sulphide content decrease downdip and along strike to the north-west. The vein is composed of quartz ribbons and bands, with a gangue of feldspar (albite) and minor carbonates (calcite and ankerite); the vein is mineralized with pyrite, arsenopyrite, minor chalcopyrite and free gold.

The Footwall Vein (Big Vein), on the other hand is a wide vein, varying from five to fifteen feet, composed of fractured, milk-white to glassy quartz. The vein contains small amounts of carbonate and sulphides, notably less than the Hanging Wall Vein, with no feldspar. The Footwall Vein is exposed only on the second level in three cross cuts and short drifts; here it dips from 45° to 70° and shows no noticeable sign of flattening. The Footwall Vein is enclosed in a zone of shattered or brecciated country rock which, possibly, is ten feet wider than the quartz vein. The brecciated rock lies along both sides of the Vein and is generally silicified and cemented by fine grained quartz. Drusy fractures were noted along the Hanging Wall of the zone in which low-temperature quartz crystals form comb-like structures. Saddle-structures were seen along the footwall

of the quartz vein in several places and silicified inclusions and oriented "ribs" of country rock are common within the vein. The Footwall Vein lies along the contact between the Ladner Slate and the Cache Creek greenstone in a zone of faulting and shearing.

There are at least three short quartz veins, which dip steeply east that are located between the Hanging Wall Vein and the Footwall Vein and one of these was mined between the Third and Fourth Levels. They are similar in composition to the Hanging Wall Vein and are undoubtedly related to it. They are, therefore, important and it is significant that the highest sample value came from the reverse-dipping vein on the Fourth Level, where it is exposed in a stope pillar.

Local cross-cutting faults that strike roughly east-west and dip steeply north were mapped at three locations in the mine. They appear to be normal faults with displacement limited to less than ten feet. They disrupt the veins and offset them slightly. They do not present a mining problem because of the small displacement, nor have they acted as a dam for mineralization.

SAMPLING OF THE MINE

As part of the geological study of the Emancipation Mine, the veins were sampled at the best exposures found underground. The sampling was done by moil and hammer across both the vein and the mineralized wall-rock adjacent to the vein. The chips were collected on a plastic sheet and transferred to plastic bags and tags were enclosed with the samples giving location and width. The samples taken were chip samples; enough material was taken from each location to be reasonably representative of the vein. However, no attempt was made to take deep channel samples but the results obtained from the chip sampling should be a reasonable representation of the gold content. They are not as reliable as channel samples but should be representative of the order of values in the various veins.

Eleven samples were taken from the Footwall Vein and the assays ranged from Trace to 0.22 oz. Gold per ton. The arithmetic average of the eleven samples is 0.037 oz. Gold/ton. The Footwall Vein, where it is exposed underground, does not carry enough gold values to be of interest.

Five samples were taken from the Hanging Wall Vein where it was found in stope and level pillars. Three samples were taken beyond the limits of stoping from the Hanging Wall

Vein. The samples taken in the Hanging Wall Vein range in value from Trace to 0.68 oz. Gold/ton and the arithmetic average is 0.15 oz. Gold/ton across an average width of 1.3 feet. Only one sample shows a significant gold content; it was taken from the mined-out area close to the junction of a reverse-dipping vein. The three samples taken beyond the limits of stoping are all low and, therefore, not significant.

The values obtained from the samples taken in the Reverse Dipping Veins are notably higher than those taken elsewhere, and these veins must be considered in any future exploration of the mine.

FOOTWALL VEIN

<u>No.</u>	<u>Width in Feet</u>	<u>Oz. Gold/Ton</u>
401	5.0	Tr.
402	4.8	Tr.
403	9.0	0.01
416	1.4	0.08
417	2.0	0.03
418	1.3	0.02
419	8.0	0.01
420	8.0	0.04
421	6.0	0.22
422	3.6	Tr.
423	1.8	Tr.

HANGING WALL VEIN

<u>No.</u>	<u>Width in Feet</u>	<u>Oz. Gold/Ton</u>
404	2.0	0.02
405	1.0	Tr.
406	1.5	0.14
407	0.5	0.07
408	2.0	0.18
410	1.0	0.01
411	0.5	0.12
412	2.0	0.68

REVERSE VEINS

413	1.0	4.20
414	1.5	0.16
415	0.6	1.10

Respectfully submitted,

A R Bullis

A. R. Bullis, P. Eng.

BULLIS ENGINEERING LTD.

