3025

HUDSON BAY EXPLORATION AND DEVELOPMENT COMPANY LIMITED

NITINAT LAKE AREA PROPERTY

VICTORIA MINING DIVISION

BRITISH COLUMBIA

92 C /15 E

REPORT ON LINE CUTTING, GEOCHEMICAL & GEOLOGICAL SURVEYS

BY R. A. FREBERG, P. ENG.

MAY, 1971

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3025 MAP

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REPORT ON LINE CUTTING, GEOCHEMICAL SURVEY, GEOLOGICAL MAPPING

BY R. A. FREBERG, P. ENG.

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INTRODUCTION

This report concerns the program of line cutting, geochemical survey and geological mapping carried out by Hudson Bay Exploration and Development Company Limited on their property which is situated in the 4 Mile Creek - Nitinat Lake area on Vancouver Island. The property consists of 97 contiguous claims and fractions.

During the period June 1st to December 1st, 1970, a program of geochemical sampling and geological mapping was carried out on a grid system over an area of 3000' by 13,400 feet. Some general prospecting was also carried out on parts of the property outside the grid area. This program was conducted at intervals throughout the six month period and the progress was subject to other work commitments on an adjoining property, the availability of qualified personnel, and work restrictions during periods of extreme dry weather.

SUMMARY AND CONCLUSIONS

Following the discovery of significant chalcopyrite mineralization in float material at the headwaters of 4 Mile Creek the property was staked and general prospecting carried out. A survey grid was later established over an area of 3000' by 13,400 feet in which there is 2.45 miles of surveyed base line and 41.16 miles of chain and compass section lines for a total of 43.61 miles of line. A total of 2257 soil samples were collected on this grid and analyzed for copper, silver and molybdenum by Chemex Labs Ltd., Vancouver.

Geological mapping has been completed in detail on an area approximately 3000' x 7000' at the north end of the grid.

The cost of establishing the grid and carrying out the geological and geochemical surveys in 1970 is estimated to be $24,383.42 as per the attached affidavit.

Results of work to date indicate that further investigation is warranted and it is proposed in 1971 to carry out general prospecting, geological mapping and geophysical surveys on the property.

MINERAL CLAIMS

The Hudson Bay Exploration and Development Company Limited property consists of 97 claims and fractions. The claims were recorded in Victoria during the period May 19th to June 26th, 1970. With the exception of the A,B,C,D and E fractions and the TUM TUM claims the balance of the claims are recorded as the TAM and EASY claims.

The claims have been grouped as follows: "A" Group - 40 claims, "B" Group - 26 claims and "C" Group 31 claims. The"A" and "B" fractions are being dropped as they are not required. The property will then consist of 97 claims and fractions. The claim and group boundaries are indicated on a sketch plan accompanying this report and the individual claims making up each group are presented in lists attached to this report.

OWNERSHIP

The registered owner of the claims is Hudson Bay Exploration and Development Company Limited, Flin Flon, Manitoba. The exploration program referred to in this report was conducted from the Vancouver branch office of the owner located at 1695-555 Burrard St., Vancouver 1, B.C.

LOCATION AND ACCESS

The property is in the Victoria Mining Division and mainly lies within the upper drainage basin of 4 Mile Creek between the Caycuse River and Jasper Creek and approximately 4.3 miles ENE of the north end of Nitinat Lake. The property adjoins the east and south boundary of the Terrace Bell Mines property.

The Nitinat Lake area is readily accessible by the public access road which extends from the community of Cowichan Lake to the north end of Cowichan Lake. There are numerous old logging roads in the area but few of these roads extend into the TAM-EASY claims. Road construction for ready access to the grid area is subject to timber cutting restrictions and somewhat difficult terrain conditions.

TOPOGRAPHY AND SURFACE FEATURES

Surface elevations on the property ranges from a few hundred feet to about 3200 feet above sea level. The terrain is not generally rugged as the ridges are rounded and the slopes are gradual. The grid area lies within a large basin drained by 4 Mile Creek in which the creek cuts, particularly near the headwaters, are relatively shallow and provide the best rock exposures.

The entire property area is covered by heavy forest growth consisting mainly of hemlock, cedar and spruce which are up to 200 feet in height and 6-8 feet at the butt. Undergrowth at higher elevations is sparse. Very limited logging operations have been carried out and to date has been confined to the north and west sides of the property.

Rock exposure is fairly abundant particularly in the creek beds and overburden is considered to be generally shallow.

GENERAL GEOLOGY & GEOLOGICAL MAPPING

There has been no previous geological mapping of the Nitinat Lake area other than on scattered properties held by mining and exploration companies. The general geology of the area is presented on J. E. Muller's "Geological Sketch Map of Vancouver Island (1967)".

