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REPORTS

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February 10, 1967.

Canadian Pacific Oil & Gas Limited
P. O. Box 400
CALGARY, Alberta

ATTENTION: Mr. J. G. Matthews ✓
Manager, Mining Division

Attached is our report on exploration for the year ending
December 31, 1966 of that portion of the Esquimalt and Nanaimo
Railway Company Land Grant covered by Mining Agreement No. 6.

You have previously received most of the illustrations listed in
the report and we are sending separately by express only those
maps which you do not already have.

G U N N E X L I M I T E D



Kenneth C. Rose
Manager - Western Division

KCR/s
cc: WFDix

Attach.

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GUNNEX LIMITED

REPORT ON EXPLORATION

OF

ESQUIMALT AND NANAIMO RAILWAY COMPANY LAND GRANT

PERIOD: January 1, 1966 - December 31, 1966.

TABLE OF CONTENTS

	<u>Page</u>
Summary.....	1
Introduction.....	1
Geology.....	2
Geochemistry.....	2
Geophysics.....	3
Mary Claims.....	3
Future Program.....	6
Expenditure.....	6

ILLUSTRATIONS

Plans and Sections

Area Retained for 1967.....	1" = 4 miles
General Geology (sheets 3, 4 and 5).....	1" = ½ mile
Airborne Magnetic Anomalies	
#12 - Geochemistry and Magnetism.....	1" = 200'
#19 - Geochemistry and Magnetism.....	1" = 200'
#28 - Geochemistry and Magnetism.....	1" = 200'
#51 - Geochemistry and Magnetism.....	1" = 200'
#52 - Geochemistry and Magnetism.....	1" = 200'
#53 - Geochemistry and Magnetism.....	1" = 200'

Mineral Occurrences

#19 - Geochemistry and Magnetism.....	1" = 200'
#23 - Geochemistry and Magnetism.....	1" = 200'

Mary Claims

Location Map.....	1" = 1/4 mile
Geology and Topography.....	1" = 100'
Magnetic Survey, sheet 45.....	1" = 100'
E.M.Survey, sheet 35.....	1" = 100'
Geochemical Survey, sheets 24,35,45.....	1" = 100'
Diamond Drill Sections	
- Holes #66-1, 66-2, 66-2A.....	1" = 50'
- Hole #66-3.....	1" = 50'
- Hole #66-4.....	1" = 50'
- Hole #66-5.....	1" = 50'
- Hole #66-6.....	1" = 50'
- Hole #66-7.....	1" = 50'
- Hole #66-8.....	1" = 50'

Diamond Drill Logs - Holes 66-1,66-2,66-2A,66-3,
66-4,66-5,66-6,66-7,66-8.....

Reports - A Geophysical Report on an Induced Polarization Survey,
Port Alberni, B.C. for
Gunnex Limited.

REPORT ON EXPLORATION OF
ESQUIMALT AND NANAIMO RAILWAY COMPANY LAND GRANT

PERIOD: January 1, 1966 - December 31, 1966.

SUMMARY:

Gunnex Limited continued throughout 1966 to explore parts of the E & N Land Grant on Vancouver Island as outlined in Mineral Agreement No. 6 with Canadian Pacific Oil and Gas Limited. Regional exploration, which included geological mapping and prospecting and geochemical sampling, was completed without disclosing any significant new mineral occurrences. Detailed investigations of various small local areas were completed. Considerable effort and money was expended on the Mary claims on Mount Spencer; the results were disappointing. Much of the Gunnex permit area was surrendered to CPOG at the year end; only 76,476 acres were retained.

A total of \$94,020.59 was spent during the year. There remained a credit of \$70,170.02.

INTRODUCTION:

An average of nine men, including one geologist and two engineers, was employed in exploration of the E & N Land Grant for much of the year. In addition, there was a total of eight employees of contractors to Gunnex working for part of the year.

Long lasting snow again prevented an early resumption of work and it was not until June that activities became fully operational. The Mary camp on Mount Spencer was re-occupied in mid-May but it was not until late June that effective work could be accomplished. The diamond drill camp was erected in eight feet of snow at the end of June. Both camps were abandoned at the end of September and all seasonal employees were discharged by mid-October. The Nanaimo office was closed at the same time.

Terrence Schorn and Hugo Laanela, Gunnex's resident engineer and geologist respectively in Nanaimo, were responsible for most of the work on the CPOG option. They made valuable contributions to the evaluation of the mineral potential of the Land Grant.

Gunnex Limited, at the end of 1966, surrendered to C.P.O.G., as per Article 20 of Mineral Agreement No. 6, all but 76,476 acres of the lands covered by the agreement. An attached sketch map shows the areas retained.

