93N/2W

GEOPHYSICAL REPORT
on the
INDUCED POLARIZATION SURVEY
for
WEST COAST MINING and EXPLORATION
by
GEOFAX SURVEYS LIMITED, CALGARY,
on the
NATION COPPER and ALEXANDER LAKE PROPERTIES,
British Columbia.
Survey dates----June 28th to July 12th, 1967.

GEOPHYSICAL REPORT.

Induced Polarization Survey on the Night Hawk group, Nation Lake Property, 2 miles S.W. of the E. end of Tchentlo Lake, 55 10'N, 124 50'W, and the TAN Group, Alexander Lake Property, 55 10'N, 124 50'W , by S.A. Mouritsen, P.Eng. for West Coast Mining and Exploration.

Claims are held by David L. Moore.

Survey dates June 28th, to July 12th, 1967.

93 N2

1056

1056

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803, 628 - 17 AVE. S.W., CALGARY, ALBERTA
TELEPHONE 264-6420

Geophysical Report on the Induced Polarization Survey for West Coast Mining and Exploration on the Nation Copper and Alexander Lake Properties Omineca Mining Division, British Columbia.

Survey carried out during dates June 28 to July 12th, 1967.

Report dated August 1st, 1967

Date: August 4, 1968

GEOFAX SURVEYS LTD.

S.A. Mouritsen, P.Eng.
G.A. Mouritsen, B.Sc.

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INTRODUCTION

During the dates of June 28th to July 12th 1967, an Induced Polarization survey was carried out on the Nation and Alexander Lake properties, belonging to West Coast Mining and Exploration. The properties were surveyed by Geofax Surveys Ltd. of Calgary, Alberta. On June 27th, the crew mobilized from Vancouver to Prince George, B.C. and on June 28th the crew flew from Prince George to the Nation Copper Property, set up and field tested all units. Work in the field was completed on July 11th, and the crew demobilized by helicopter and plane to Prince George. On July 12th and 13th, the crew drove back to Vancouver, after remaining over night of the 12th in Prince George.

CONCLUSIONS

Please see the Chargeability Contour Maps.

All conclusions and recommendations given in this report with respect to prospective anomalies should be integrated and evaluated with the surface geology. The surface geology and results of diamond drilling are unknown to the writer at present.

The Induced Polarisation survey revealed:

A. Nation Copper Property

1. A primary anomaly at station 7W, line 5+00N with a maximum chargeability of 50.0 milliseconds. This anomaly appears to be dipping very steeply eastward. This anomaly has since been drilled and 70 feet of massive Magnetite was encountered.

2. A second primary anomaly on line 15+00N between stations 2E and 4W. This anomaly may extend as far as 8W. The anomaly extends north to Line 20+00N and is evident between stations 0 and 2W on this line. The length of the anomaly is approximately 2000 feet and its width approximately 500 feet. (See Recommendations below).

3. Small primary anomalies at station 10W on Line 20+00N, station 4W on Line 25+00N and station 12W on Line 30+00N.

4. The primary anomalies mentioned above are flanked by secondary anomalies which are secondary targets if encouraging results occur from the primaries.

B. Alexander Lake Property

1. A primary anomaly at station 29E on line 10+00N. The background chargeabilities are much lower on this property than the Nation Property. However, no subsequent decrease in resistivity occurs in conjunction with the increase in chargeability. If surface geology indicates this location to be prospective, this anomaly merits further investigation.

RECOMMENDATIONS

Please refer again to the Chargeability Contour Map and the Chargeability and Resistivity Profiles on the north map area of the Nation Copper Property.

1. Unless surface geology positively proves the feature to be Magnetite, the broad irregular primary anomaly on line 15+00N should be tested by drilling. The hole should be spotted 100 feet west of the baseline and angled slightly westward to intersect the 400 foot depth under station 2W. If commercial sulphides are encountered in this hole, further detailing by the I.P. method of the adjacent intermediate lines is recommended.

The anomaly on line 15+00N appears very rugged (note on Chargeability and Resistivity Profiles). This irregularity could be due to a too large electrode spacing on portions of the line. A re-run on a 200 foot spacing may result in maximum chargeability peaks and a smoother curve.

PROPERTY LOCATION AND ACCESS

Distance and direction of the property from Prince George or Fort St. James B.C., or coordinates with respect to Latitude and Longitude have not been supplied. Men and equipment were flown via Goose to a lake nearby the property where a helicopter transported the crew to location. A fine camp was supplied by West Coast to billet the crew while surveying the National Copper property. A fly camp was set up for the survey of the Alexander Lake property. All lines had been previously slashed by West Coast. In some instances, underbrush was very thick and operations were somewhat hampered.