Geological mapping was carried out on the northerly half of the TAM-EASY grid by G. E. Bidwell and P. T. Coyle during 1970. The balance of the grid will be mapped in 1971.

The property is believed to be underlain by rock formations of the Vancouver Group which are intruded by dykes of dioritic composition. In the area mapped, four rock types were encountered which occur as north-south trending belts. Pyroclastic andesite (1) consisting of fragments of volcanics of variable size and composition occur as belts along the east and west side of the grid. The felsite (2) is a fine grained buff coloured volcanic consisting mainly of

feldspar with little quartz and no sulphide mineralization which occurs to the east of the pyroclastic volcanics at the northeast corner of the grid and as an isolated lens on section line 23S. The siliceous volcanics (3) is a general field term for irregular N-S trending zones or belts which are rhyolitic to dacitic in composition. The diorite porphyry (4) is extensive throughout the mapped area and due to extensive alteration is difficult to differentiate from the andesitic volcanics. Feldspar phenocrysts are well developed in certain of those rock exposures which are considered to be part of intrusive sills and dykes.

The north-south trend of above mentioned rock types is the most obvious structural feature. Bedding trends are not apparent and the extensive fracturing is widely variable in strike and dip. 4 Mile Creek probably follows a N-S fault zone and in the area mapped N-S lineaments and E-W cross faulting is indicated.

Pyrite mineralization as disseminations and veinlets is widespread and variable in amounts in the area mapped and occurs mainly in the siliceous andesite and diorite porphyry. Chalcopyrite with pyrite has been observed at a number of points in the area mapped and particularly occurs in the siliceous volcanics as narrow veins in randomly oriented fractures. A few narrow veins of galena and sphalerite with pyrite have been located at the north end of the grid.

LINE CUTTING

In view of the forest cover of prime trees and related restrictions in cutting, the grid was established with no large trees cut and a minimum of blazing. The surveyed base line was established using numerous offsets. A total of 2.45 miles of surveyed base line, 1.14 miles of chain and compass base line (60S to 120S) and 40 miles of section line was established in the grid area which is 3000 feet wide (E-W) and 13,400 feet long (N-S).

The section lines from 30S to 60S were established at 100 foot intervals and pegged every 100 feet. On the balance of the grid the section lines are at 200 foot intervals and pegged every 100 feet. All the lines are marked with flagging tape.

GEOCHEMICAL SURVEY

A total of 2257 soil samples were collected on the grid at the chained peg locations at 100' intervals and where possible are from the "B" soil horizon at a depth rarely exceeding 2 feet. The sample material was placed in waterproof kraft paper sample bags and the information on location, soil type, horizon, depth, colour, and texture for each sample was recorded on geochemical soil survey data sheets.

The soil samples were shipped to Chemex Labs Ltd., Vancouver, where they were dried and screened to 80 mesh. A weighed amount of the -80 mesh material was digested in hot acqua regia and the solution brought up to a specific volume for testing by atomic absorption for copper, silver and molybdenum. The trace metal values are plotted on separate plans, prints of which are included with this report.

DISCUSSION

Exploration on the TAM-EASY property is at a preliminary stage and results of work to date indicates that further exploration is warranted. In 1971 it is planned to conduct reconnaisance soil-sampling and prospecting on the claims outside the grid area. The balance of the grid will be geologically mapped and an induced polarization survey will be carried out on selected parts of the grid.

R. A. Freberg, P. Eng.

Vancouver, B.C.
May, 1971.

HUDSON BAY EXPLORATION AND DEVELOPMENT COMPANY LIMITED

NITINAT LAKE AREA PROPERTY

VICTORIA MINING DIVISION

BRITISH COLUMBIA

ATTACHMENTS

MAY, 1971

QUALIFICATIONS

OF

SUPERVISORY PERSONNEL

EMPLOYED AT

HUDSON BAY EXPLORATION AND DEVELOPMENT COMPANY LIMITED

NITINAT LAKE AREA PROPERTY, B.C.

1970

RAY ALFRED FREBERG

1946-1950 University of Toronto. Graduated with B.A. Sc. in Mining Geology in 1950

1950-1951 University of Toronto. School of Graduate Studies. Graduated with MA. Sc. in Mining Geology in 1951

Summer Employment 1947-1950

1947 INCO, Frood Mine, Sudbury, Ontario - underground helper.

1948 McIntyre Porcupine Mines Ltd. - prospecting, mapping - Ontario.

1949 Kennco Explorations, geological mapping - Quebec.

1950 Kennco Explorations, geochemical survey - Gaspe, Quebec.

1951-1956 Hudson Bay Mining and Smelting Company Ltd., Flin Flon, Manitoba.
1950 - drilling supervision in field camps.
1951-1952 - Supervisor of all exploration diamond drilling.
1953-1956 - Resident Geologist at Hudson Yukon Mines property, Quill Creek, Y.T. Surface & underground geologist.

