GEOPHYSICAL ASSESSMENT REPORT

DART 1-6 MINERAL CLAIMS

115 I 6

$62^{o}17'N$ $137^{o}2.5'W$

Noranda Exploration Company Limited
(No Personal Liability)

G. Macdonald

December 1979

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of

$ 1,800.00

J A Morin

Resident Geologist or
Registered Mining Engineer

Considered as representation work under Section 37 of the Yukon Quartz Mining Act.

B.R. BAXTER
Supervising Mining Recorder

for Commissioner of Yukon Territory

TABLE OF CONTENTS

GEOPHYSICAL ASSESSMENT REPORT

on

DART 1-6 MINERAL CLAIMS

INTRODUCTION

The claims referred to in this report are registered in the name of Noranda Exploration Company Limited (No Personal Liability). The property consists of 6 DART claims (YA23829-YA23834).

The property lies 32 miles west of Carmacks on Emmons Hill. Access in 1979 was by helicopter from Carmacks, Yukon Territory.

The CEM geophysical survey was conducted by G. Fenton and S. Coombes on August 2, 1979. The IP survey was conducted by L. Bradish, J. Turner, D. Jacob and M. Cashin. All were employees of Noranda Exploration Company, working under the direction of G. Macdonald and L. Bradish.

Survey control was provided by a grid system of chained picket lines with 100 metre centres and stations.