METHOD OF SURVEY AND INSTRUMENT DATA

I.P. Instruments

The instrument used was a new Huntec pulse-type system capable of delivering 2500 watts to the ground. The system is composed of 3 sub-systems: a generator, a transmitter and a receiver. The generator provides the source of prime power for the transmitter which produces a rectangular current pulse to the ground. The cycling rate is 1.5 seconds "current on" and 0.5 seconds "current off"; succeeding pulses are of opposite polarity. The receiver operates remotely and is triggered by the decay of the transmitter current. The readings for the primary potential Vp and secondary potential Vs are taken by the null balance method with the input signal balanced over a period of time to reduce noise effects. The main advantages of the pulse type system over the variable frequency type system are:

1. Any electrode spacing may be used, whereas the spacings used on variable frequency systems are limited due to inductive coupling between transmitter and receiver circuits.
2. Less time is required to take each reading as no average is required.

I.P. Electrode Array

Please see the legend accompanying the Chargeability and Resistivity Profiles. The 3-array, generally, consists of one current electrode (C_1) and two potential electrodes (P_1 and P_2) which are moved together down the line. The fourth electrode (C_2) is placed

at an "infinite" distance from the other three electrodes (where "infinity" = 7 to 10a). Both the normal and special 3-arrays were used.

The following electrode spacings were used (3-array)

A. Nation Copper Property

100 ft. and 200 ft. special - Line 5+00N

200 ft. normal - station 100W to 1800 E Line 25+00N

400 ft. special - Lines 15+00N, 20+00N and on Line 25+00N from 0 to 1800 W, Line 30+00N, 25+00S and 30+00S.

B. Alexander Lake Property

The 200 ft. special 3-array was used on all lines.

I.P. Data

A. Nation Copper Property

The contour maps of Chargeability and Resistivity were made up from blue line maps provided by West Coast and are on a scale of 1 inch = 200 feet. The Chargeability and Resistivity profiles are plotted on the same scale of 1 inch = 200 feet east-west but are on a scale of 1" = 50 feet north-south to allow enough space for the chargeability and resistivity plots without superposition or overlap.

B. Alexander Lake Property

No base map was provided for this portion of the survey so a base map was drawn of the lines surveyed on a scale of 1 inch = 200 feet. Reprintable sepias were made of all contour maps and blue line prints were made of the profiles.

Terms pertaining to I.P. type exploration are defined as follows:

1. Primary Zone: (or Primary Anomaly) - an anomaly indicated by chargeabilities equal to 3 times, or greater, than the background chargeabilities.
2. Secondary Zone (or secondary anomaly) - a lesser anomaly indicated by chargeabilities greater than 2 times but less than 3 times the background chargeabilities.

The two terms above have no relation to the method by which the mineralization was emplaced due to deposition, injection or leaching, etc., but pertain only to the magnitude of the chargeability reading from a greater or lesser degree of mineralization.

3. Background: The average chargeability of the area believed to represent barren rock. The primary and secondary anomalies are relative to background which usually varies greatly between areas. The background at the Nation Copper Property averages 5.8 milliseconds and is taken as 6 milliseconds. Therefore, a primary anomaly would be represented by chargeabilities of magnitude 18 milliseconds or greater and secondary anomalies would fall in the range of 12 to 18 milliseconds. At the Alexander Lake property, the background averages 3.5 milliseconds. Therefore, a prime anomaly would be represented by chargeabilities of 10.5 or greater and secondary anomalies would range between 7 and 10.5 milliseconds. Under ideal conditions, anomalies

represented by high relative chargeabilities are corroborated by a rapid decrease in the relative resistivity. However, the resistivity can be affected by contact zones (sedimentary - igneous) change in depth of overburden and a change in mineralization. Emphasis is therefore placed on the chargeability and the resistivity is used where it corroborates the anomaly, example - the noted decrease in resistivity over the anomaly on station 7W, line 5+00N of the Nation Copper property.

DISCUSSION OF RESULTS

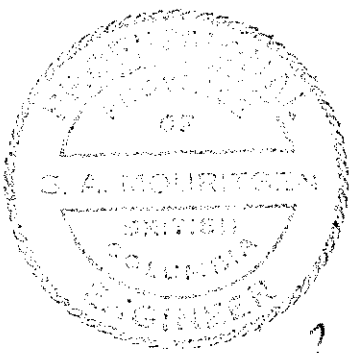
The location and extent of all anomalies encountered have been described uner "Conclusions" and need not be repeated here. The known geology of the surface and from drill holes should be integrated with the I.P. results. Such integration could easily change the contoured picture to a more coherent pattern, especially where I.P. control is lacking and the contours are strictly proportional. This integration becomes more important when massive Magnetite is known to exist on the property. However, since copper sulphides also exist, all primary anomalies should be exhaustively tested before Magnetite is credited with their existence. If sulphide mineralization is encountered on the primary anomaly on line 15+00N of the Nation Copper property, the anomaly should be detailed by the I.P. method with intermediate lines parallel to line 15+00N and 25+00N with varied electrode spacings, to determine areal extent, dip and depth. The secondary anomalies may represent secondary

targets of lower grade mineralization. They may also become primary anomalies after detailing and found to be lying either north or south of the surveyed line at a distance and depth greater than the electrode spacing, thus giving a lower reading. Without detailing, any anomaly shown on one line control only, may lie to either side of the particular line and sometimes is missed with the first drill hole.