1956-1958 Greyhawk Uranium Mines Ltd. Bancroft, Ontario.
1956-1958 - Mine Engineer & Mine Geologist.
1958 - Mine Manager, 600 tpd operation.

1959 Faraday Uranium Mines Ltd., Bancroft, Ontario.
Mine Geologist - part time shift boss.

1960-1971 Hudson Bay Mining and Smelting Company Limited.
1960-1963 - Supervisor of exploration diamond drilling.
1964-1966 - Senior Exploration Geologist - project research, property examinations.
1967-1971 - Resident Geologist, Vancouver Branch Office, Hudson Bay Exploration & Development Co. Ltd.
- Manager of exploration projects in Western Canada.

GERALD E. BIDWELL

1964-1967 University of Saskatchewan. Graduated with B. Sc. (Honours Equivalent) in Geology in 1967.

Summer Employment, 1965-1966.

Assistant Geologist on field parties, Department of Mineral Resources, Government of Saskatchewan.

1967-1970 Hudson Bay Mining and Smelting Company Limited, Flin Flon, Manitoba.

Geological mapping and mine geologist, Snow Lake area, Manitoba.

1971 to date Hudson Bay Exploration and Development Company Limited, Vancouver Branch Office.

- Assistant to Resident Geologist.

MINERAL CLAIM GROUP

GROUP "A" (40 Claims)

GROUP "B" (26 Claims)

GROUP "C" (31 Claims)

OWNED BY

HUDSON BAY EXPLORATION AND DEVELOPMENT COMPANY LIMITED

IN THE

NITINAT LAKE AREA - VANCOUVER ISLAND, B.C.

GROUP "A"

Name of Claim	Record Number	Date Recorded
"C" Fraction	16579	May 29, 1970
TUM TUM	16457	May 19, 1970
TUM TWO	16458	"
EASY-1	16451	"
-2	16452	"
-3	16453	"
-4	16454	"
-5	16455	"
-6	16456	"
-7	16547	May 29, 1970
-8	16548	"
-9	16549	"
-10	16550	"
-11	16551	"
-12	16552	"
-14	16554	"
-16	16556	"
-17	16557	"
-18	16558	"
-19	16559	"
-20	16560	"
-21	16561	"
EASY-29	16640	June 19, 1970
-30	16641	"
-31	16642	"
-32	16643	"

Name of Claim	Record Number	Date Recorded
EASY-33	16644	June 19, 1970
-34	16645	"
-35	16646	"
-36	16647	"
-37	16648	"
-38	16649	"
-39	16650	"
-40	16651	"
-41	16652	"
-42	16653	"
EASY-51	16664	June 26, 1970
-52	16665	"
TAM -8	16466	May 19, 1970
-25	16580	May 29, 1970

GROUP "B"

Name of Claim	Record Number	Date Recorded
EASY-13	16553	May 29, 1970
-15	16555	May 29, 1970
TAM -1	16459	May 19, 1970
-2	16460	"
-3	16461	"
-4	16462	"
-5	16463	"
-6	16464	"
-9	16569	May 29, 1970
-10	16570	"
-11	16571	"
-12	16572	"
-13	16573	"
-14	16574	"
-15	16575	"
-16	16576	"
-17	16467	May 19, 1970
-18	16468	"
-19	16469	"
-20	16470	"
-21	16471	"
-22	16472	"
-23	16473	"
-24	16474	"
"D" Fraction	16655	June 19, 1970
"E" Fraction	16654	"

GROUP "C"

Name of Claim	Record Number	Date Recorded
EASY-22	16562	May 29, 1970
-23	16563	"
-24	16564	"
-25	16565	"
-26	16566	"
-27	16567	"
-28	16568	"
-43	16656	June 26, 1970
-44	16657	"
-45	16658	"
-46	16659	"
-47	16660	"
-48	16661	"
-49	16662	"
-50	16663	"
TAM -7	16465	May 19, 1970
-26	16581	May 29, 1970
-27	16582	"
-28	16583	"
-29	16584	"
-30	16585	"
-31	16586	"
-32	16587	"
-33	16588	"
-34	16589	"
-35	16590	"

Name of Claim	Record Number	Date Recorded
TAM -36	16591	May 29, 1970
-37	16592	"
-38	16593	"
-39	16594	"
-40	16595	"