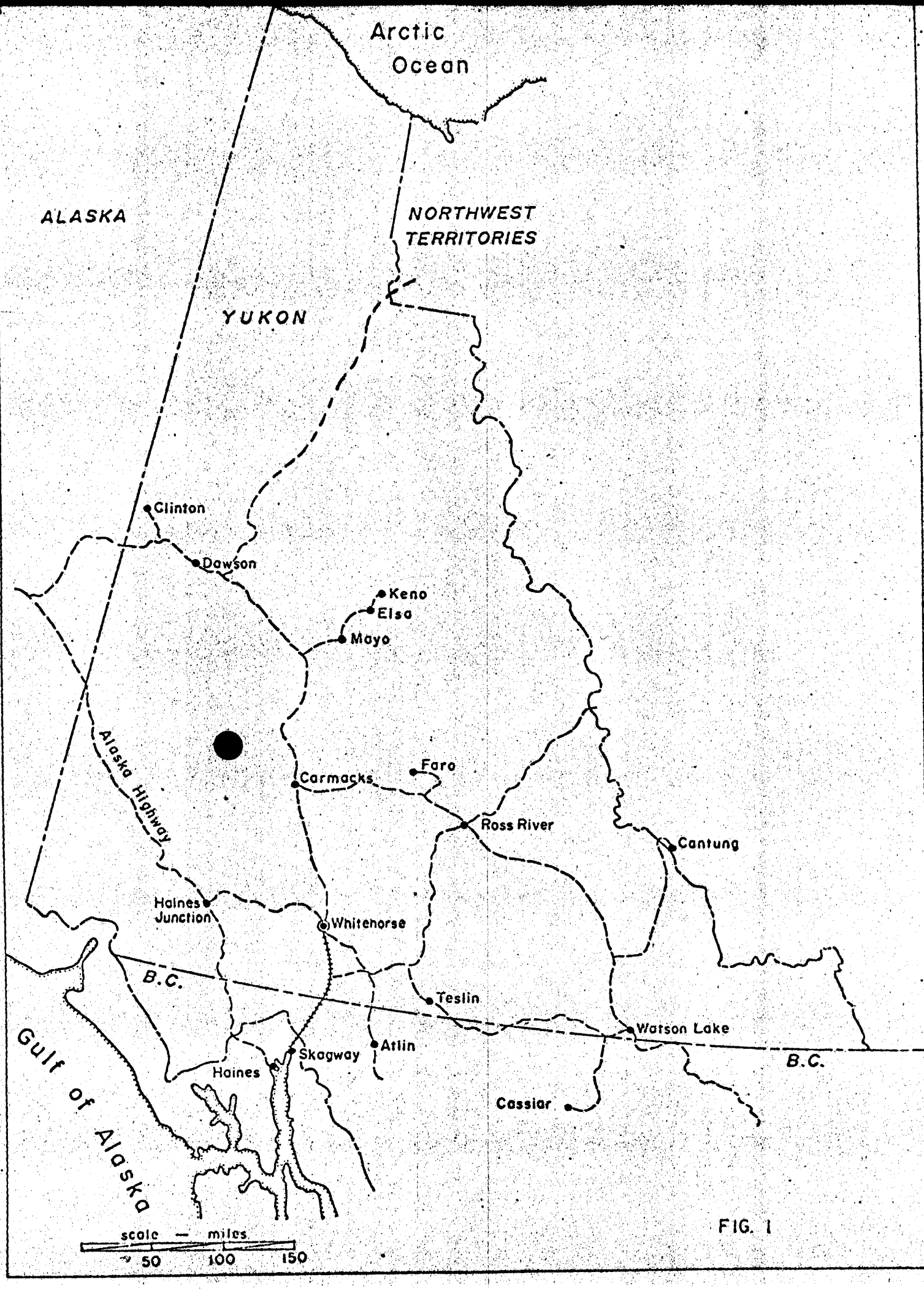

Arctic
Ocean
ALASKA
NORTHWEST
TERRITORIES
YUKON
Clinton
Dawson
Keno
Elsa
Mayo
Alaska Highway
Carmacks
Faro
Ross River
Cantung
Haines
Junction
Whitehorse
B.C.
Teslin
Watson Lake
B.C.
Gulf of Alaska
Skagway
Atlin
Haines
Cassiar
scale — miles
50
100
150

FIG. 1

CEM SURVEY

Introduction

The CEM survey was carried out by G. Fenton, S. Coombes and G. Macdonald on August 2, 1979. The CEM equipment was manufactured by Crone Geophysics of Mississauga, Ontario. Horizontal shootback was the method employed, at a frequency of 5000 Hz with a coil separation of 100 metres. Readings were recorded every 25 metres, with a total survey of 3700 metres.

Method

Two operators traversing the same grid line transmit and receive, in turn, at each station. The transmitting coil is held in the horizontal plane, while the receiving coil detects the "null" (dip angle) of the EM field. The two dip angles are then added together to give a Resultant Dip Angle, which is plotted midway between the two operator locations on the survey line.

Presentation of Results

The CEM results are plotted on a grid map plan (in pocket) at a scale of 1:5000. The Resultant Dip Angles are plotted as continuous profiles with a vertical scale of 1 cm = 20^{o}.

Discussion of Results

A weak, narrow anomaly, striking NNW, with a length in excess of 350 metres, is present in the area surveyed. This response suggests the possibility of some structural feature.

IP SURVEY

Introduction

The Induced Polarization and Resistivity surveys were carried out by L. Bradish, J. Turner, D. Jacob and M. Cashin on October 21, 1979.

Frequency domain equipment, manufactured by Sabre Electronic Instruments Ltd., was utilized for the survey. A "dipole-dipole array" was employed throughout the survey, with dipole lengths of 100 metres and frequencies at 0.3 Hz and 5.0 Hz. Readings were recorded at intervals of 100 metres for the first (n = 1) separation. A total of 2600 metres of readings were obtained.

Method

The transmitter generates an alternating current flow between the two current electrodes (C1 and C2). The resulting induced voltage is measured across the receive dipole employing two porous pots (P1 and P2).

A four-man crew, one man at each electrode, carried out the survey, moving electrodes, wires and instruments every 100 metres along the survey line.

At each set-up was recorded the following:

(a) Station location of electrodes (C1, C2, P1, P2).
(b) Transmitter current in milliamps at 5.0 Hz.
(c) Voltage as measured by the receiver in millivolts. The frequency of the transmitter is then changed to 0.3 Hz and the current amplitude is adjusted to be the same as in step 2.
(d) The receiver then measures the voltage at 0.3 Hz and this is recorded as a percent deviation, caused only by the change in the frequency of the current.

Percent Frequency Effect (PFE) is defined as the percent change in the measured resistivity caused by a change in the frequency of current. Since

the transmitted current amplitude is the same at both frequencies and resistivity is proportional to voltage, then percent change in resistivity (PFE) is equal to the percent change in voltage (percent deviation).

The apparent resistivity value at 5.0 Hz is calculated by the equation:

$$\rho_a/2\pi = \frac{V}{I} GX$$

where: ρ_a = apparent resistivity
V = millivolts
I = milliamps
G = geometric factor for array used
X = dipole separation

Presentation of Results

Results of the survey are presented on two plan maps at a scale of 1:5000 (in pocket). Percent Frequency Effect is presented with contour intervals of 2%. Calculated apparent resistivity values are presented with contours of 100 ohm feet.