GEOLOGY:

Areal geological mapping was completed with no significant changes in interpretation being made. The fossil ammonite found in the limestone capping Mount Spencer was identified by the Geological Survey of Canada as being Upper Triassic (Upper Karnian) in age. This confirmed previous age determinations based on stratigraphy and appearance.

Sheets 3, 4 and 5 of the geological map are appended. Sheets 1 and 2 are not included because no changes were made during the year.

GEOCHEMISTRY:

Because of the completion of both regional and detailed investigations, the amount of geochemical sampling declined greatly from that of previous years. Only 1208 samples, of which 281 were from the Mary claims, were collected and analysed. All analyses were made by Technical Service Laboratories in Toronto using hot acid extractions and atomic absorption determinations. The copper content of individual samples was reported for only those containing more than the background amount of 80 parts per million. As a precaution, all samples were checked in batches of ten for copper, lead and zinc.

The very strong geochemical anomaly on Mount McQuillan at the head of China Creek was again investigated and still remains an enigma. A few small quartz veins carrying chalcopyrite were found but not in amounts sufficient to cause

the anomaly. Several inaccessible rusty areas were checked by helicopter and were found to be "washes" of rust rather than gossans.

Several mineral occurrences and magnetic anomalies were soil sampled in detail. Nothing significant was found. See attached plans.

GEOPHYSICS:

Several mineral occurrences and magnetic anomalies were detailed with a Sharpe MF-1 fluxgate magnetometer. Several strong, but small anomalies were indicated but none were considered important. Plans showing the results are appended. 10,000 gammas have arbitrarily been added to all readings.

Magnetic, electromagnetic, and induced polarization surveys were made on parts of the Mary claims. Vague and indeterminate results were obtained and are reported under the section dealing with the Mary claims.

MARY CLAIMS: 92F207

Exploration in previous years had exposed near the summit of Mount Spencer an interesting area mineralized with copper and iron sulphides. The 66 Mary claims had been staked to protect the discovery and adjacent territory. An additional six claims were staked in June of this year adjoining to the south of the main block of claims to cover the favourable limestone-basalt contact. Assessment work had previously been recorded for the Mary 1 - 8 claims and in 1966 work was recorded for Mary 33, 40 and 51. The remainder were permitted to lapse. Those in good standing at year end and their expiry dates were:

Mary 1 - 8	November 5, 1981
Mary 33,40,51	October 15, 1967
Mary 67 - 72	June 15, 1967

See attached location map.

An attempt was made to locate a tote road on Mount Spencer so that the exploration would not be dependant on helicopters. D. W. Smith Ltd. was retained to investigate and report on the feasibility of a tote road. In addition, a Gunnex

engineer who had built roads under similar conditions in Korea, spent a week searching for a possible route. No difficulty was experienced in locating a trail on the lower slopes but no route could be found that would not involve extensive rock excavations in the semi-cliffs that start at about 3,000 feet elevation and which ring Mount Spencer. Plans for a trail or skid-road were abandoned and all servicing, as in former years, was done by helicopter. It is worth noting that the large turbine-powered helicopters, although very expensive to charter, can move large quantities of material much cheaper and far more quickly than can the more conventional smaller machines.

An I.P. survey by Hunttec Limited had been scheduled for mid-May in order that the results would be available for selecting drill targets later in the summer, but deep snow prevented its accomplishment at that time. It was not completed until the end of July. The instrument was a 2.5 kw Hunttec pulse-type Induced Polarization unit. A "three array" electrode configuration at a 200 foot separation on lines spaced at 400 feet was used over the entire area surveyed. Further measurements were taken at electrode spacings of 100 feet and 400 feet in selected areas. In their interpretation of the results, Hunttec stated that the area east of the known mineralization is believed to contain no mineralization because of the low chargeability and high resistivity encountered. The western part (known to be mineralized) "is believed to be underlain by extensively mineralized rocks, either in the form of widespread disseminated mineralization or a complex of higher-grade pods and veins. A combination of the two is quite possible". Later work has shown the mineralization to be in pods. Hunttec also stated that there was no significant correlation between the I.P. survey and the magnetometer and electromagnetic surveys, but that the S.P. and I.P. surveys could be correlated. Thus, the I.P. results, like the various other geophysical results, were vague and inconclusive and could not be correlated with the others. A copy of Hunttec's report is appended.

An electromagnetic survey using a Sharpe SE 250 vertical loop instrument indicated several weak and questionable conductors. A plan of the E.M. results is appended.

The magnetic and geochemical surveys were extended eastward (down hill) but had to be suspended because of the time required to climb to and from camp.

Additional work will be dependant on the establishment of a new low-level camp. Prior to suspension of work, an interesting area was indicated between line 82 + OOE and 92 + OOE from 1 + OOS to 10 + OOS in which high magnetic values coincide with high geochemical values. This area is on strike with the mineralized zones but is in the area reported by Hunttec to be not mineralized. Additional investigations are warranted but will be arduous because of difficult access and lack of outcrop. See the appended plans.