WORK SCHEDULE & WAGE STATEMENT

LINECUTTING & GEOCHEMICAL SURVEY

TAM-EASY CLAIMS - NITINAT LAKE AREA

JUNE TO DECEMBER, 1970

EMPLOYEE	RATE/MONTH	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	TOTAL DAYS	WAGES
G.E. Bidwell	$800.00	4	1		2			7	$ 186.40
J.A. Miles	640.00	12	23	3				38	810.88
B.H.A. MacDonald	500.00	4	3	17				24	400.00
G.K. McCullough	590.00	17	2					19	373.47
D.G. Forsyth	600.00		4		10			14	280.00
P.T. Coyle	620.00	5	7		1	1		14	296.44
(June, July) (Sept. Oct.)	723.00								
L.W. Davidson	500.00		23	7				30	500.00
R.P. Leel	540.00		9	25				34	611.82
D.M. Smith	500.00			9	10			19	316.50
D.F. Crocker	500.00				2			2	33.50
J.M. McNulty	600.00				2	31	30	63	1,260.00
W.J. McNulty	600.00				2	31	30	63	1,260.00
G. Connors	500.00				2	31	30	63	1,050.00
H.R. McKinnon	500.00			24				24	400.00
W. Guppy	600.00				6			6	120.00
								420	$ 7,899.01

SUPERVISION

G.E. Bidwell - June to December (Equivalent to 2 months)	1,600.00
R.A. Freberg - June to December (10 days @ $50.00/day)	500.00
	$ 9,999.01
Office charges @ 20% (includes vacation pay, overtime, overhead)	1,999.80
TOTAL	$11,998.81

WORK SCHEDULE & WAGE STATEMENT

GEOLOGICAL MAPPING

TAM-EASY - CLAIMS - NITINAT LAKE AREA

JUNE to NOVEMBER, 1970

EMPLOYEE	RATE/MONTH	JUNE	JULY	AUG.	SEPT.	OCT.	TOTAL DAYS	WAGES
G.E. BIDWELL	$800.00	11	4	7	1	-	23	$ 613.60
P.T. Coyle (June, July)	620.00	5	8	-	1	11	25	557.66
(Sept. Oct.)	723.00							
								$1,171.26

SUPERVISION

R.A. Freberg - 4 days @ $50.00/day	200.00
	$1,371.26
Office charges @ 20% (includes vacation pay, overtime, overhead)	274.25
	$1,645.51

CANADA
PROVINCE OF
BRITISH COLUMBIA

TO WIT:

Form 204
May, 1971

In the Matter of HUDSON BAY EXPLORATION AND DEVELOPMENT COMPANY LIMITED.

1970 STATEMENT of EXPENDITURES - Page 1 of 4

I, R. A. Freberg

of Vancouver in the Province of British Columbia

do solemnly declare that the following statement of expenditure on behalf of Hudson Bay Exploration and Development Company Limited on their Nitinat Lake area claims, Vancouver Island is correct.

LINECUTTING & GEOCHEMICAL SURVEY

- 43.61 miles of section & base lines @ $507.70/line mile.

Labour - 420 man days	$ 7,899.01	
Supervision - 70 man days	2,100.00	
Camp operation @ $6.00/man day	2,940.00	
Transportation (rentals, fuel, etc.)	2,480.96	
Transit rental	40.95	
Assaying charges (Chemex Labs)	4,680.31	
Office charges (vacation pay, overtime, overhead)	1,999.80	$ 22,141.03

GEOLOGICAL MAPPING

Labour - 48 man days	1,171.26	
Supervision - 4 man days	200.00	
Camp operations @ $6.00/man day	312.00	
Transportation (rentals, fuel etc.)	284.88	
Office charges (vacation pay, overtime, overhead)	274.25	2,242.39
		$ 24,383.42

AND I make this solemn declaration, conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath, and by virtue of the CANADA EVIDENCE ACT.

DECLARED before me at Vancouver in the Province of British Columbia, this 14 day of May A. D., 1971

A Notary Public in and for the Province of British Columbia.
A Commissioner for taking affidavits within British Columbia.

SUB-MINING RECORDER

CANADA
PROVINCE OF
BRITISH COLUMBIA

TO WIT:

Form 204

In the Matter of HUDSON BAY EXPLORATION AND DEVELOPMENT COMPANY LIMITED.

DISTRIBUTION of EXPENDITURES - Page 2 of 4

I, R. A. Freberg

of Vancouver in the Province of British Columbia

do solemnly declare that the following statement of expenditures on behalf of Hudson Bay Exploration and Development Company Limited on their Nitinat Lake area claims, Vancouver Island, is correct.

