

REPORT

ON

ISLAND MINING AND EXPLORATION CO. LTD. (N.P.L.)

HAYES MINE

ALBERNI MINING DIVISION

BRITISH COLUMBIA

BY

D.C. MALCOLM, P. Eng.,
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Vancouver, B.C.
October 29, 1974

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ISLAND MINING AND EXPLORATION CO. LTD. (N.P.L.)

HAYES MINE

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INTRODUCTION

The Hayes Mine is a former producer of copper well located near deep water on Alberni Inlet.

The writer did extensive geological mapping of the Crown granted claims and the surrounding area in 1966 and 1967. Since that time lines were cut in the area, a magnetometer survey was made and prospecting has located many new surface deposits.

The old deposits were explored by 3 underground levels over a vertical range of 750 feet connected to the surface by long raises. There has not been any diamond drilling done on the property. The tunnels are, more or less, accessible but the stopes and raises lack ladders and timber.

The underground workings show mineral zones and stoped areas and are reported by Minister of Mines reports to contain 123,000 tons of first and second class ore in 7 ore bodies but these cannot, at present, be reached to confirm or discount these reserves.

The deposits are chalcopyrite, bornite, epidote and garnet skarn deposits in extensively faulted and folded Triassic limestone, tuffs, basalts and andesites intruded by Jurassic granodiorite and by quartz feldspar porphyry dikes and sills.

The property requires extensive trenching, bulk sampling, diamond drilling and roadwork to allow the shipment of the massive chalcopyrite sections and the evaluation of the lower grade disseminated copper and massive magnetite sections.

CLAIMS

Twenty-two located and ten Crown granted claims as follows:

<u>Claim Name</u>	<u>Record No.</u>	<u>Assessment Due</u>
Ime No. 1	18,443	November 12, 1975
Ime No. 2	18,444	" " "
Ime No. 3	18,445	" " "
Ime No. 4	18,446	" " "
Ime No. 5	18,447	" " "
Ime No. 6	18,448	November 12, 1975
Ime No. 7	18,449	" " "
Ime No. 8	18,450	" " "
Ime No. 9	18,451	" " "
Ime No. 10	18,452	" " "
Ime No. 11	18,453	November 12, 1975

<u>Claim Name</u>	<u>Record No.</u>	<u>Assessment Due</u>
Ime No. 12	18,454	November 12, 1975
Ime No. 13	18,455	" " "
Ime No. 14	18,456	" " "
Ime No. 15	18,457	" " "
Ime No. 16	18,458	" " "
Ime No. 17	18,459	" " "
Ime No. 18	18,460	" " "
Ime No. 19	18,461	" " "
Ime No. 20	18,462	" " "
Ime No. 21	18,463	" " "
Ime No. 22	18,464	November 12, 1975

Crown Grants	Lot No. 519 Southern Cross
	Lot No. 520 Pacific
	Lot No. 521 Norway
	Lot No. 523 Ballaret
	Lot No. 524 Three Jays
	Lot No. 525 Three Jays No. 2
	Lot No. 526 Three Jays No. 3
	Lot No. 527 Blue Jay
Mineral Leases	Lot No. 518 North Pole
	Lot No. 522 Viking