The fine cooperation of West Coast Mining and Exploration in transporting the crew in and out of an otherwise inaccessible location and the setting up of excellent camp facilities and working conditions for the crew contributed greatly to the success of the operation.

Respectfully submitted,

S. A. Mourritsen, P. Eng.
G. A. Mourritsen, B. Sc.



Expiry Date: August 4, 1968

APPENDIX

The following personnel were employed on the survey.

W. James	Visiting Operations supervisor
L. Giovannetti	Party Chief and Chief Operator
B. Mouritsen	Transmitter assistant
J. Mostert	Electronics assistant

and one assistant supplied by West Coast Mining and Exploration.

Overall supervision, report, maps and profiles by S. A. Mouritsen, P. Eng. and G. A. Mouritsen, B. Sc.

Client representatives on the property were Mr. H. Veermann and Mr. W. Botel, geologist.

geofax surveys ltd.

803, 628 - 17 AVE. S.W., CALGARY, ALBERTA
TELEPHONE 264-6420

July 31, 1967

West Coast Mining & Exploration,
904 Helmcken Street,
VANCOUVER 2, B.C.

Attention: Mr. Bill Botel.

Dear Sirs:

RE: BILLING FOR I. P. SURVEY - NATION COPPER PROSPECT AND ALEXANDER GROUP-FT. ST. JAMES, B.C.

Mobilization from Vancouver	$ 300.00
11 days operating @ $255.00/day	$2805.00
Standby- 3 days @ $150.00	$ 450.00
1 day- No charge	
Map construction - 3 maps @ $4.00/map	$ 12.00
Map printing as per invoices	$ 18.81
Total Billing	$3585.81

Thankyou for this business

Yours very truly,

S.A. Mouritsen

S.A. Mouritsen P. Geol. P.Eng.
Geofax Surveys Ltd.

cheque No 610

DOMINION OF CANADA:

PROVINCE OF BRITISH COLUMBIA.

TO WIT:

In the Matter of The Induced Polarization Survey on the Night Hawk Group and the TAN Group of claims in the Omineca Mining Division,

I, Heinz Veerman, P.Eng.

of Vancouver, B.C.

in the Province of British Columbia, do solemnly declare that the attached bill for $3585.61 from Geofax Surveys Ltd. of Calgary, Alberta, to West Coast Mining & Exploration is the total amount paid to the contractor (Geofax) by West Coast Mining & Exploration for the I.P. Surveys as described in the report entitled :

GEOPHYSICAL REPORT on the INDUCED POLARIZATION SURVEY for WEST COAST MINING & EXPLORATION by GEOFAX SURVEYS LIMITED, CALGARY, on the NAMLON COPPER AND ALEXANDER LAKE PROPERTIES, British Columbia. Survey dates ----June 28th to July 12th, 1967.

Of this total amount a value of at least $800.- was spent on the TAN Group of claims and a value of at least $1500.- was spent on the Night Hawk Group of claims.
A total of $2300.- is declared for assessment work purposes on the aforementioned claims.

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 the City of Vancouver, in the Province of British Columbia, this 6 day of September 1967, A.D.