DISTRIBUTION of EXPENDITURES

Group "A"		
Line Cutting & Geochemical Survey - 13.5 miles @ $507.70	=$6853.95	
Geological Mapping - 10% of cost	= 224.24	$ 7,078.19
Group "B"		
Line Cutting & Geochemical Survey - 12.5 miles @ $507.70	=$6346.25	
Geological Mapping - 45% of cost	1009.07	7,356.32
Group "C"		
Line Cutting & Geological Survey - 15.16 miles @ $507.70	=$7696.73	
Geological Mapping - 45% of cost	1009.07	8,705.80
		$ 23,140.31

AND I make this solemn declaration, conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath, and by virtue of the CANADA EVIDENCE ACT.

DECLARED before me at Vancouver in the Province of British Columbia, this 14 day of May A. D., 19 71

G. Phillips

A Notary Public in and for the Province of British Columbia.
A Commissioner for taking affidavits within British Columbia.

R. A. Freberg

SUB-MINING RECORDER

CANADA
PROVINCE OF
BRITISH COLUMBIA

TO WIT:

Form 204

In the Matter of HUDSON BAY EXPLORATION AND DEVELOPMENT COMPANY LIMITED.

1970 STATEMENT OF EXPENDITURES - Page 3 of 4

I, R. A. Freberg

of Vancouver in the Province of British Columbia

do solemnly declare that the following statement of expenditures on behalf of Hudson Bay Exploration and Development Company Limited, on their Nitinat Lake area claims, Vancouver Island, is correct.

LINE CUTTING & GEOCHEMICAL SURVEY

SUPERVISION

R.A. Freberg, P. Eng., June to December (10 days)	$ 500.00	
G.E. Bidwell, Project Supervisor, June to Dec.(equiv.2 mos.)	$1600.00	$ 2,100.00

PAYROLL

				Rate/Month		
G.E. Bidwell	7	man	days	$800.00	$ 186.40	
J.A. Miles	38	"	"	640.00	810.88	
B.H.A. MacDonald	24	"	"	500.00	400.00	
G.K. McCullough	19	"	"	590.00	373.47	
D.G. Forsyth	14	"	"	600.00	280.00	
P.T. Coyle	14	"	"	620.00 723.00	296.44	
L.W. Davidson	30	"	"	500.00	500.00	
R.P. Leel	34	"	"	540.00	611.82	
D.M. Smith	19	"	"	500.00	316.50	
D.F. Crocker	2	"	"	500.00	33.50	
J.M. McNulty	63	"	"	600.00	1260.00	
W.J. McNulty	63	"	"	600.00	1260.00	
G. Connors	63	"	"	500.00	1050.00	
H.R. McKinnon	24	"	"	500.00	400.00	
W. Guppy	6	"	"	600.00	120.00	7,899.01
						$ 9,999.01
Office charges @ 20% (vacation pay, overtime, overhead)						1,999.80
						$11,998.81

AND I make this solemn declaration, conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath, and by virtue of the CANADA EVIDENCE ACT.

DECLARED before me at Vancouver in the Province of British Columbia, this 14 day of May A. D., 19 71

A Notary Public in and for the Province of British Columbia.
A Commissioner for taking affidavits within British Columbia.

SUB-MINING RECORDER

Park Stationers & Printers Ltd.
Vancouver, B.C.
Form 204

CANADA
PROVINCE OF
BRITISH COLUMBIA

TO WIT:

In the Matter of HUDSON BAY EXPLORATION AND DEVELOPMENT COMPANY LIMITED.

1970 STATEMENT OF EXPENDITURES - Page 4 of 4

I, R. A. Freberg

in the Province of British Columbia

of Vancouver
do solemnly declare

that the following statement of expenditures on behalf of Hudson Bay Exploration and Development Company Limited, on their Nitinat Lake area claims, Vancouver Island, is correct.

GEOLOGICAL MAPPING

SUPERVISION

R.A. Freberg, P.Eng., June to December (4 days)				$ 200.00
PAYROLL		Rate/Month		
G.E. Bidwell	23 man days	$ 800.00	$ 613.60	$
P.T. Coyle	25 " "	620.00 723.00	557.66	$ 1,171.26
				$ 1,371.26
Office charges @ 20% (vacation pay, overtime, overhead)				274.25
				$ 1,645.51

AND I make this solemn declaration, conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath, and by virtue of the CANADA EVIDENCE ACT.

