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REPORT ON THE
V.L.F. SURVEY
ON THE
EMPIRE LAKE CLAIMS,
THUNDERBAY MINING DISTRICT
BETH-CANADA MINING COMPANY

A. INTRODUCTION:

The following is a report on the VLF survey completed by Beth-Canada Mining Company in June, 1979, on its Empire Lake Claim Group.

PROPERTY: DESCRIPTION and LOCATION

The property consists of ten (10) contiguous mining claims (Figure 2; Map 1): Nos. TB 510635, 510636 and TB 513136-513143, incl. All the claims are registered in the name of

Beth-Canada Mining Company
40 University Ave.
Suite 702
Toronto, Ontario M5J 1T1
Mining Licence No. T511

The claims were staked in July, 1978 to cover disseminated pyrrhotite-chalcopyrite-magnetite mineralization within a differentiated gabbro body. The mineralization was exposed during construction of a Great Lakes Paper Company lumber road. Previous exploration work on the property is unknown.

The claim group is located approximately 80 kilometers (50 miles) N.E. of Upsala, Ontario (Figure 1). Access to the western boundary of the property is gained by: following Hwy 17 for 13 kms. (8 mi.) west of Upsala to the junction of the Graham road; by following the Graham road north to milepost 60 to the Empire Lake road; and, by following the Empire Lake road northeast for 6.4 kms. (4 mi.) to where it enters the property (Figure 1). The all-weather roads north of Hwy 17 are maintained by the Great Lakes Paper Company.

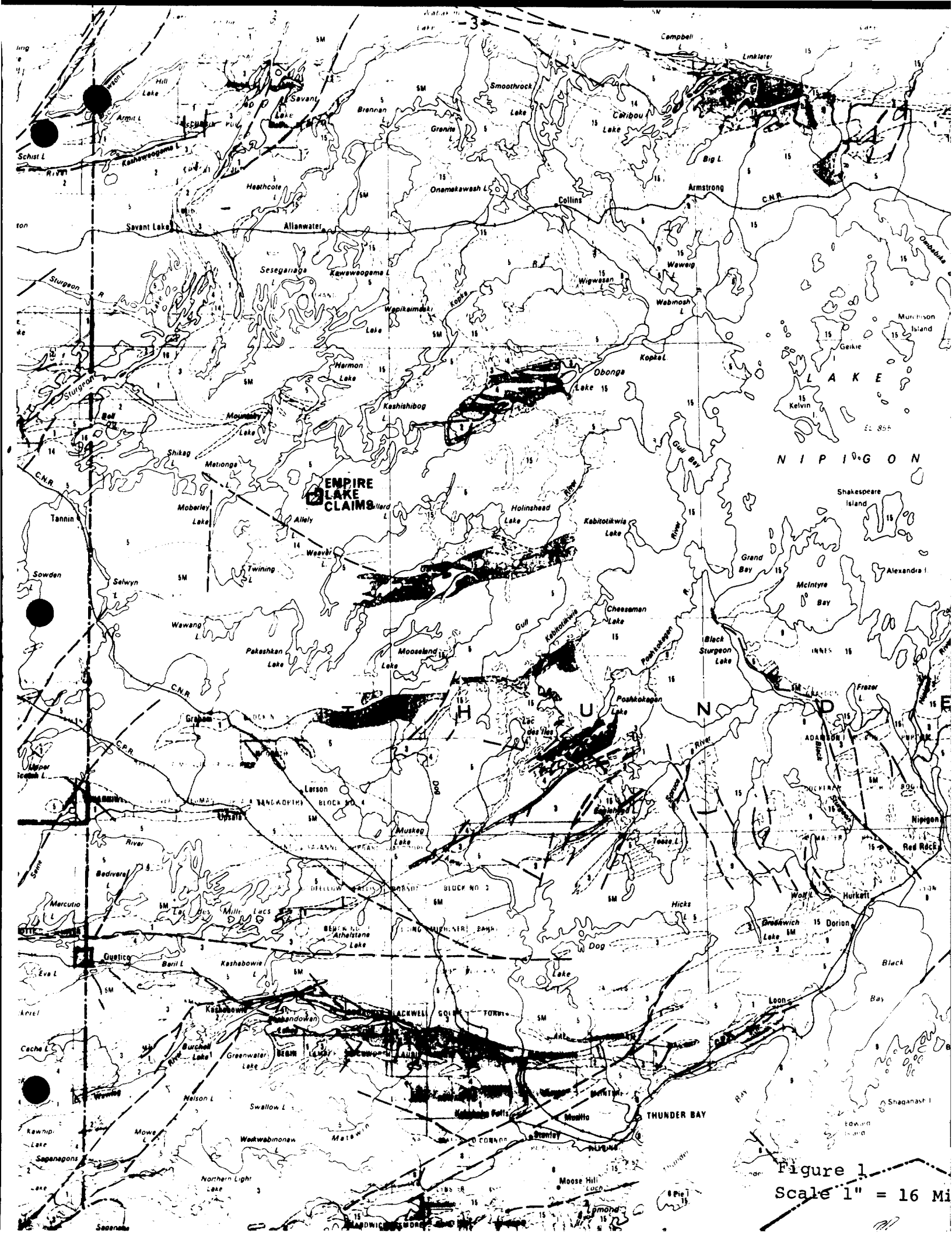
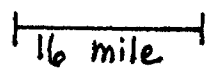