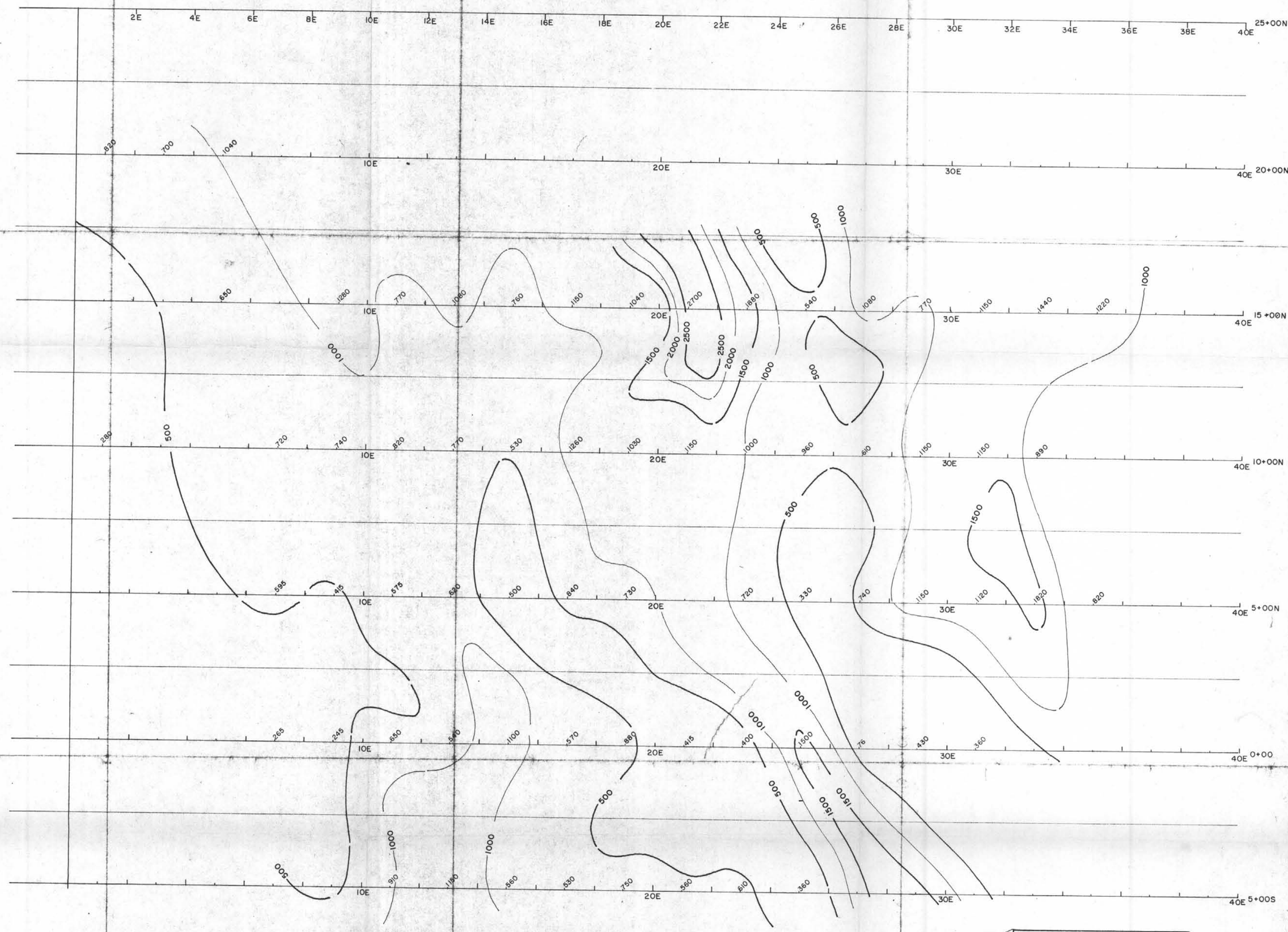
H. Veerman

Jill Turner

A Commissioner for taking Affidavits for British Columbia or
A Notary Public in and for the Province of British Columbia.

