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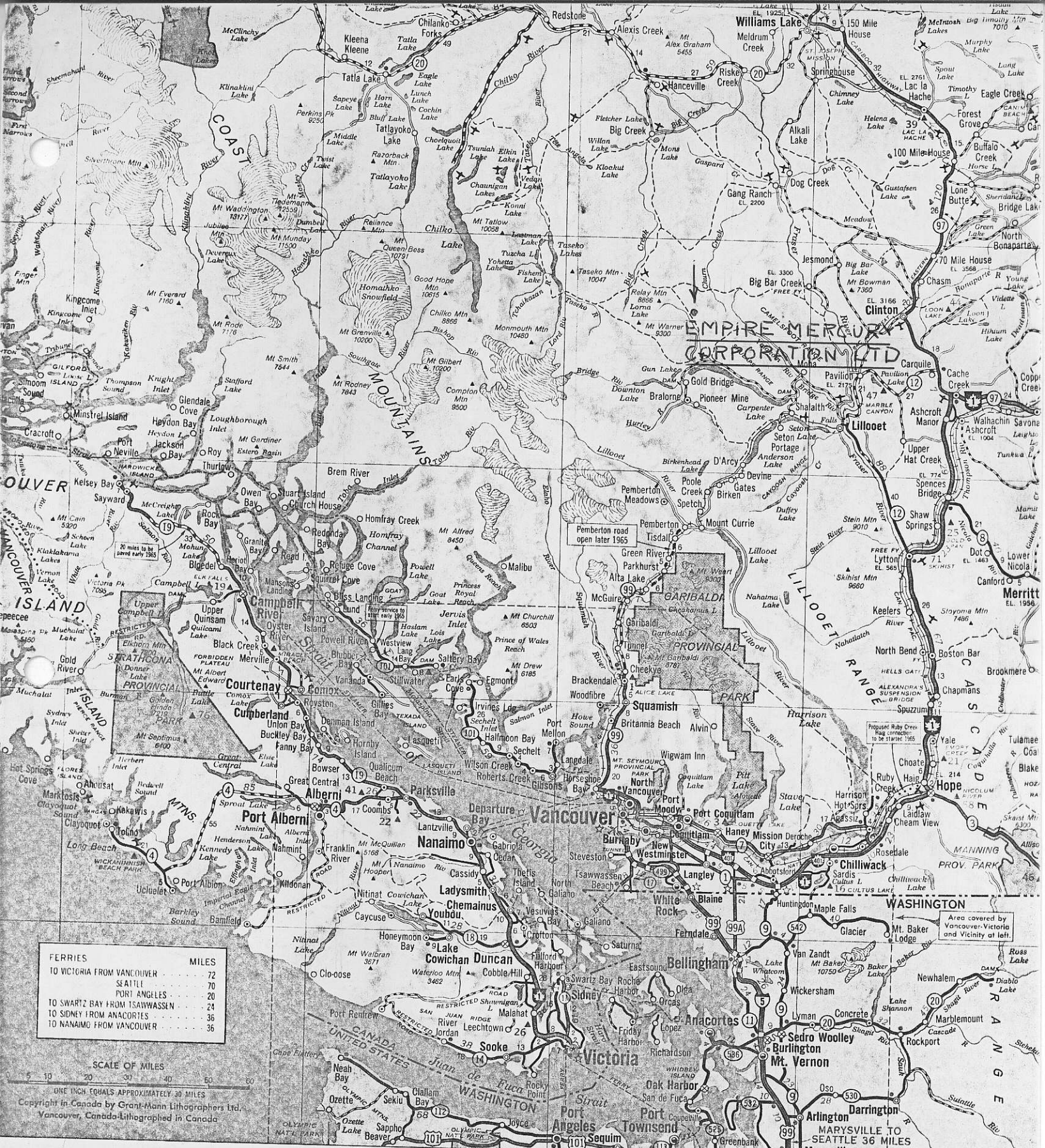
REPORT
on
THE MANITOU MERCURY PROPERTY

for
EMPIRE MERCURY CORPORATION LTD.

by
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Vancouver, B.C.