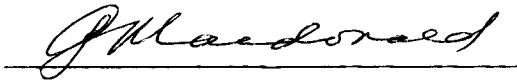
Discussion of Results

PFE values range from 3.0 to 9.0 in the rather small area surveyed. A PFE anomaly coincident with the CEM anomaly strikes NNW across the grid. The anomaly is open on both ends. A distinct resistivity low is coincident with this PFE anomaly. In areas of low PFE values, resistivity values are significantly greater. Surface ice conditions may have affected the resolution of IP conditions.

CONCLUSIONS AND RECOMMENDATIONS

IP and CEM geophysical surveys have indicated the possibility of a mineralized structure on the DART claims. Further work is warranted on this property and should include additional geophysics, a soil geochemical survey and trenching or diamond drilling.

Submitted by:



G. Macdonald,
Geologist.

A P P E N D I C E S

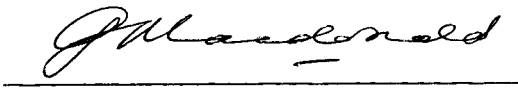
STATEMENT OF QUALIFICATIONS

I, GLEN MACDONALD, of the City of Whitehorse in the Yukon Territory, DO HEREBY CERTIFY that:

1. I have been employed as a Geologist by Noranda Exploration Company Limited (No Personal Liability) since May 1976.

2. I am a graduate of the University of British Columbia, with a Bachelor of Science degree in Geology.

3. I am a member of the Canadian Institute of Mining and Metallurgy.



G. Macdonald, Geologist,
Noranda Exploration Company Limited
(N.P.L.)

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT Mt. Freegold DATE December 1979

TYPE OF REPORT Geophysics

a) Wages:

No. of Days 28

Rate per Day $93.151

Dates: from August to October

Total Wages 28 x $ 93.151 2,608.23

b) Food and Accomodation:

No of days 28

Rate per day $8.5753

Dates: from to

Total Cost 28 x $8.5753 240.11

c) Transportation:

No of days 28

Rate per day $102.2642

Dates: from to

Total Cost 28 X $102.2642 2,863.40

d) Instrument Rental:

Type of Instrument CEM

No of days 6

Rate per day $16.00

Dates: from to

Total Cost 6 X $16.00 96.00

Type of Instrument IP

No of days 22

Rate per day $20.00

Dates: from to

Total Cost 22 X $20.00 440.00

f) Analysis
(See attached schedule)

g) Cost of preparation of Report

Author	186.30	
Drafting	156.00	
Typing	100.00	442.30

h) Other:

Supervision:	R.C. Heim, P. Eng. PhD, D.E. Cross, P. Eng G.E. Dirom, P. Eng.	226.00	
			6,916.04

Total Cost 6,916.04

e) Unit costs for CEM

No of days

No of units 3.3 km

Unit costs $501.242 / km

Total Cost 3.3. x $501.242 1,654.10

Unit Costs for IP

No. of Units 1.9 km

Unit Costs $2,769.44/km

Total Cost 1.9 X $2,769.44 5,261.94

Total Cost:$6,916.04

FIG. 2
CLAIM MAP
J. McDonald

47 E 48 E 49 E 50 E 51 E 52 E 53 E 54 E 55 E 56 E 57 E

DART 5 DART 6

54 N

53 N

52 N

51 N

50 N

DART 3 DART 4

DART 1 DART 2

100 0 100 200 300

SCALE IN METERS

f=5000 Hz
a=75m.
1:5000 - 1cm. : 20°

J. Macdonald

REVISED

PROJ. No.