A contract for 3,000 feet of AX/WL core drilling was given to Boyles Bros. Drilling Co. Ltd. for \$7.55 per foot plus all extras. The total cost to Gunnex amounted to about \$18.10 per foot. The drillers arrived on June 30 and left September 30 after completing 3,064 feet of drilling in eight holes under extremely difficult conditions. Core recovery was excellent and the drillers, and especially the foreman, are to be commended for a job well done. All moves were by muscle-power and back packing. Drilling began at the summit of the saddle and progressed down hill. It could not have proceeded otherwise.

The first two holes cross-sectioned the No. 1 or low-grade zone. Both holes intersected material that assayed as much as 0.63% copper but the numerous intervening lean sections resulted in the over-all average grade being less than 0.20% copper. The next four holes were drilled across the No. 2 zone along a strike length of 800 feet. Various narrow and/or low-grade sections were encountered but none approached ore-grade material. The last two holes were drilled from the same set-up and sectioned a mineralized area that may be the extension of the No. 2 zone or of a similar and parallel zone which has not been explored. One hole cut 30 feet of 2.65% copper but the other hole was almost barren. See the appended drill sections and drill logs.

The drilling proved that there has not been extensive surface leaching of copper, as had been supposed, and that the copper content of the surface rocks is, if anything, higher than that of the fresh material beneath. The No. 1 or large low-grade zone is too erratically mineralized and too low-grade to warrant additional drilling. The No. 2 or tabular zone was found to consist of mineralized pods separated by barren material, as suggested in Hunttec's interpretation of I.P. results. Little correlation could be made from surface to drill hole

or from drill hole to drill hole. It so happened that all the surface trenches in the No. 2 zone had encountered well mineralized rock and none of the barren intervening ground was exposed. This led to the logical but erroneous assumption that there was continuity of mineralization; the drilling proved otherwise.

During 1966 there was spent on the Mary claims the sum of \$68,676.98 which, when added to the \$29,814.65 spent in 1965, increased the total expenditure to \$98,491.63.

FUTURE PROGRAM:

Little work is proposed for 1967. An examination of the previously described anomalous area east of the Mary mineralized zone is planned and additional work will depend on results of this examination.

A proposal by Gunnex that C.P.O.G., or its nominee, continue the exploration of Gunnex's permit area is being considered by C.P.O.G. A tentative agreement had been reached at the time this report was written.

A proposal made to Gunnex that a sub-lease be given on the Cameron Lake Copper showing for the purpose of mining the inferred ore was deferred pending the outcome of Gunnex's proposal to C.P.O.G.

? *John*

EXPENDITURE:

Gunnex Limited was required to spend in 1966, the third agreement year, the sum of 40¢ per acre for each of the 240,000 acres under permit, or \$96,000. The actual expenditure was only \$94,020.59, but the difference was more than offset by the credit remaining from the second agreement year. An itemized list of expenditures from January 1, 1966 to December 31, 1966 follows:

7.

Salaries and wages	\$26,307.67
Transportation	17,906.24
Supplies and equipment	5,368.36
Supplies - food	2,028.65
Diamond Drilling (Mary claims)	32,543.62
Ground surveys (Mary claims)	2,974.48
Assaying, including geochemical analyses	3,310.08
Government fees	90.20
Workmen's Compensation assessment	578.88
Telephone and telegraph	937.43
Stationery, printing and postage	782.65
Rentals and insurance	<u>1,192.33</u>
Total	\$94,020.59

A statement of total expenditures and of credits to December 31, 1966 follows: (see page 8)

C.P.O.G. Expenditures to December 31, 1966

<u>Agreement Year</u>	<u>Calendar Year</u>	<u>Expenditure Required</u>	<u>Actual Expenditures</u>				<u>Cumulative Credit</u>
			<u>CPOG General</u>	<u>Skarn Claims</u>	<u>Mary Claims</u>	<u>Total</u>	
1.	1963		\$39,726.51			\$39,726.51	\$39,726.51
	1964	\$ 50,000	82,568.87	\$10,605.60		93,174.47	82,900.98
2.	1965	109,000	55,090.82	13,342.98	\$29,814.65	98,248.45	72,149.43
3.	1966	96,000	25,343.61		68,676.98	94,020.59	70,170.02
4.	1967	61,200					

8.

Note:

Required expenditure 1st agreement year	-\$ 50,000
Required expenditure 2nd agreement year - 545,000 acres @ 20¢	- 109,000
Required expenditure 3rd agreement year - 240,000 acres @ 40¢	- 96,000
Required expenditure 4th agreement year - 76,500 acres @ 80¢	- 61,200



Kenneth C. Rose
Manager - Western Division

KCR/s

January 30, 1967.