LOCATION & ACCESS

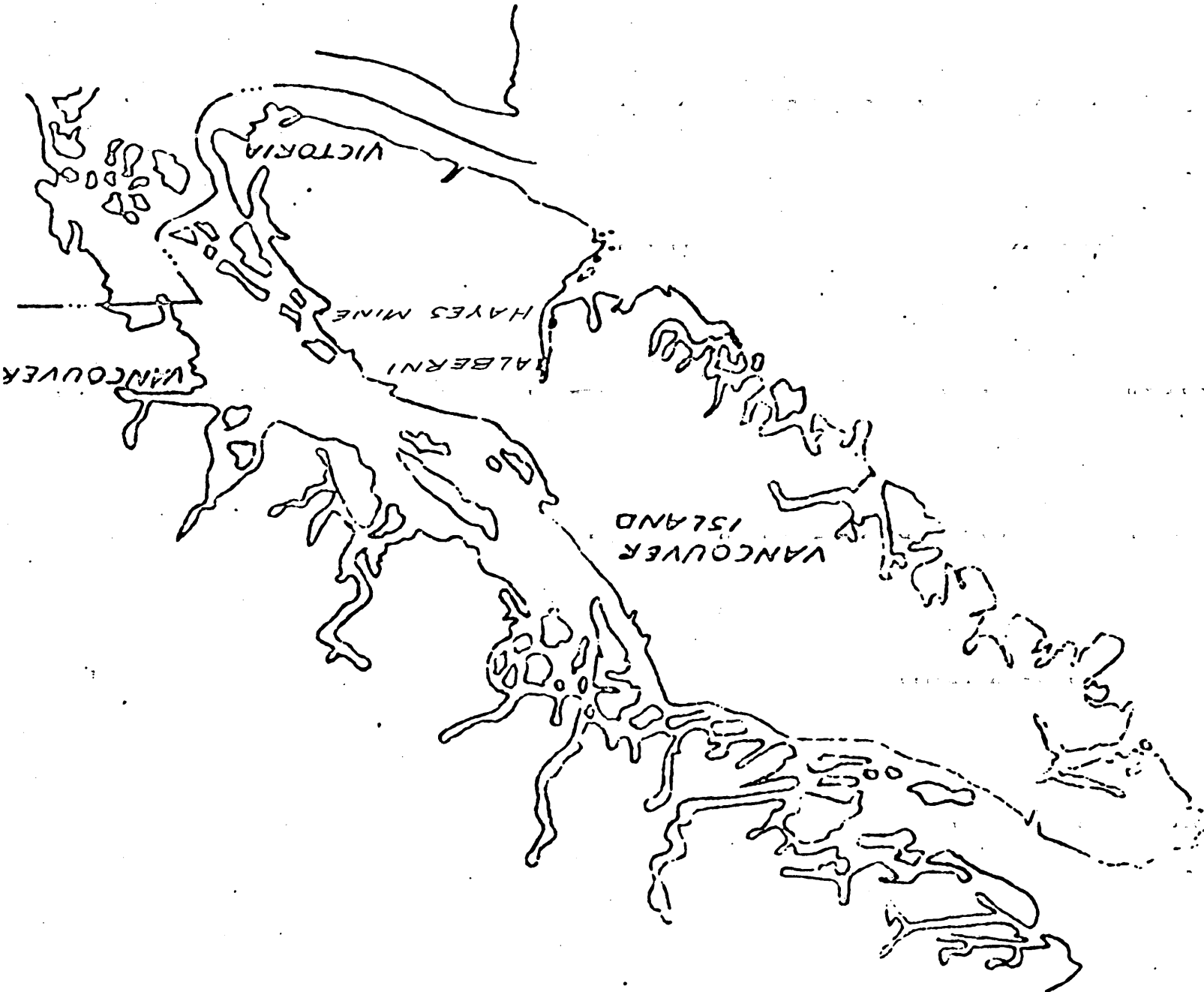
Latitude: 49°03' North
Longitude: 124°55' West
Elevation: 0 to 2,500 Feet

The claims are on the west side of Alberni
Inlet 17 miles wouth of Port Alberni.