August 7th, 1969.



FERRIES	MILES
TO VICTORIA FROM VANCOUVER	72
SEATTLE	70
PORT ANGELES	20
TO SWARTZ BAY FROM ISANWASSEN	24
TO SIDNEY FROM ANACORTES	36
TO NANAIMO FROM VANCOUVER	36

SCALE OF MILES
 0 10 20 30 40 50 60
 ONE INCH EQUALS APPROXIMATELY 30 MILES

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SUMMARY, CONCLUSIONS & RECOMMENDATIONS

The Manitou lies a few miles north of Carpenter Lake, between Lillooet and Gold Bridge in a region of British Columbia in which numerous cinnabar occurrences have been discovered. Since the discovery of cinnabar on the property about 1936, interest in the Manitou has fluctuated with the price of mercury. In the early years of World War II a small tonnage of approximately \$50 rock was produced (present day prices). In 1965 and 1966 an extensive program of churn drilling divulged widespread values in mercury but the overall results were inconclusive.

Interbedded sediments and volcanic rocks with a general northwesterly strike underlie the Manitou property. Narrow felsite dykes are associated with and parallel easterly-striking faults. Cinnabar mineralization is related to the faulting and is randomly distributed throughout a favourable band of fine to medium grained, green and purple andesite. The mineralization accompanies carbonate stringers and is thought to occur throughout the andesite which is estimated to be about 80'-100' in width on the principal 4000 level.

Fracturing throughout the andesite band appears to be related to the principal easterly-striking Relay fault which is also mineralized in a random manner.

Underground sampling by R.W. Phendler of four crosscuts on the 4000 level averaged 3.19 lbs. mercury (Hg) across an average width of 26.0'. These widths do not represent the full length of the

crosscuts within the favourable andesites but do give an idea of grade and width possibilities in the andesite host rock.

It is recommended that all efforts at the present time should be concentrated in the Main-Relay area although interesting cinnabar mineralization has been encountered in other zones nearby.

The Unnas zone, which lies 3200' south of the principal zones, shows cinnabar mineralization within andesite and sandstone. Sampling by R.W. Fhendler averaged 6.9 lbs. Hg per ton across 45.0'. Further investigation is warranted here.

Detailed diamond drilling is recommended on the Main-Relay mineral zones. A 3000' underground program should fully test the zones on the 4000' level and below. An estimate of \$45,000 has been made to cover cost of rehabilitation, drilling, supervision, assaying, etc. This is an initial phase.

SCOPE

The Manitou property of Empire Mercury Corporation Ltd. was examined between July 18th and July 22nd and on July 30th and July 31st, 1969, by the writers. During the entire period of the examination Mr. Ed Phillips of Gold Bridge acted as guide.

LOCATION AND ACCESS

The property is located about twenty-five miles by road northeast of Gold Bridge and fifty miles northwest of Lillooet, B.C. Access is by good gravel road from the Lillooet-Bralorne Highway.

Elevation of the property is about 4000' and topography and vegetation are moderate.

PROPERTY AND OWNERSHIP

According to the company's records there are 74 claims, some owned outright and some optioned. Mr. Ed Phillips controlled the property prior to Empire Mercury Corporation acquiring it.

HISTORY

The prospect has been recognized since at least 1936 when it was described in detail in the Annual Report of the Minister of Mines. Dr. J.S. Stevenson examined and mapped the underground workings in 1940 and reported his findings in Bulletin No. 5 of the B.C. Department of Mines.

Production took place between 1940 and 1942 when 156 tons of mercury ore were shipped that averaged about seven pounds of mercury per ton.