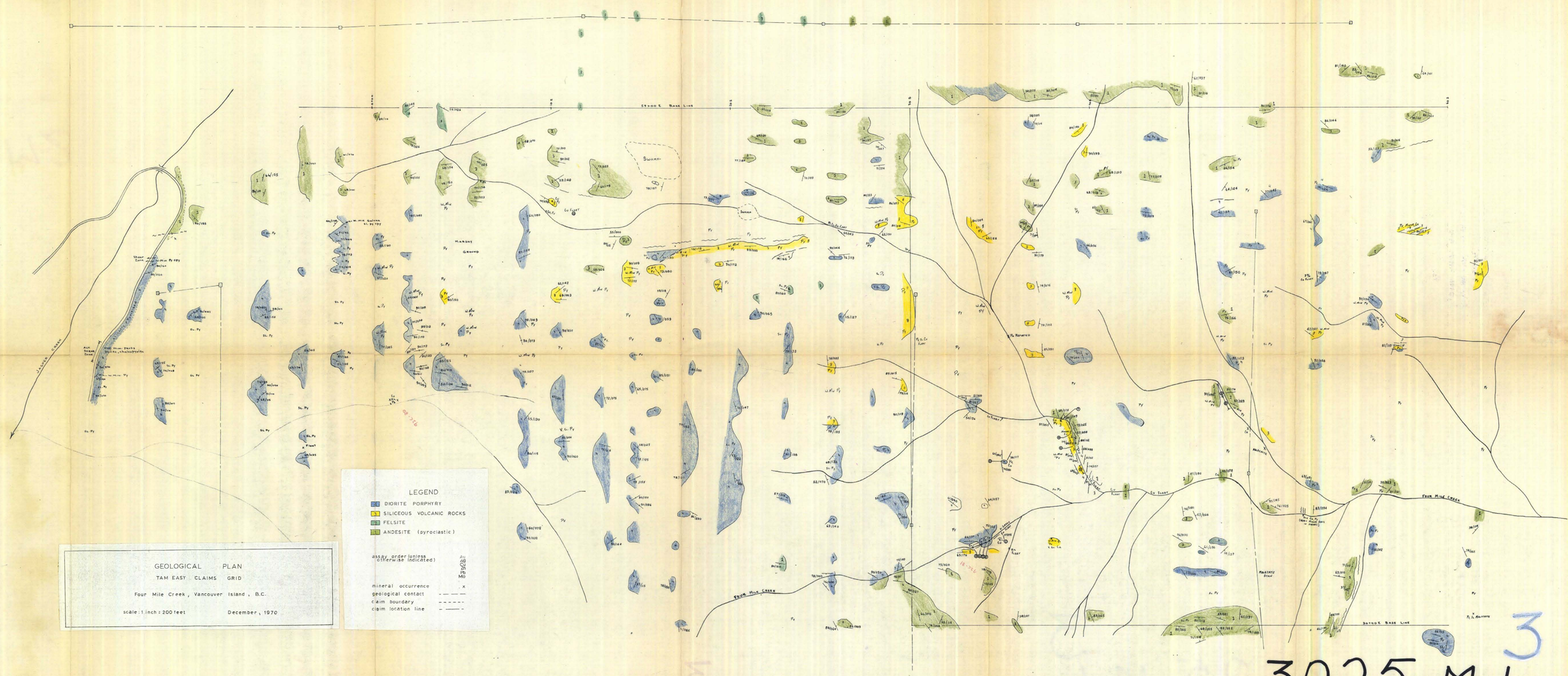
DECLARED before me at Vancouver in the Province of British Columbia, this 14 day of May A. D., 19 71

G Phillips

A Notary Public in and for the Province of British Columbia.
A Commissioner for taking affidavits within British Columbia.