12th May, 1971.

Delta, B.C.

CREST LABORATORIES (B.C.) LTD.

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VANCOUVER 3, B.C.
PHONE 688-8586

CREST LABORATORIES LTD.
7911 ARGYLL ROAD
EDMONTON 82, ALBERTA
PHONE 469-2391

CERTIFICATE OF ASSAY

TO Bullis Engineering Ltd.

May 12, 1971

1318 - 56 Street

Lab No. 2480

DELTA, B.C.

cc: The Hanna Mining Co.
Attention: Mr. A.G. Jones

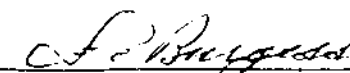
I hereby certify THAT THE FOLLOWING ARE THE RESULTS OF ASSAYS MADE BY US UPON THE HEREIN DESCRIBED SAMPLES.

MARKED	GOLD		SILVER	Percent	Percent	Percent	Percent	Percent	Percent	Percent	TOTAL VALUE PER TON (2000 LBS.)
	Ounces per Ton	Value per Ton	Ounces per Ton								
19401 B	trace	---									
19402 B	trace	---									
19403 B	0.01	\$0.35									
19404 B	0.02	0.70									
19405 B	trace	---									
19406 B	0.14	4.90									
19407 B	0.07	2.45									
19408 B	0.18	6.30									
19410 B	0.01	0.35									
19411 B	0.12	4.20									
19412 B	0.68	23.80									
19413 B	4.20	147.00									
19414 B	0.16	5.60									
19415 B	1.10	38.50									
19416 B	0.08	2.80									

NOTE:

Rejects Retained One Month
Pulps Retained Three Months
Unless Otherwise Arranged.

Gold calculated at \$ 35.00 per ounce


 Registered Assayer, Province of British Columbia

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May 12, 1971

Page 2.....

Lab No. 2480

I hereby certify THAT THE FOLLOWING ARE THE RESULTS OF ASSAYS MADE BY US UPON THE HEREIN DESCRIBED SAMPLES.

MARKED	GOLD		SILVER	Percent	Percent	Percent	Percent	Percent	Percent	Percent	TOTAL VALUE PER TON (2000 LBS.)
	Ounces per Ton	Value per Ton	Ounces per Ton								
19417 B	0.03	\$1.05									
19418 B	0.02	0.70									
19419 B	0.01	0.35									
19420 B	0.04	1.40									
19421 B	0.22	7.70									
19422 B	trace	---									
19423 B	trace	---									

NOTE:
Rejects Retained One Month
Pulps Retained Three Months
Unless Otherwise Arranged.

Gold calculated at \$ per ounce



 Registered Assayer, Province of British Columbia

REFERENCES

1. Minister of Mines Reports of B.C.,
1915 through 1928.
 2. Geological Survey of Canada.
Summary Report 1920, C.U. Cairnes.
 3. B.C. Department of Mines, Bull 20, 1944,
Stevenson.
 4. Geological Survey of Canada.
Paper 69 - 47, 1970,
J.W.H. Monger.
-

CERTIFICATE OF QUALIFICATIONS

I, Albert Ralph Bullis, do hereby certify that:

1. I am a practising geological engineer with residence at 5215 Saratoga Drive, Delta, B.C.
2. I am a graduate of the University of British Columbia and have been granted the degree of Bachelor of Applied Science.
3. I have been practising my profession as a geological engineer for eighteen years.
4. I am a member of the Association of Professional Engineers of British Columbia and a member of the Association of Professional Engineers of Ontario.
5. The attached report is based on information contained in the publications listed under "References" and a personal examination of the Emancipation Mine in April 1971.
6. I have no interest, directly or indirectly, in Mineral Lease No. M 28, nor do I expect to receive any.