Scale 1" = 35 Miles

HAYES MINE

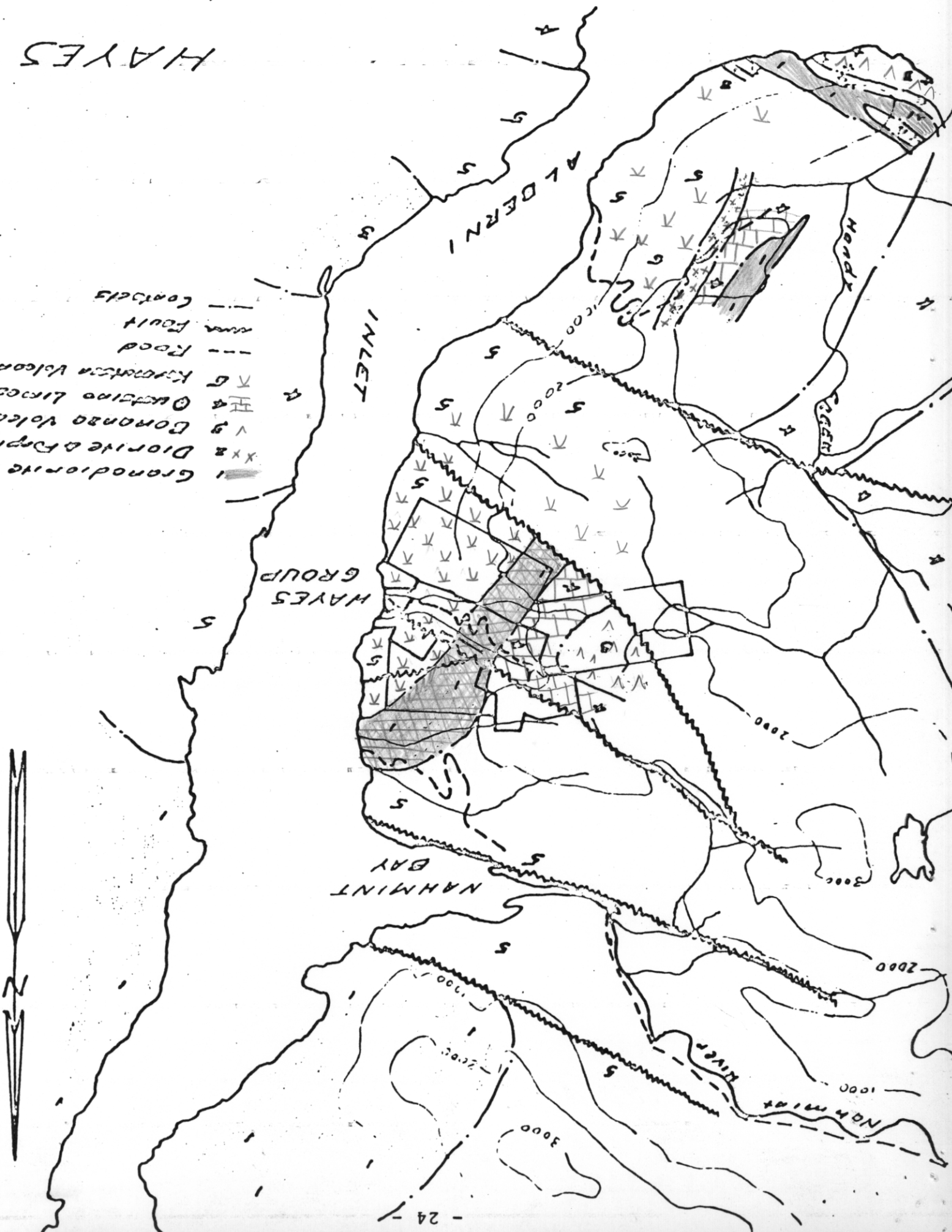
LOCATION



Scale 1" = 5000'

HAYES

- 1 Granodiorite
- 2 Diorite & Gabbro
- 3 Gabbro Volcanic
- 4 Quartzite Limestones
- 5 Kyanite Volcanics
- 6 Road
- 7 Fault
- 8 Contacts



Deep water shelves off to a sandy small bay where the claims come down to the beach and boats from Port Alberni can land one there. Port Alberni is a major Pacific Port.

A tractor road, now in disrepair, connects the mine to the beach.

CLIMATE

The climate is moderate with little or no snow at the beach but several feet at elevation of 2,000 feet at the top portal. The summers are warm.

TOPOGRAPHY

Alberni Inlet or Canal is a deep ocean fjord one half to two miles wide with rocky steep shorelines.

West of the Inlet the mountains rise quite steeply for a mile then flatten off to a rough plateau between elevations 2,000 to 2,800 feet. Hayes and South Creeks flow east off this plateau through canyons to the Inlet.