★o

Sub-mining Recorder



INDUCED POLARIZATION SURVEY

CLIENT
WEST COAST
MINING & EXPLORATION

PROJECT
ALEXANDER LAKE PROPERTY

RESISTIVITY

CONTOUR INTERVAL
500 OHM-METERS

SCALE
1 INCH= 200 FEET

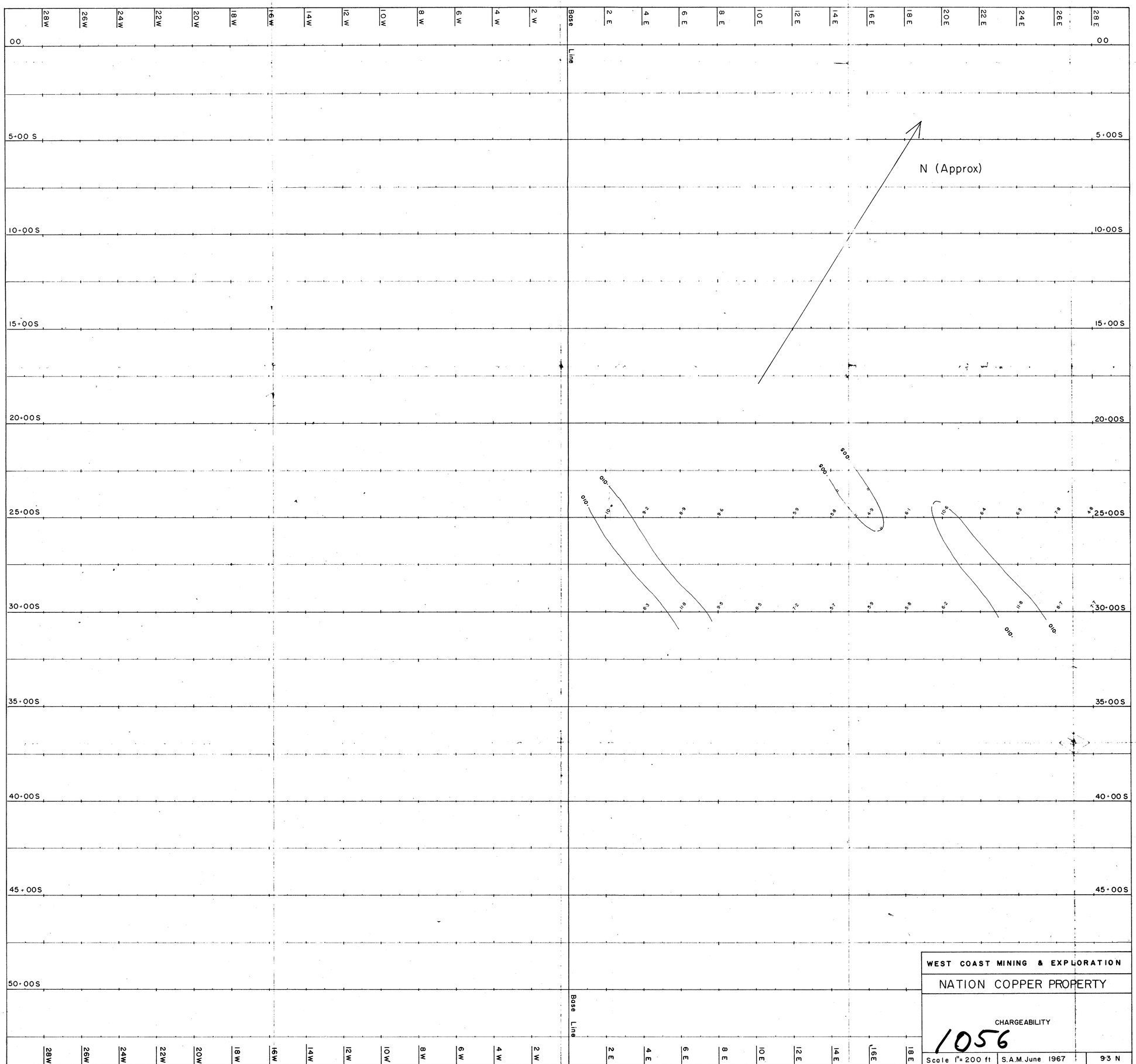
DATES OF SURVEY
JUNE 28 — JULY 12, 1967

OMINECA MINING DIVISION

BRITISH COLUMBIA

GEOFAX SURVEYS

1056



No 3

To accompany a report by S.A. Mouritsen, P.Eng., and G.A. Mouritsen, B.Sc., on the Nation Copper Property, Omenica Mining Division, B. C., dated July 24, 1967.

INDUCED POLARIZATION SURVEY

CLIENT WEST COAST MINING & EXPLORATION

PROJECT NATION COPPER PROPERTY

CHARGEABILITY

South 1

CONTOUR INTERVAL .005 SECONDS

SCALE 1 INCH = 200 FEET

DATES OF SURVEY JUNE 28 - JULY 12, 1967.

OMINECA MINING DIVISION BRITISH COLUMBIA

GEOFAX SURVEYS

WEST COAST MINING & EXPLORATION

NATION COPPER PROPERTY

CHARGEABILITY

1056

Scale 1"= 200 ft | S.A.M. June 1967 | 93 N

Tchentlo Lake

Ahdatay Cr.

Klawli R.

Nation R.

Night Hawk Gp.

MT. ALEXANDER

N

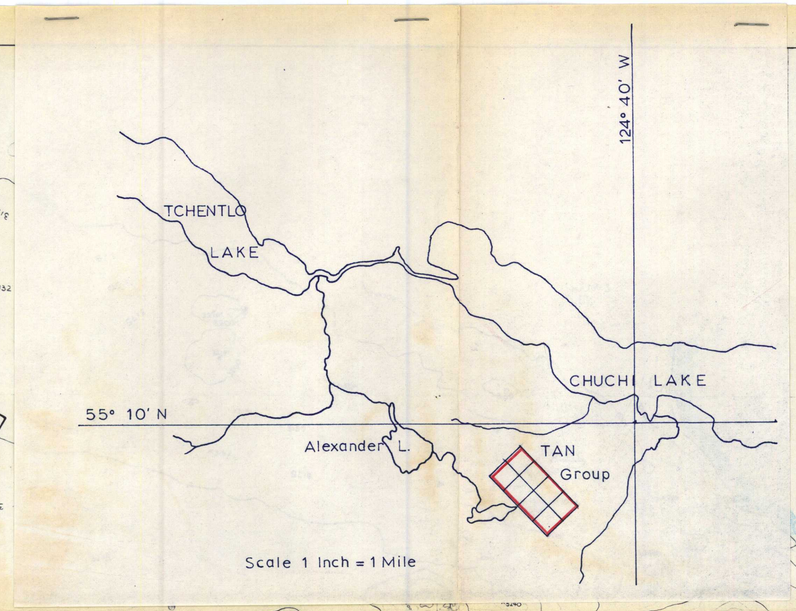
WEST COAST MINING & EXPLORATION

NATION COPPER PROPERTY

CLAIM LOCATIONS

Scale 1" = ½ mile | DRAWN D.B. MOORE | July 1966

1056



CHUCHI LAKES

N 65,000

N 60,000

N 55,000

N 50,000

E 45,000

E 50,000

E 55,000

E 60,000

E 65,000

E 70,000

Lin 8
Lin 6
Lin 7
Lin 5
Lin 4
Lin 2
Lin 3
Lin 1

Cab 4
Cab 2
Cab 5
Cab 7
Cab 3
Cab 1
Cab 6
Cab 8

Tan 8
Tan 6
Tan 7
Tan 5
Tan 4
Tan 3
Tan 2
Tan 1

ALEXANDER LAKE

ALEXANDER II LAKE

Jean Marie Creek

TAN Group

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5 MAP 1056

WEST COAST MINING & EXPLORATION			
ALEXANDER LAKE PROPERTIES			
CLAIM MAP			
SCALE 1"-1000'	CONTOUR INTERVAL 25'	DRAWN BY Botel	DATE JAN 67