In 1965 Mr. E. Phillips, as owner, negotiated an option agreement with Empire Mercury Corporation. As a result, exploratory work was carried out. This consisted of underground and surface geological mapping and sampling, bulldozer trenching and percussion diamond drilling. At least 142 percussion holes were drilled but drilling procedures were haphazard, and sampling and recording of results incomplete. For the first six months of the program, all holes were drilled dry and were terminated when water was encountered. During this period, samples were taken at ten-foot intervals and assayed on the site. The drilling technique differed somewhat when water was used. The holes were drilled dry until water was encountered and were

continued wet until the water was lost. Samples taken during the wet drilling were dried over wood fires. It is estimated that less than half the samples taken during the entire program were dried in this manner and possibly suffered a loss of mercury through volatilization. No records were kept and now there is no way of knowing which samples went through the drying procedure and which did not. In any case, assay records of the percussion drilling are unreliable and cannot be used to evaluate the mineral zones. Total drilling on the property was at least 23,450 feet, according to recent reports (1967, Dr. A.C. Skerl and 1969, R. Adamson).

The drilling was concluded in early 1967 and nothing has been done since then.

GEOLOGY AND MINERALIZATION

The Manitou property is underlain by interbedded sedimentary and volcanic rocks of the Ferguson group, which are considered to be of Permian age. The sediments consist of competent ribbon chert, slate, argillite and arkosic sandstone, and the volcanics of purple and green andesites. These formations strike northwesterly and are intruded by easterly-striking felsite dykes and irregular serpentine masses.

Steeply-dipping, northwest trending faults parallel the regional attitude of the formations and secondary, westerly-striking faults are associated with the parallel felsite dykes mentioned above. These faults were apparently channelways through which the mineralizing solutions moved. Most of the sedimentary formations were

either too competent or too fissile to permit fracturing favourable for the deposition of mercurious solutions. Apparently the dense, fine-grained andesites offered the best competency for the fracturing and, consequently, the calcite and cinnabar mineralization was deposited therein.

The principal showings on the Manitou property consist of two mineral zones, the Relay and the Main. The Relay zone strikes east-west, crossing the rock formations. It can be followed for about 2000' and is irregularly mineralized. No continuity of cinnabar mineralization exists in this zone except where the host rock is andesite. None of the four Relay adits is presently accessible but old maps show a complexity of rock types including some favourable andesite. Dip of the Relay fault is about 60° S.

The Main zone is not a fault zone but a band of fractured andesite that is mineralized. Cinnabar-calcite stringers generally strike northwesterly but small, irregularly-oriented, mineral pods are present in abundance. Drifting was carried out for 450' along strike of the mineralized andesite band, the width of which is estimated to be about eighty feet. The favourable rock type did not terminate and mineral possibilities exist to the north of the workings on the main level (No. 2 or 4000 level).

Near the north face of the 4000 level, crosscuts to the west and east encountered ribbon chert and serpentine. This level is presently accessible and the following samples were taken by the writer during the recent examination:

<u>Sample No.</u>	<u>Width</u>	<u>% Hg</u>	<u>Lbs.Hg/ton</u>	<u>Location</u>
17451	7.5'	0.01	0.2	N. face, #1 Dr. N.
17452	4.0	0.02	0.4	N. face, #2 Dr. N.
17453	9.0	0.04	0.8	No. 5 XC W.
17454	5.0	0.11	2.2	No. 4 XC - 0.5' E. of W face.
17455	5.0	0.01	0.2	" 5-10' E of W face.
17456	5.0	tr.	tr.	" 10-15' "
17457	5.0	tr.	tr.	" 15-20' "
17458	5.0	tr.	tr.	" 20-25' "
17459	5.0	0.31	6.2	" 25-30' "
17460	15.0	tr.	tr.	" 30-45' "
17461	5.0	0.01	0.2	" 45-50' "
17462	5.0	0.05	1.0	" 50-55' "
17463	5.0	0.18	3.6	" 55-60' "
17464	<u>5.0</u>	<u>0.01</u>	<u>0.2</u>	" <u>60-65'</u> "
Average 17454-59	30.0'	0.07	1.43	" 0-30' "
Average 17462-63	10.0'	0.115	2.3	" 50-60' "
17465	5.0'	0.13	2.6	No. 3 XC W 0.5' W
17466	5.0	0.10	2.0	" 5-10' W
17467	5.0	0.16	3.2	" 10-15' W
17468	10.0	tr.	tr.	" 15-25' W
17469	<u>15.0</u>	<u>0.01</u>	<u>0.2</u>	" <u>25-40'</u> W
Average 17465-17467	15.0'	0.13	2.6	" 0-15' W
17470	10.0'	0.22	4.4	No. 2 XC W 0-10' W
17471	10.0'	0.10	2.0	" 10-20' W
17472	10.0	0.01	0.2	" 20-30' W
17473	10.0	tr.	tr.	" 30-40' W
17474	<u>10.0</u>	<u>0.03</u>	<u>0.6</u>	" <u>40-50'</u> W
Average 17470-71	20.0	0.16	3.2	" 0-20' W
17475	10.0'	0.83	16.6	No. 1 XC E 0-10' E
17476	10.0	tr.	tr.	" 10-20' E