N.T.S. 115I/6E

DWG. No. 3

MT. FREEGOLD PROPERTY

C.E.M. SURVEY

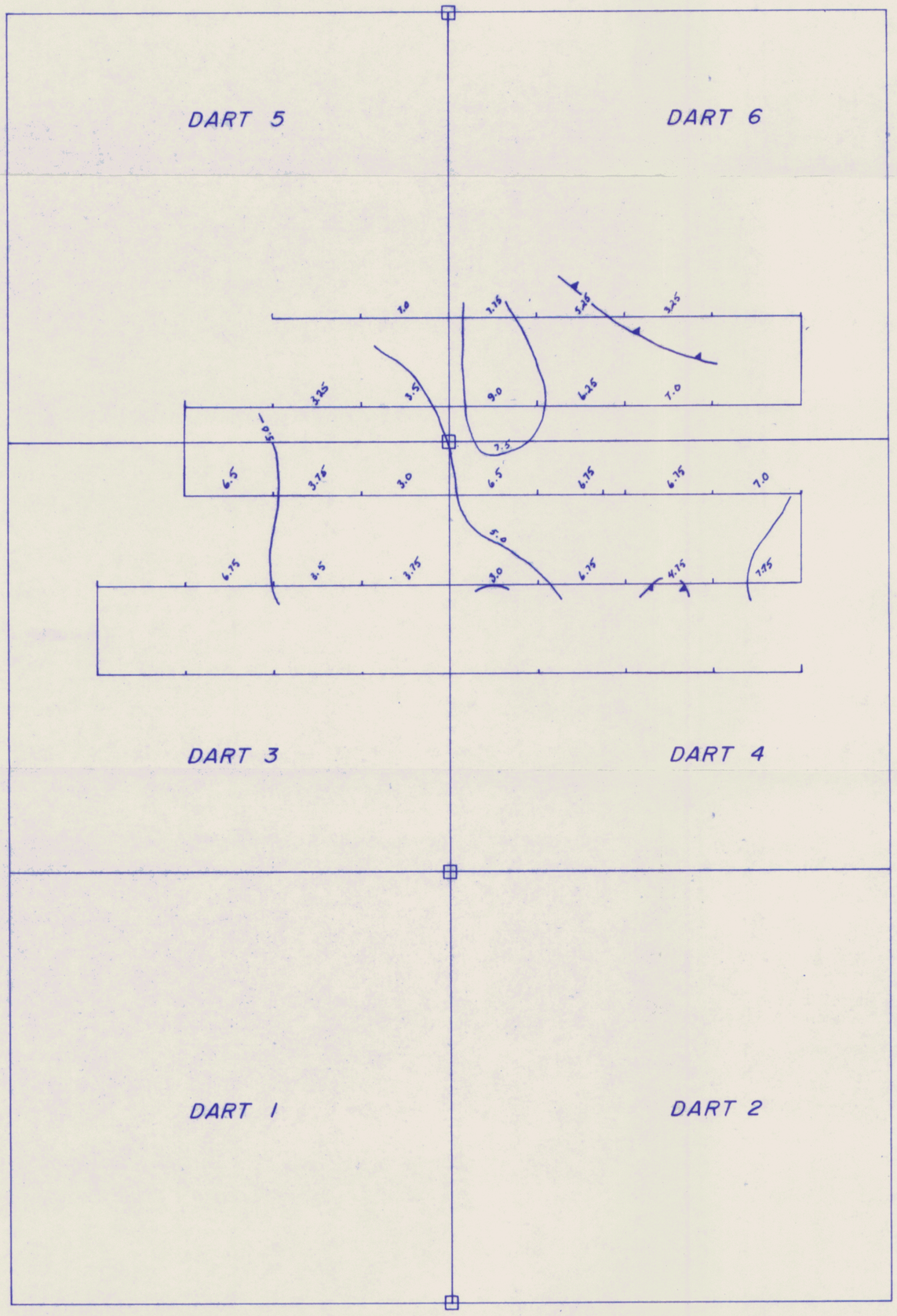
SURVEY BY: G.M. DATE: OCT. 1979

DRAWN BY: S.H. SCALE: 1:5000

NORANDA EXPLORATION

OFFICE: VANCOUVER

47 E 48 E 49 E 50 E 51 E 52 E 53 E 54 E 55 E 56 E 57 E



54 N

53 N

52 N

51 N

50 N

100 0 100 200 300

SCALE IN METERS

DIPOLE-DIPOLE ARRAY
a=100m
n=1
f=0.3/5.0 Hz

J. Macdonald

REVISED

MT. FREEGOLD PROPERTY

I.P. SURVEY

P.F.E.

PROJ. No. .....