1056

No 2

TO ACCOMPANY A REPORT BY S.A. MOURITSEN P.ENG, AND G.A. MOURITSEN, B.SC., ON THE NATION COPPER PROPERTY, OMINECA MINING DIVISION, B.C., DATED JULY 24, 1967

INDUCED POLARIZATION SURVEY

CLIENT WEST COAST MINING & EXPLORATION

PROJECT NATION COPPER PROPERTY

CHARGEABILITY

North 1

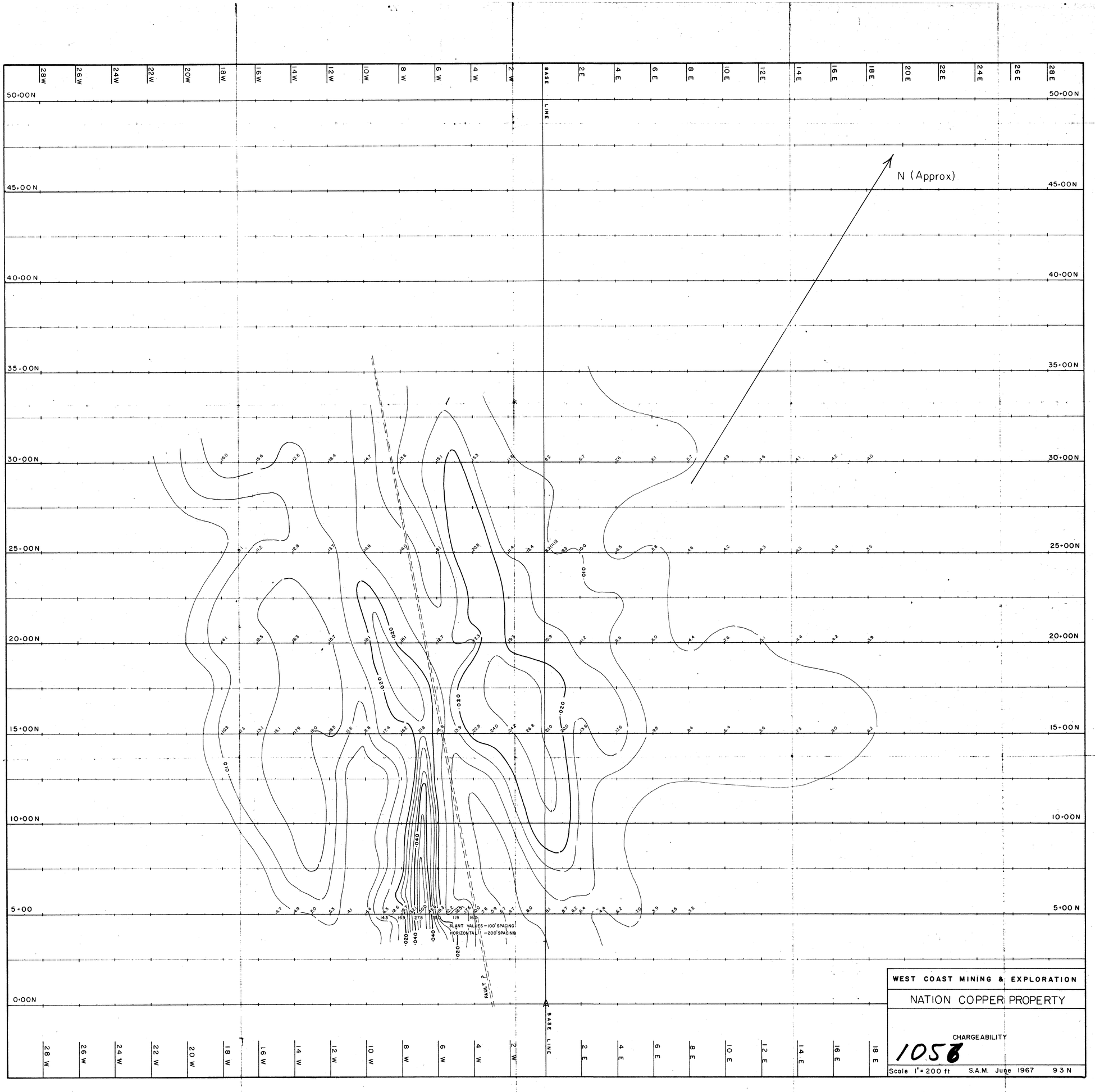
CONTOUR INTERVAL .005 SEC.