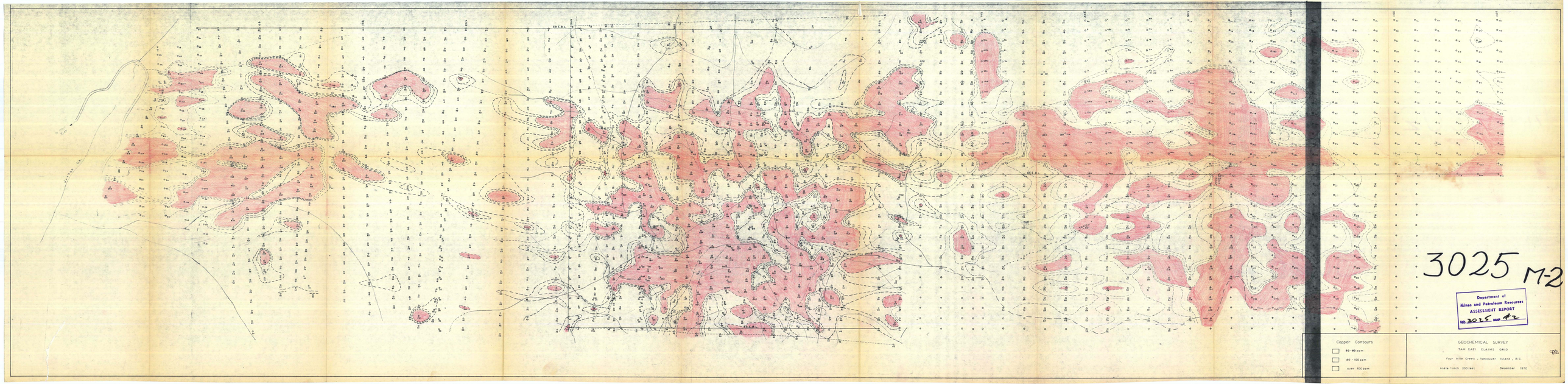
R A Freberg

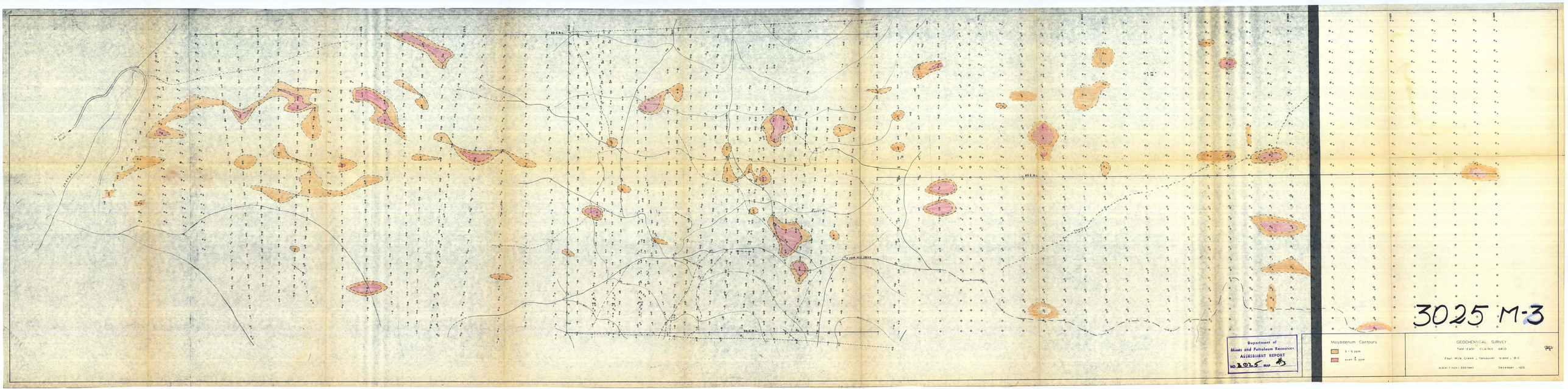
SUB-MINING RECORDER

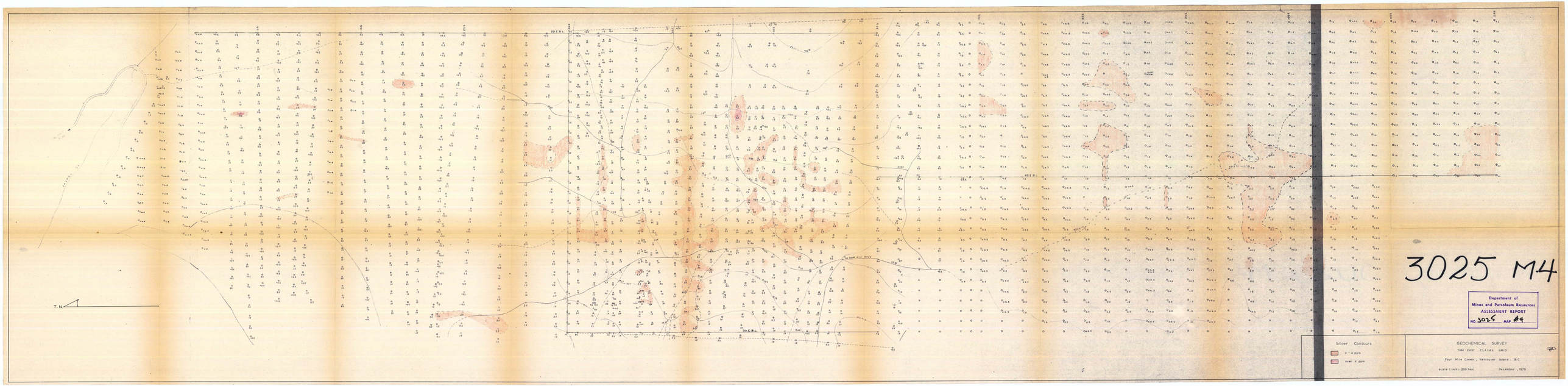


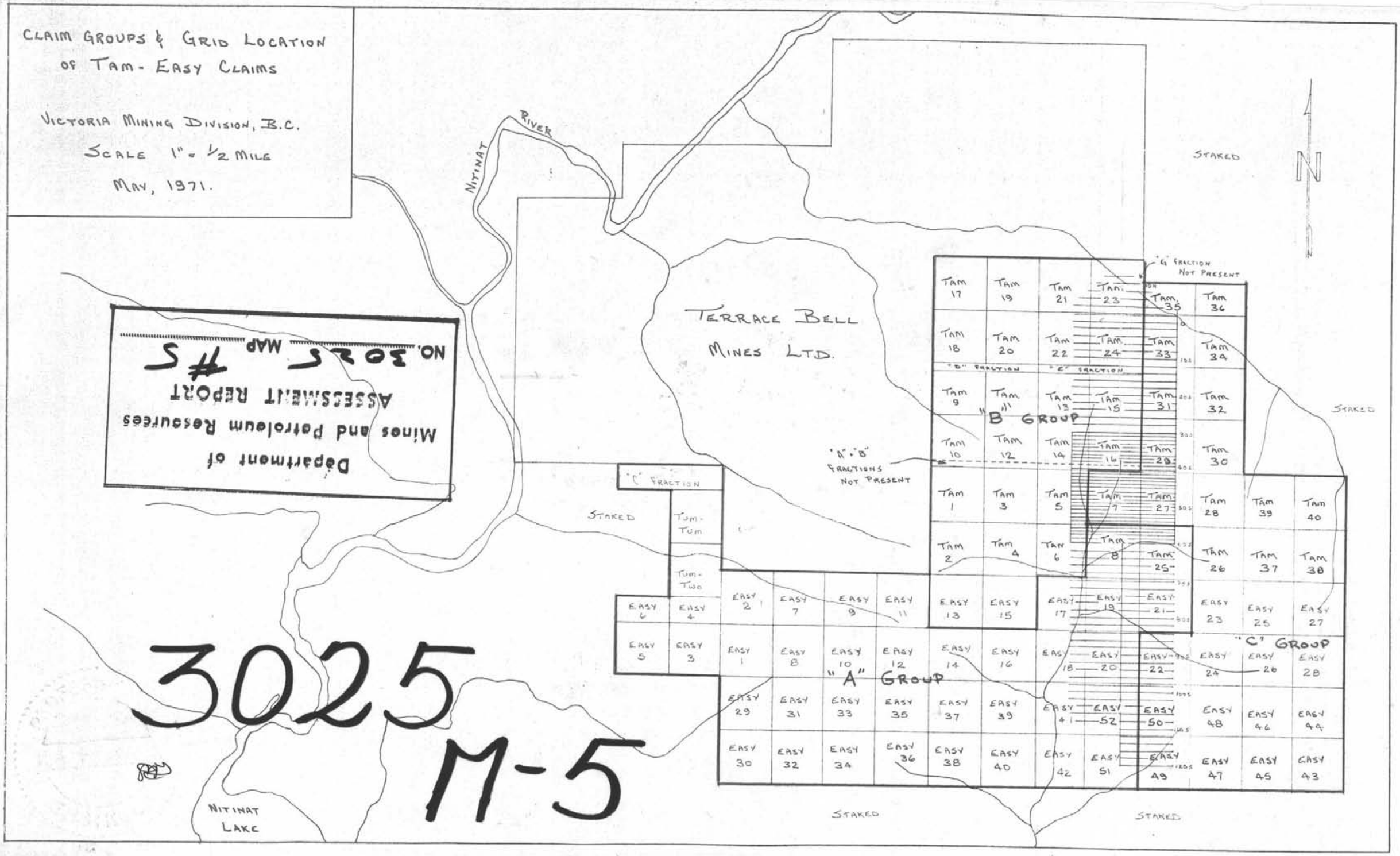
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3025 MAP #1

3025 M-1 3


3025 M-2
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3025 MAP 42
Copper Contours
60-80 ppm
80-100 ppm
over 100 ppm
GEOCHEMICAL SURVEY
TAM EAST CLAIMS GRID
Four Mile Creek, Vancouver Island, B.C.
scale 1 inch 200 feet
December 1970


Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3025 MAP #3
Molybdenum Contours
3 - 5 ppm
over 5 ppm
GEOCHEMICAL SURVEY
TAM EAST CLAIMS GRID
Four Mile Creek, Vancouver Island, B.C.
scale: 1 inch = 200 feet
December, 1970
3025 M-3


T.N.
Silver Contours
3 - 4 ppm
over 4 ppm
GEOCHEMICAL SURVEY
TAM - EASY CLAIMS GRID
Four Mile Creek, Vancouver Island, B.C.
scale: 1 inch = 200 feet
December, 1970
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3025 MAP #4
3025 M4



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3025 MAP #5