N.T.S. 115I/6E

DWG. No. 4

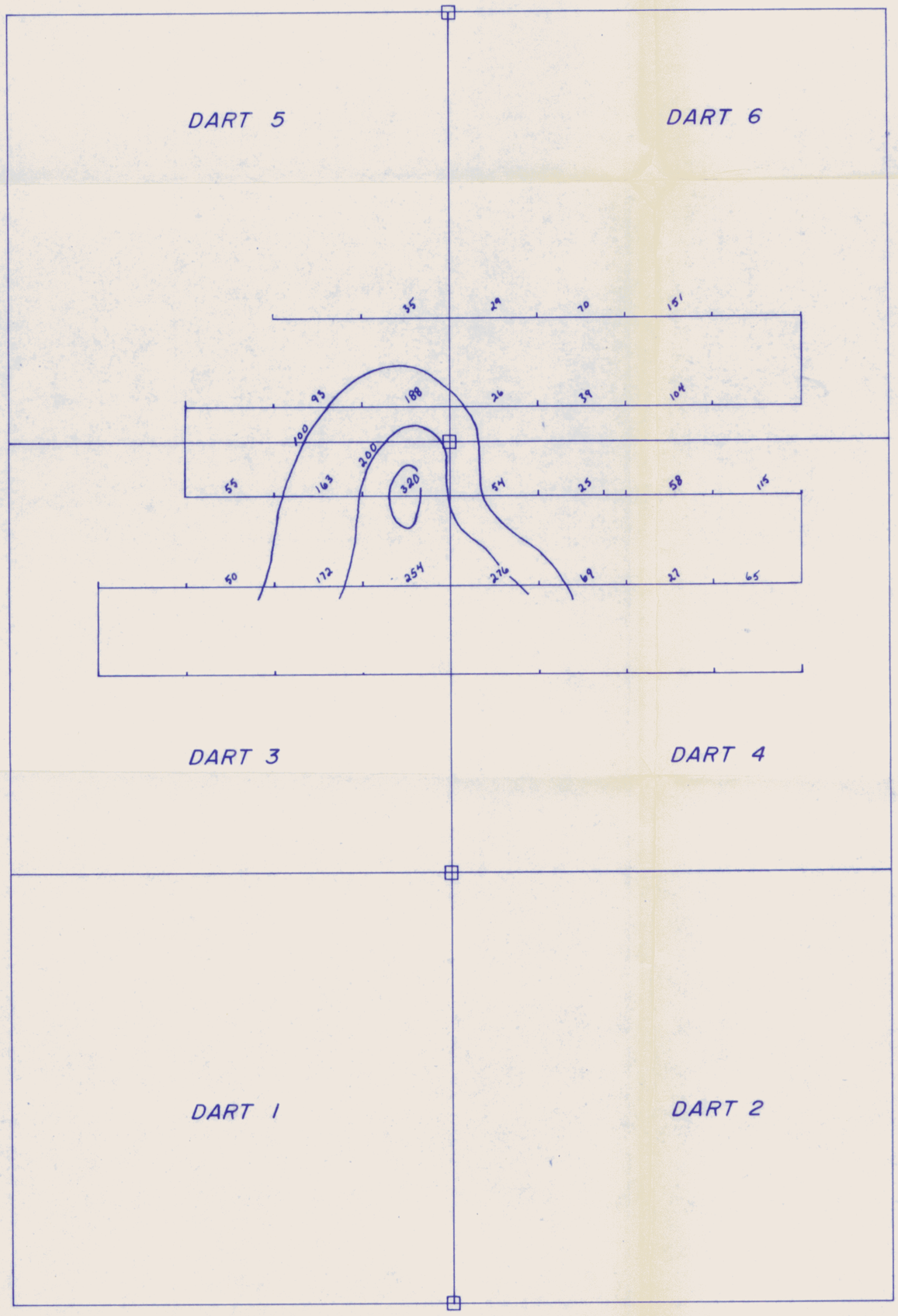
SURVEY BY: G.M. DATE: OCT. 1979

DRAWN BY: S.H. SCALE: 1:5,000

NORANDA EXPLORATION

OFFICE: VANCOUVER

47 E 48 E 49 E 50 E 51 E 52 E 53 E 54 E 55 E 56 E 57 E



54 N
53 N
52 N
51 N
50 N

100 0 100 200 300
SCALE IN METERS

DIPOLE - DIPOLE ARRAY
a=100 m
n=1

J. Macdonald

REVISED

MT. FREEGOLD PROPERTY

I.P. SURVEY
RESISTIVITY

PROJ. No. .....
N.T.S. 1151/6E
DWG. No. 5

SURVEY BY: G.M. DATE: OCT. 1979
DRAWN BY: S.H. SCALE: 1:5000

NORANDA EXPLORATION

OFFICE: VANCOUVER