SCALE 1 INCH = 200 FEET

DATES OF SURVEY JUNE 28 to JULY 12, 1967

OMINECA MINING DIVISION BRITISH COLUMBIA

GEOFAX SURVEYS



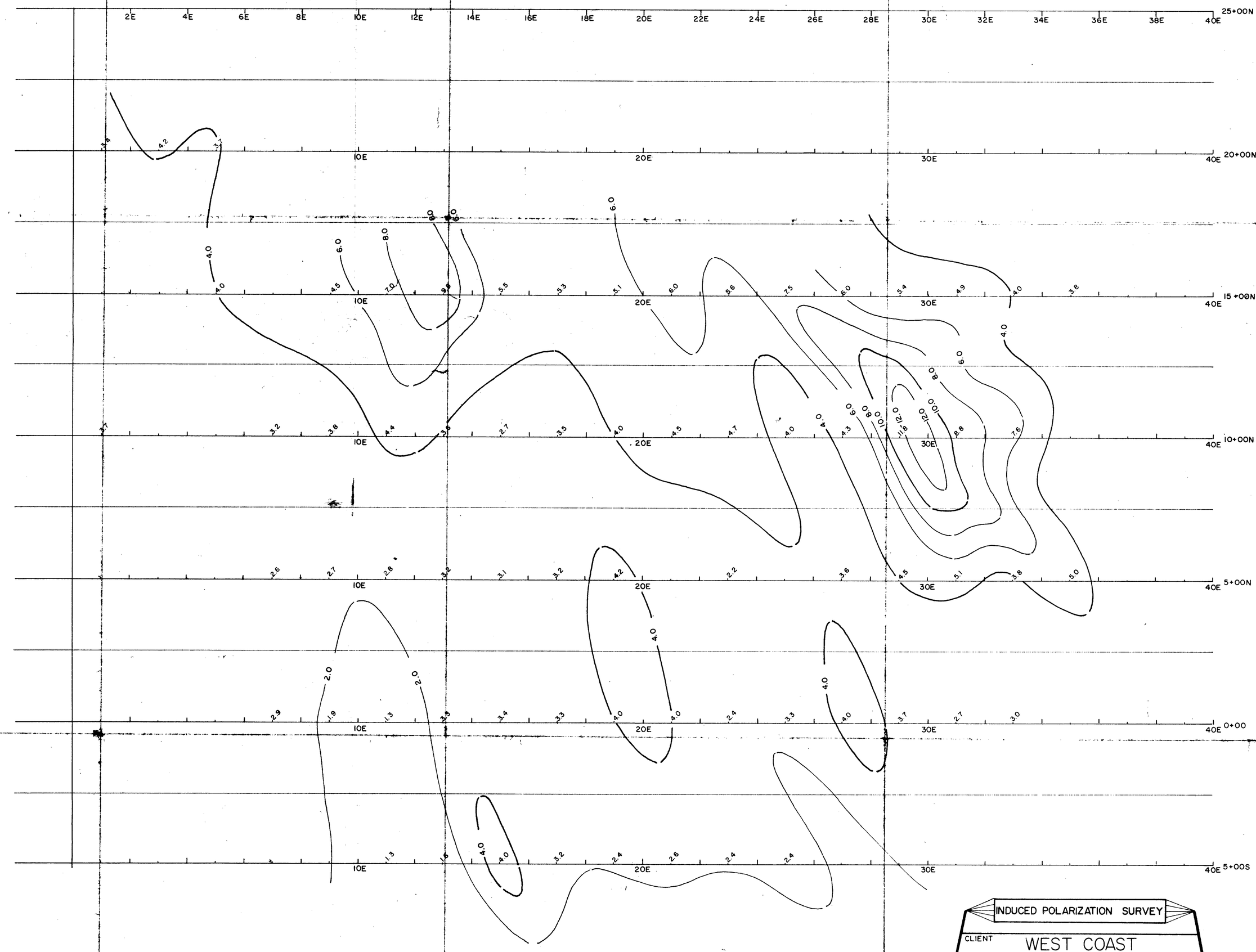
WEST COAST MINING & EXPLORATION

NATION COPPER PROPERTY

CHARGEABILITY

105 B

Scale 1" = 200 ft S.A.M. June 1967 93 N



INDUCED POLARIZATION SURVEY

CLIENT
WEST COAST
MINING & EXPLORATION

PROJECT
ALEXANDER LAKE PROPERTY

CHARGEABILITY

CONTOUR INTERVAL
2 MILLISECONDS

SCALE
1 INCH= 200 FEET

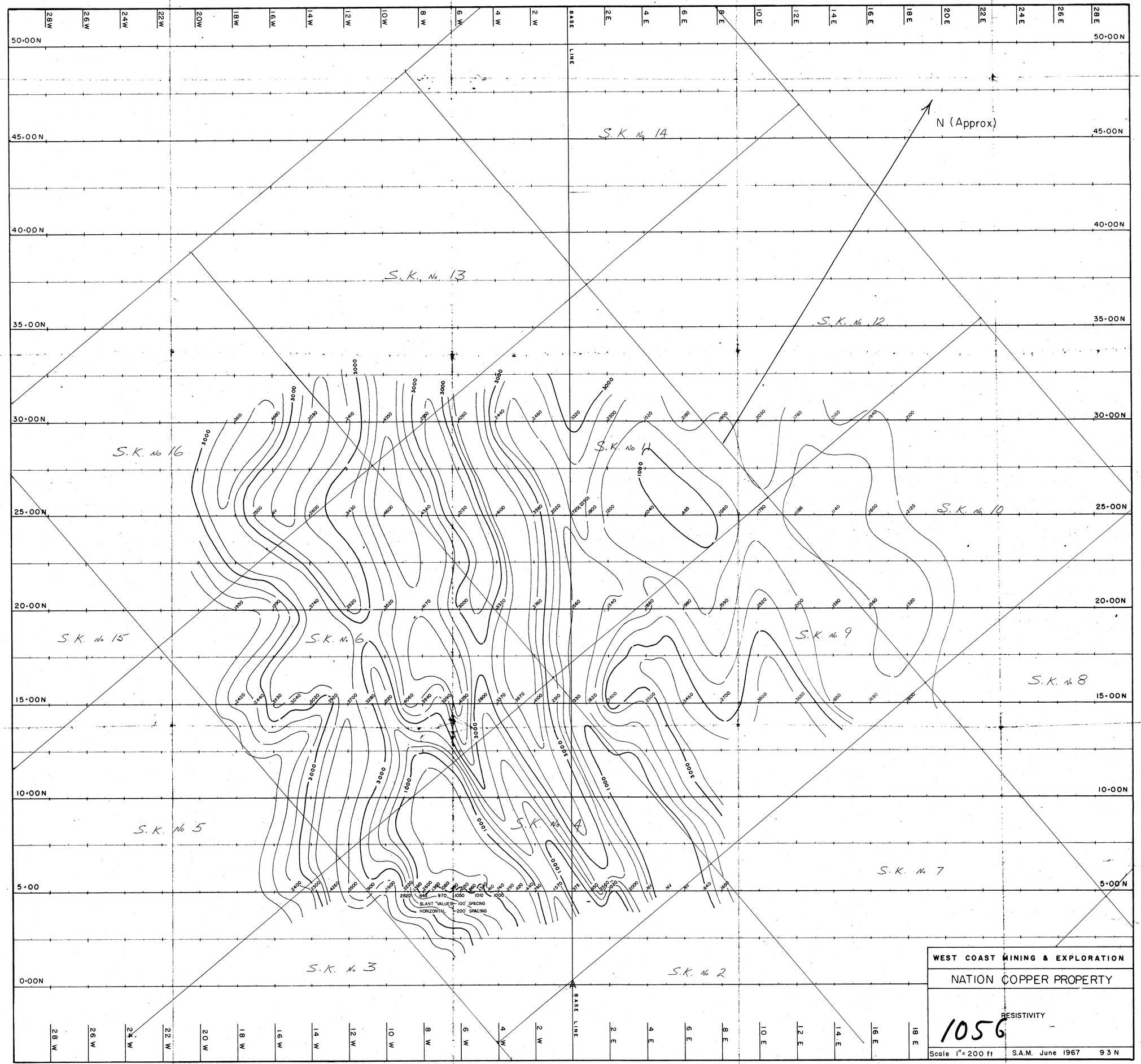
DATES OF SURVEY
JUNE 28 — JULY 12, 1967.

OMINECA MINING DIVISION

BRITISH COLUMBIA

GEOFAX SURVEYS

1056



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. #8 MAP 1056

No 4

To accompany report by S.A. Mouritsen, P.Eng., and G.A. Mouritsen, B.Sc., on the Nation Copper Property, Omineca Mining Division, B.C., dated July 24, 1967.

INDUCED POLARIZATION SURVEY

CLIENT WEST COAST MINING & EXPLORATION

PROJECT NATION COPPER PROPERTY

RESISTIVITY

North 1