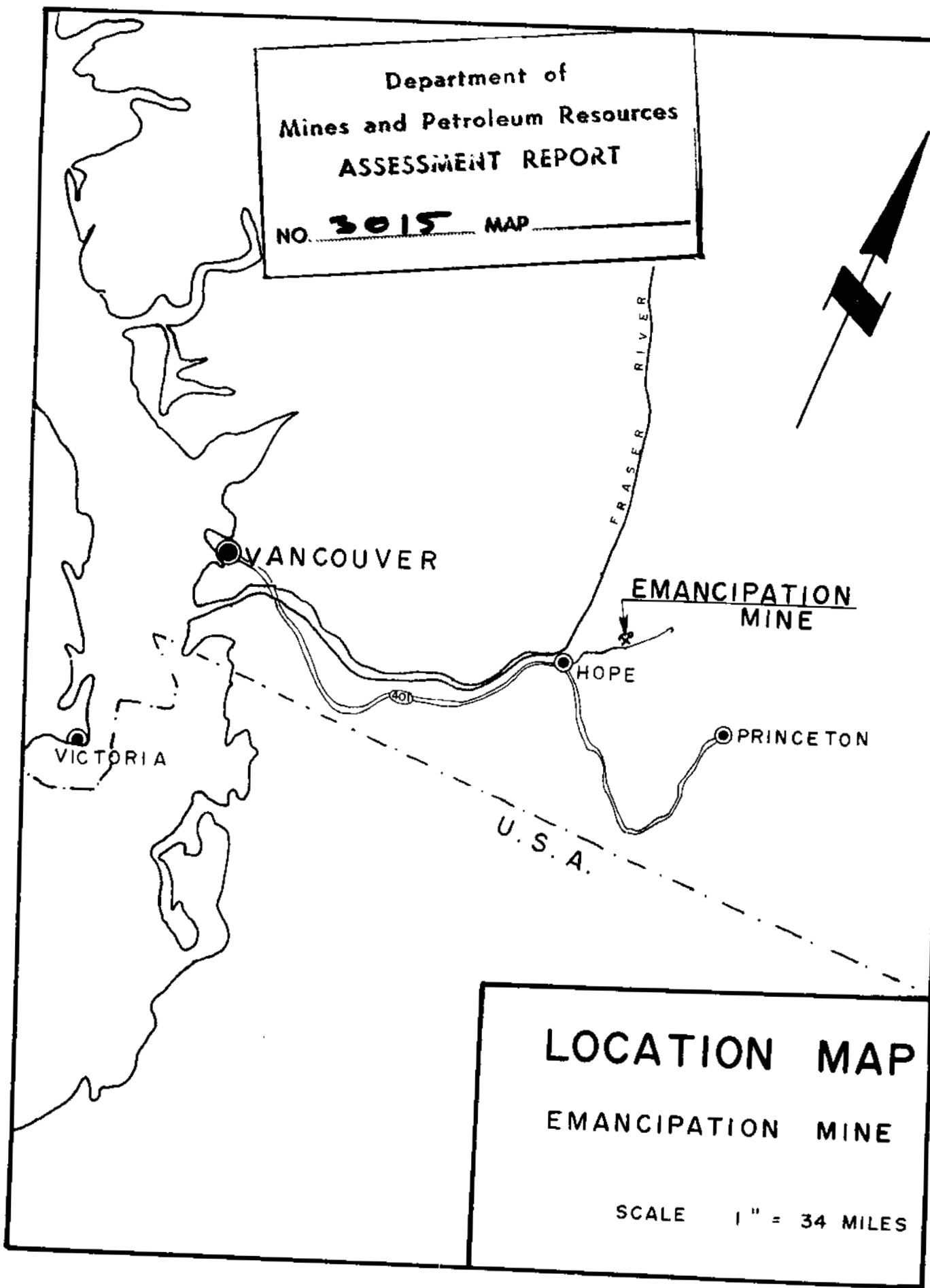
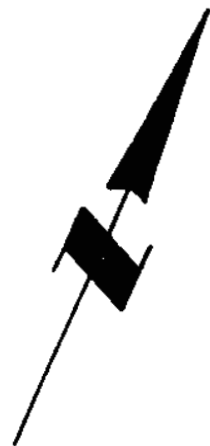
A. R. Bullis, P. Eng.