To Summarize:

<u>Location</u>	<u>Width</u>	<u>Lbs. Hg/ton</u>	<u>Details</u>
No. 4 XC	30.0	1.43	West part
No. 4 XC	10.0	2.30	East part

These zones are separated by 20' of barren banded chert.

The entire 60' averages 1.1 lbs. Hg per ton (0.55%), 0.055%

#3 XC averages 2.6 lbs. Hg per ton for the first 15.0'. The remaining 25.0' contains about 0.1 lbs./ton.

#2 XC averages 3.2 lbs. per ton across 20.0'.

#4 XC	60.0'	1.1 lbs. Hg per ton				
#3 XC	15.0'	2.6 "	"	"	"	"
#2 XC	20.0'	3.2 "	"	"	"	"
#1 XC	10.0'	16.6 "	"	"	"	"
Average	26.0'	3.19 "	"	"	"	"

The pattern of the mineralized fractures is random although a vague northwesterly alignment is evident. Near the portal of the 4000 level adit, the east-west fracturing appears to be sympathetic with the Relay fault. It is apparent that the andesite band in which the Main mineral zone is located must be thoroughly sampled by pattern diamond drilling.

The Empire zone lies about 800' east of the principal showings and is probably an extension of the Relay mineralized fault. It is a few hundred feet north of the camp buildings and is associated with narrow felsite dykes.

The Grizzly zone is about 3000' southeast of the Empire zone and here the cinnabar mineralization is associated with an easterly-striking felsite dyke. About seventy feet of andesite is exposed in

the main open cut but little cinnabar is visible. In 1966, eight percussion holes were drilled parallel to the zone and are reported to have intersected continuous mineralization. One chip sample taken by the writer assayed 1.0 lbs. Hg per ton across 10.0'.

The Unnas zone lies about 3200' south of the Empire zone and shows moderate cinnabar mineralization in both andesite and firm sandstone. The ground is well fractured. All percussion holes were lost before completion. During the recent examination 120' of bulldozer trench was sampled and the best 45' averaged 6.9 lbs. Hg per ton.

The following samples were taken on surface by the writer:

<u>Sample No.</u>	<u>Width</u>	<u>% Hg</u>	<u>Lbs. Hg/ton</u>	<u>Location</u>
9395	50.0'	tr.	tr.	Main zone - 800' N of portal.
9396	5.0	tr.	tr.	Relay zone - 0- 5' E.
9397	5.0	0.19	3.8	" " 5-10' E.
9398	5.0	0.27	5.4	" " 10-15' E.
9399	5.0	0.19	3.8	" " 15-20' E.
9400	5.0	0.03	0.6	" " 20-25' E.
17101	<u>5.0</u>	<u>0.02</u>	<u>0.4</u>	" " <u>25-30' E.</u>
Average - 9397-9399	15.0'	0.216	4.3	" " 5-20' E.
17102	10.0'	0.01	0.2	Relay zone - Mud Creek
17103	10.0	tr.	tr.	Empire zone - " "
17113	15.0	0.15	3.0	" " 300' NE of camp
17104	20.0	tr.	tr.	" " - muck sample - top cut
17105	20.0	tr.	tr.	" " ditto
17106	10.0	0.05	1.0	Grizzly zone - 0-10' E.
17107	10.0	tr.	tr.	" " 10-20' E.
17108	10.0	tr.	tr.	" " 20-30' E.
17109	10.0	tr.	tr.	" " 30-40' E.
17110	10.0	tr.	tr.	" " 40-50' E.
17111	10.0	tr.	tr.	" " 50-60' E.
17112	10.0	0.02	0.4	" " 60-70' E.
17114	15.0	tr.	tr.	Unnas zone - andesite outcrop
17115	15.0	0.17	3.4	" " " "
17116	15.0	tr.	tr.	" " " "
17117	15.0	0.01	0.2	" " - Sandstone - 0-15' N.
17118	15.0	0.42	8.4	" " " 15-30' N.

<u>Sample No.</u>	<u>Width</u>	<u>% Hg</u>	<u>Lbs. Hg/ton</u>	<u>Location</u>
17119	15.0	0.23	4.6	Unnas zone - Sandstone - 30-45' N
17120	15.0	0.38	7.6	" " " 45-60' N
17121	15.0	0.01	0.2	" " " 60-75' N
17122	15.0	0.01	0.2	" " " 75-90' N
17123	15.0	0.03	0.6	" " " 90-105' N
17124	15.0	0.01	0.2	" " " <u>105-120' N</u>
Average				
17118-17120	45.0'	0.345	6.9	" " 15-60' N.

RECOMMENDED WORK

To evaluate fully the mine-making potential of the property, it is essential to test the principal "Main" zone with closely-spaced underground diamond drill holes. Holes should be drilled ahead of the north face of the main 4000 level and three exploratory holes should be drilled below the level.

Although the danger of running into overburden is present a few holes should be drilled from the west crosscut face of the 4000 level adit to explore the Relay zone.

The other mineral zones warrant surface diamond drilling but this should be done at a later date.

COST ESTIMATEPhase 1

1. Rehabilitate 4000 level - arrange for air and water services, etc.	\$2,000.00
2. Underground diamond drilling - BQ size - 3000' @ \$12/ft.	36,000.00
3. Engineering and supervision	<u>3,000.00</u>
	\$41,000.00
Plus 10% contingencies	<u>4,000.00</u>
Total	\$45,000.00

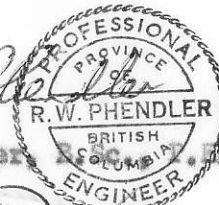
Phase 2 (dependent on results from Phase 1)

1. Additional underground and surface diamond drilling 5000' @ \$12/ft.	\$60,000.00
2. Engineering and supervision	<u>5,000.00</u>
	\$65,000.00

Respectfully submitted,

BACON & CROWHURST LTD.

R.W. Phendler, P.Eng.



W.R. Bacon, Ph.D., P.Eng.



CERTIFICATION

I, Roy William Phendler, of the City of Vancouver in the Province of British Columbia, hereby certify as follows:

1. That I am a Registered Professional Engineer in the Province of British Columbia, No. 4421.
2. That I am a graduate of McGill University, Montreal, Quebec, with a Bachelor of Science degree in Geology.
3. That I have practiced my profession as geologist continuously for the past seventeen years in Quebec, Ontario, Saskatchewan, Newfoundland and British Columbia in Canada, the western U.S.A., Mexico, and Peru and Colombia in South America.
4. That I have no interest directly or indirectly in the Empire Mercury Corporation mineral claims nor do I expect to receive any.
5. That the information contained herein was compiled during an examination of the property between July 18th and July 22nd and on July 30th, 1969.



Vancouver, B.C.
August 7th, 1969. \