CONTOUR INTERVAL 500 OHM-METERS

SCALE 1 INCH = 200 FEET

DATES OF SURVEY JUNE 28 - JULY 12, 1967

OMINECA MINING DIVISION BRITISH COLUMBIA

GEOFAX SURVEYS

WEST COAST MINING & EXPLORATION

NATION COPPER PROPERTY

RESISTIVITY

1056

Scale 1"= 200 ft S.A.M. June 1967 93 N

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. #9 MAP 1056

No 5

To accompany a report by S.A. Mouritsen, P.Eng., and G.A. Mouritsen, B.Sc., on the Nation Copper Property, Omineca Mining Division, B.C., dated July 24, 1967.

INDUCED POLARIZATION SURVEY

CLIENT WEST COAST MINING & EXPLORATION

PROJECT NATION COPPER PROPERTY

RESISTIVITY

South 1

CONTOUR INTERVAL
500 OHM-METERS

SCALE
1 INCH = 200 FEET

DATES OF SURVEY
JUNE 28 - JULY 12, 1967.

OMINECA MINING DIVISION

BRITISH COLUMBIA

GEOFAX SURVEYS

S.K. No 3

S.K. No 1

S.K. No 2

N (Approx)

R.T. No 21

R.T. No 22

R.T. No 23

R.T. No 24

WEST COAST MINING & EXPLORATION

NATION COPPER PROPERTY

RESISTIVITY

1056

Scale 1"= 200 ft | S.A.M. June 1967 | 93 N