12th May, 1971

Delta, B.C.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

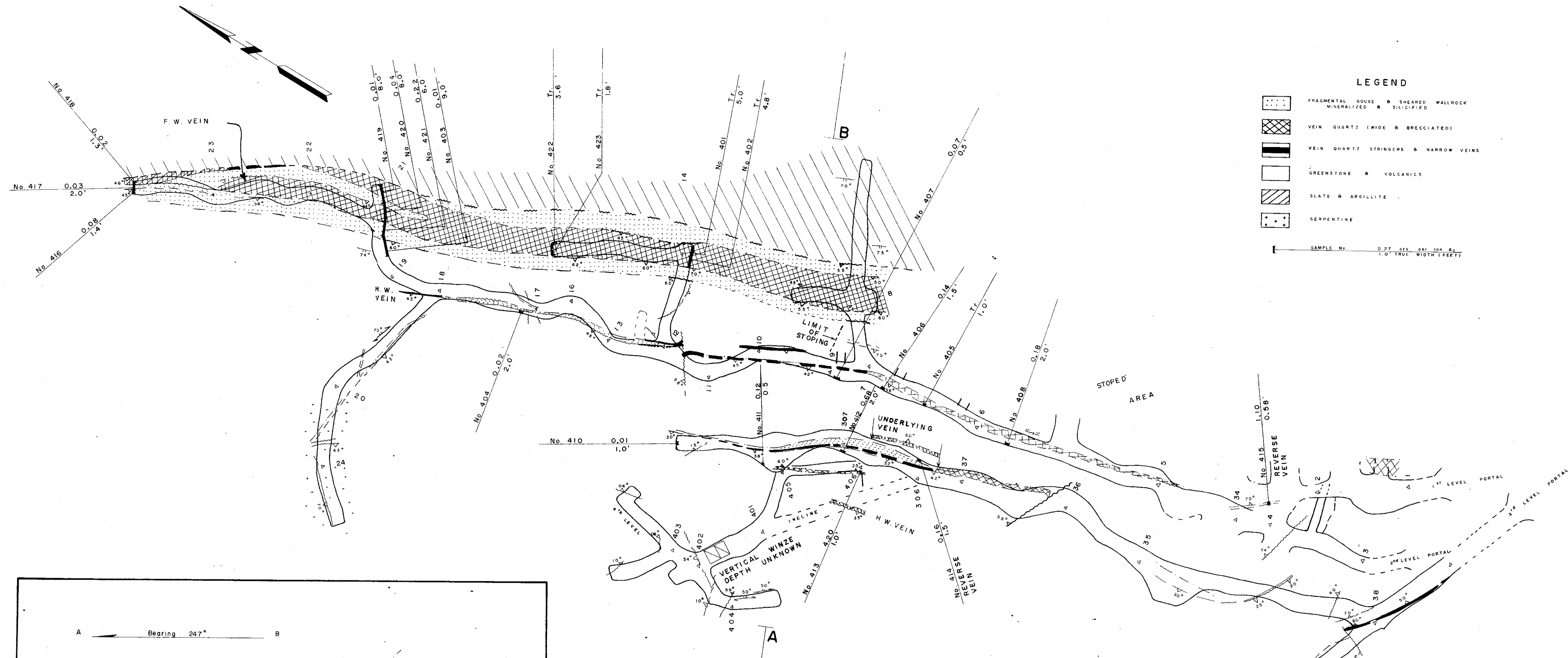
NO. **3015** MAP



LOCATION MAP

EMANCIPATION MINE

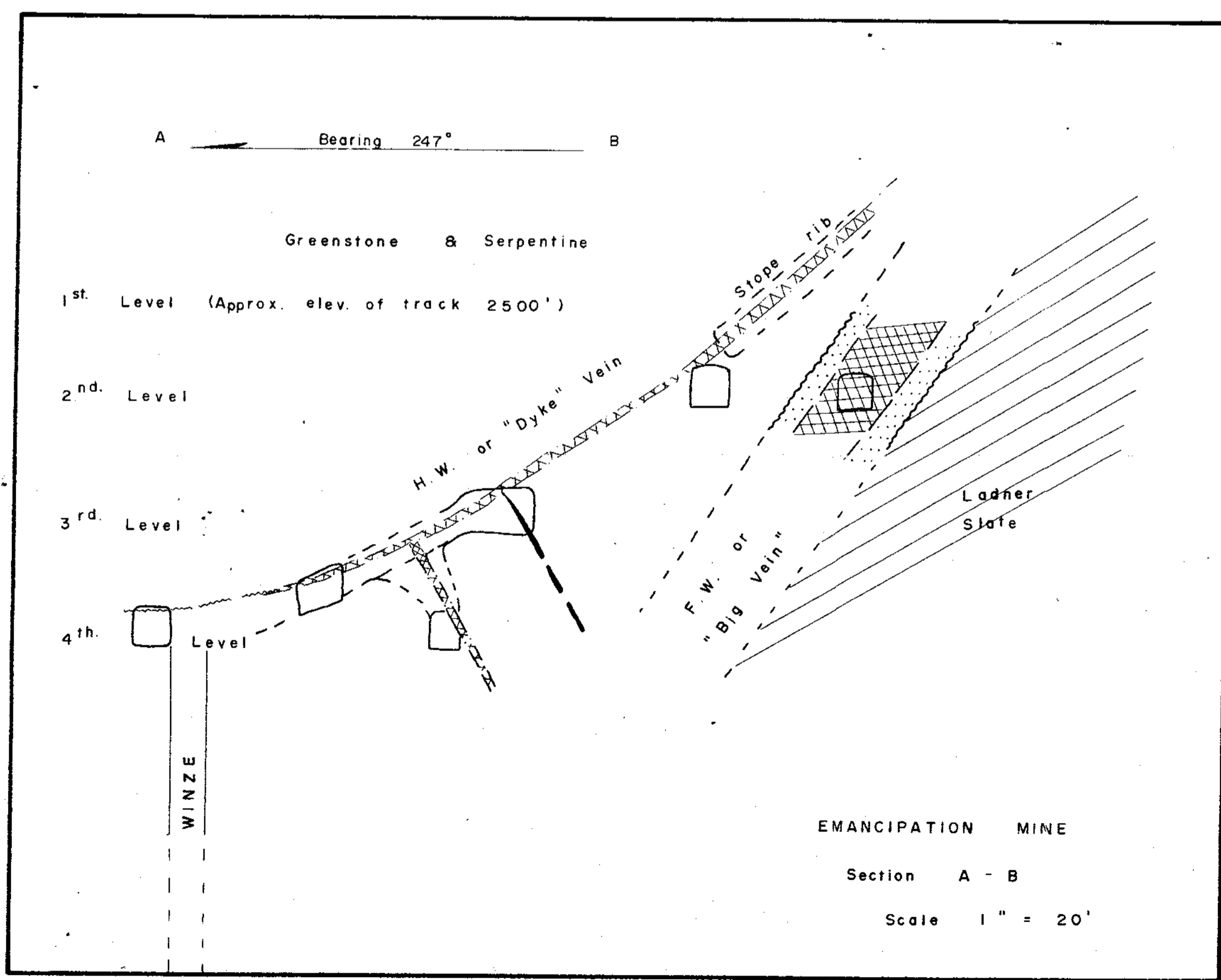
SCALE 1" = 34 MILES



LEGEND

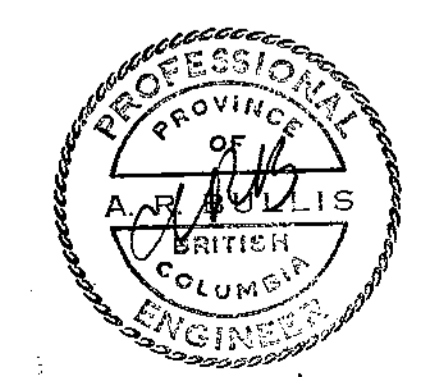
- FRAGMENTAL GOUGE & SHEARED WALLROCK MINERALIZED & SILICIFIED
- VEIN QUARTZ (WIDE & BRECCIATED)
- VEIN QUARTZ STRINGERS & NARROW VEINS
- GREENSTONE & VOLCANICS
- SLATE & ARGILLITE
- SERPENTINE

SAMPLE No. 0 27 28 29 100 A2
1.0" TRUE WIDTH (FEET)



3015
M-2

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ASSESSMENT REPORT
No. 3015 MAP #2



EMANCIPATION MINE
MINERAL LEASE No. M. 28
(LOTS 1299 & 1300)
LAT. 49° 30' LONG. 112° 16'
New Westminster Mining Division B.C.
SCALE 1" = 20'

TO ACCOMPANY REPORT BY A.R. BULLIS, P. ENG.