GENERAL GEOLOGY

Alberni Canal crosses a northwest trending granodiorite batholith and is generally underlain by Vancouver Volcanics south and west of the intrusives.

The Volcanic series are Karmutsen basalts, andesites with some interbedded limy tuffs near the top of the series. Quatsino or Sutton limestones overlie the basalts and Bonanza andesite, tuffs, breccias and shales are above the limestones.

These rocks are folded into an open anticline or series of folds with limestones covering large areas west of the Inlet. The rocks are faulted by a series of west and northwest striking faults and intruded by granodiorite dikes and quartz feldspar porphyry and diorite dikes and sills.

There are many massive chalcopyrite deposits in the limestones, in the overlying Bonanza rocks, in the tuff horizons at the top of the Karmutsen and some larger disseminated deposits in the intrusives or volcanics.

CLAIM GEOLOGY

The Hayes claims are underlain by Quatsino limestones with areas of the underlying Karmutsen basalts and interbedded tuffs and other areas of the lower Bonanza tuffs, agglomerates and andesite flows. These rocks are folded and faulted and intruded by a granodiorite dike 200 feet in width and by many diorite and quartz feldspar porphyry bodies.

Chalcopyrite occurs in skarn zones in tuff, agglomerate and limestone on the intrusive contacts. The intrusives in some places contain disseminated chalcopyrite and bornite.

Magnetite and chalcopyrite occurs in some skarns with epidote, garnets and actinolite.

DEPOSITS

The deposits are typical high grade chalcopyrite filled skarn zones with widths of a few inches to 18 feet. They occur in limestone, tuffs, agglomerates and massive volcanics on structures such as faults or folds. The chalcopyrite is fine grained, some times bedded, and fills cavities or coats fossils or skarn minerals such as garnet or actinolite.

The following is a description of this type of deposit found in three areas prospected:

1. Along Hayes Creek for 1,000 feet west of the beach and extending south there are fifteen small pits and tunnels exposing areas of massive chalcopyrite in epidote-actinolite skarns in brecciated volcanics intruded by irregular diorite dikes. In some sections Magnetite occurs in the skarn zones. The deposits have not been blasted or sampled.

2. On the south side of Hayes Creek on the Viking claims in an area 500 feet in width and several thousand feet in length covered by dense brush and windfalls, are many hundreds of tons of ore boulders varying in grade from 0.5 to 10% copper. Four deposits occur in place and are explored by

(a) A short tunnel at elevation 1,800' with 4 open cuts in an 8 foot mineralized bed assaying 0.94% Copper;

(b) A shaft and several pits in a zone 6 feet wide assaying 3.67% copper at elevation 1,800 feet;

(c) Several pits on an 8 foot zone assaying 1.12% copper at elevation 1,700 feet;

(d) A partly exposed outcrop of magnetite at elevation 1,600 feet with a short tunnel which shows good chalcopryrite over a width of 18 feet.

3. On the north side of Hayes Creek on the Hayes claims six deposits have been found in an area of steep cliffs over a 200 foot width and a 1,000 foot length as follows:

(a) At elevation 2,100' an outcrop shows a partly exposed zone with low copper values in skarn. No work has been done on it.

3.(b) At elevation 2,000 feet a shaft or raise has been stoped out along a 5 foot zone of mineralized skarn. The workings are in good condition but no ladders remain in the shaft. The grade appears to have been good.

(c) At elevation 1,950' one large pit has been mined on a 5 foot magnetite chalcopyrite zone. The grade appears low.

(d) The main surface deposit has been opened up in a glory hole at elevation 1,800 feet. The area is about 50 feet by 50 feet and contains skarn, magnetite with chalcopyrite, and disseminated chalcopyrite in altered porphyry and volcanics. Some small amounts of bornite were noticed. The 1,750 foot level with 1,000 feet of workings was driven beneath this and the ore has been stoped to the glory hole from the level. The level also explored deposits a and b underground and some stoping and raising has been done on these deposits. No sampling was done as the 1750' level portal caved during the examination period. The major part of the production came from these workings.

(e) At elevation 1,700 feet a small pit in a weak skarn deposit showed some malachite staining.

(f) At elevation 1,550 feet a shear zone contains disseminated pyrite and chalcopyrite in a porphyry intrusive. This was explored by a tunnel with 650 feet of drifts and crosscuts and some raises.

3.(g) At elevation 1,300 feet a shear zone in volcanics contains disseminated chalcopyrite. The surface exposure is on a steep cliff and could not be examined without ladders. Below this the 1,250' portal and 2,000 feet of drifts and crosscuts explore the area. A garnet skarn zone in limestone and tuffs 700 feet from the portal contained some sulphides in the limestone and tuff beds along the contacts of irregular northwest striking dikes and sills of feldspar porphyry and granodiorite. In some places these intrusives are well mineralized by chalcopyrite.

DEVELOPMENT

The claims were developed by surface pits, several short tunnels, one short shaft and by 3 adits at elevations 1,750, 1,550 and 1,250 with 1,000, 650 and 2,000 feet of development respectively. These levels were connected by raises which extended to the surface at a small glory hole at elevation 2,000 feet.

An aerial tramway connected the 1,750' level to the beach but this has now collapsed.

HISTORY

The claims were first worked in 1898 and this continued to 1902 when they were closed due to a drop in copper prices. Since that time several attempts have been made unsuccessfully to re-open the mine.

Production records are lacking although one 2,000 ton shipment assayed 8% copper.

The ISLAND MINING AND EXPLORATION CO. LTD., began work on the claims in 1971. They have thoroughly prospected the area, cut lines, made a magnetometer survey and have rehabilitated some of the workings.

SUMMARY

The Hayes Mine contains a number of good grade surface copper deposits and an unknown tonnage developed by underground workings. The property is ideally located for production.

RECOMMENDATIONS

The roads to the workings should be rebuilt and the new discoveries should be trenched and connected to the beach road. The deposits should be mapped, sampled and assayed.

If this work is successful I would recommend the diamond drilling of the surface deposits to determine their ore reserves.

ESTIMATED COSTS

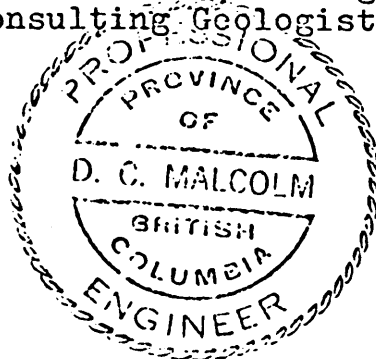
I	Road Building	
	Including Rockwork	\$15,000.00
	Trenching	5,000.00
	Sampling & Assaying	1,000.00
	Geology & Supervision	2,000.00
	Transportation	2,000.00
	Accommodation	1,500.00
	Contingencies	<u>3,500.00</u>
	TOTAL	<u>\$30,000.00</u>
II	Diamond Drilling	
	3,000' @ \$15/Ft.	\$45,000.00
	Sampling & Assaying	2,000.00
	Core Boxes, Storage & Logging	1,000.00
	Mobilization	2,000.00
	Transportation	3,000.00
	Geology & Supervision	2,000.00
	Accommodation	1,000.00
	Contingencies	<u>4,000.00</u>
	TOTAL	<u>\$60,000.00</u>

Report by



D.C. MALCOLM, P. Eng.,
Consulting Geologist

Vancouver, B.C.
October 29, 1974



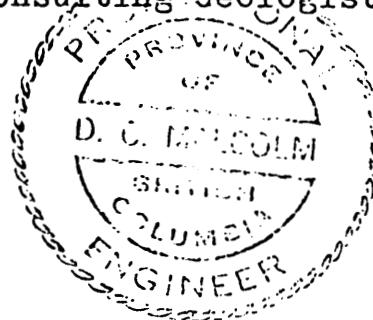
C E R T I F I C A T E

This is to certify that:

1. I, DOUGLAS COLE MALCOLM am a resident of Vancouver, B.C., and live at 2290 West 23rd Avenue.
2. I am a graduate of the University of British Columbia with the degree of Bachelor of Applied Science in Geological Engineering (1935).
3. I am a member of the Association of Professional Engineers of British Columbia and Ontario and have practised my profession continuously since
4. I have not, directly or indirectly, received or expect to receive any interest, direct or indirect, in the property of ISLAND MINING AND EXPLORATIONS COMPANY LIMITED (N.P.L.), or of any affiliate; or beneficially own, directly or indirectly, any securities of the company or of any affiliate.
5. This report is based on extensive work done on the Crown granted claims and in the adjacent area in June and July in 1966 and on work done from 1971 to 1974 by Mr. TOM KIRK and associates.

D C Malcolm
D.C. MALCOLM, P. Eng.,
Consulting Geologist

Vancouver, B.C.
October 29, 1974



ISLAND MINING AND EXPLORATION CO. LTD. (N.P.L.)

HAYES MINE

PROGRESS REPORT

SUMMARY

This report is based on an examination made July 23, 1975 and updates a report dated October 29, 1974.

Work done this year was concentrated on the No. 1 or Beach Showing 200 to 900 feet from Alberni Canal. It appears to be thick, widespread and suitable for surface mining. It has not been assayed but many sections would assay 5% copper.

Road building and short hole diamond drilling is necessary to determine tonnages and grades.

TOPOGRAPHY

The Hayes Mine Camp is on a small sandy beach at the mouth of Hayes Creek on Alberni Canal. Black Karmut-sen volcanic cliffs 150 feet in height extend along the waterfront on each side of the bay. Behind the bay a steep road climbs through a glacial gravel deposit about 400 feet to the top of the cliff. It branches with a road northerly to near Hayes Creek and one southerly to a series of switchbacks to the mine tunnels and upper showings.

The Beach Showings are along these roads on a tilted bench with creek canyons to the north and south.

GEOLOGY

The Hayes showings are in faulted and folded Quatsino limestones with Bonanza agglomerates and tuffs above and hematitic tuff and Karmutsen basalts below. These rocks are intruded by granodiorite, diorite and quartz feldspar porphyry.

Chalcopyrite and bornite are found in limestones and fragmentals in skarn zones, both actinolite skarns and widespread epidote beds. Massive magnetite-chalcopyrite deposits occur in volcanics.

In addition a fine grained bedded chalcopyrite occurs in some beds.

Disseminated and fracture fillings of pyrite, chalcopyrite and sphalerite occur in places in the intrusives.

BEACH DEPOSIT

Magnetite-chalcopyrite deposits occur at the top of the cliff forming Karmutsen basalts. These were explored by a 20 foot long adit at elevation 200 feet and by several deep rock trenches. The magnetite is 5 to 8 feet thick and contains chalcopyrite.

Above these workings, over an area 250 feet square a 10 foot tunnel and numerous shallow pits expose chalcopryite in skarn and bedded chalcopryite in tuffs and fragmentals. The workings are over a vertical range of 50 feet but do not show the thickness or depth of the mineralization. The copper content varies between 1 and 10%.

Similar mineralization has been found in small pits 300, 1,000 and 1,200 feet to the south west.

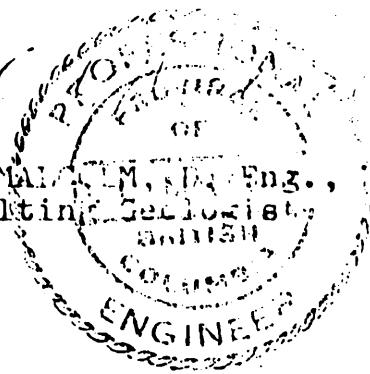
CONCLUSION

The Beach showing is attractive and ideally located near Alberni Canal.

The work recommended in the October report should, with short drill holes, determine the tonnage and grade of this deposit.

Report by

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Vancouver, B.C.
July 28, 1925