Figure 1
Scale 1" = 16 Mi

Figure 1
SCALE: 1" = 16 mile



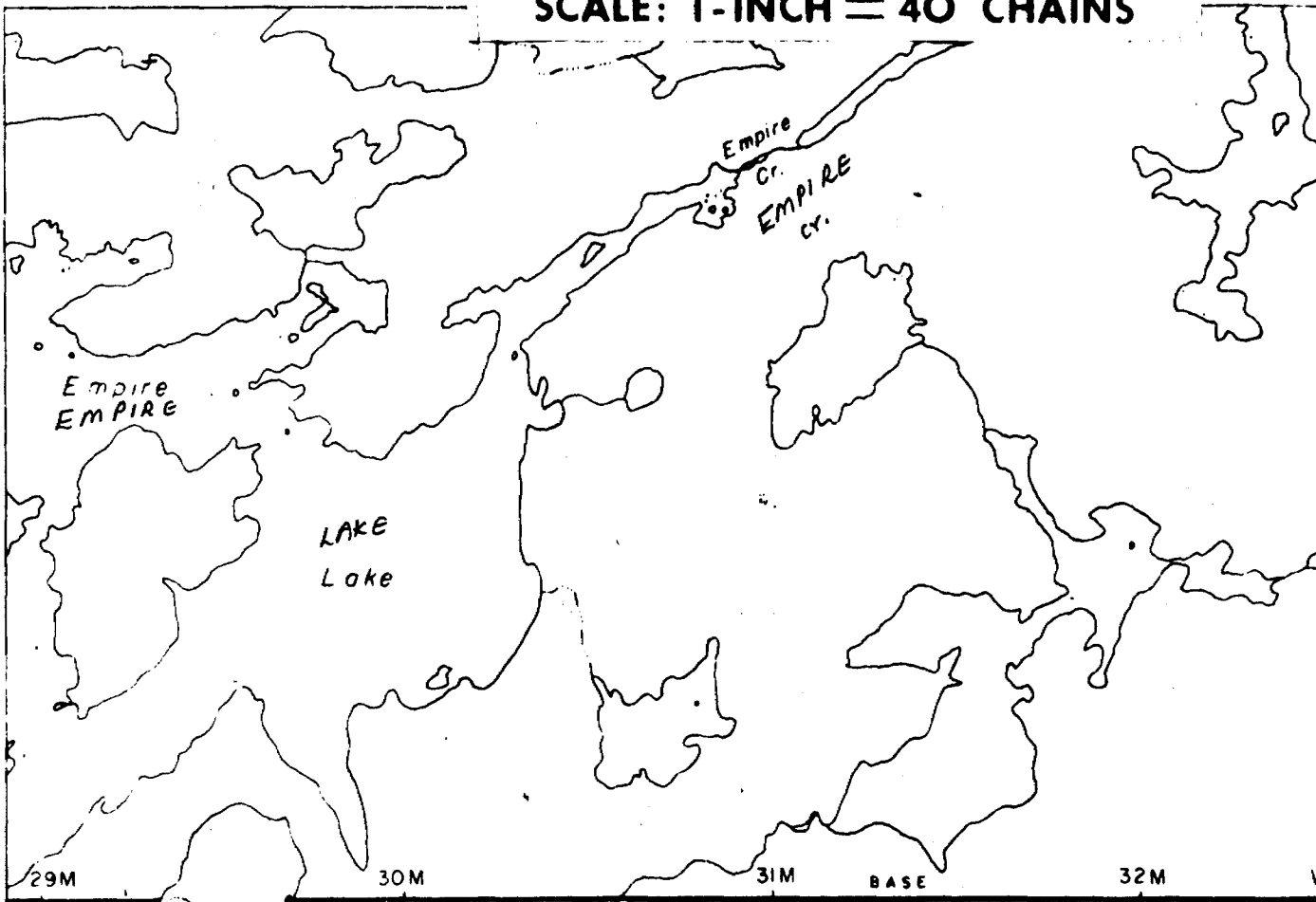
EMPIRE LAKE

PLAN NO. M.2812

SCALE: 1-INCH = 40 CHAINS

90°15'

49°45'



EMPIRE LAKE
 M-2812
 SCALE: 1" = 40 CHAINS

40 CHAINS

BETH-CANADA
 CLAIMS

		TB	TB
		513469	513470
		TB	TB
		510635	510636
			513472
TB	TB	TB	TB
513142	513140		513136
513142	513140	513138	
TB	TB	TB	TB
513143	513141		
513143	513141	513139	513137

Figure 2

GEOLOGY:

The claims cover part of a basic intrusive which is shown on the Sioux Lookout-Armstrong Sheet (Ontario Department of Natural Resources Map 2169, 1968). The body was interpreted from geophysical data to be composed of gabbro, metagabbro or metadiorite.

As shown on Figure 3, the intrusive is outlined by an aeromagnetic anomaly with up to 1300 gammas relief. Recent road building and lumbering activities have exposed a differentiated, banded intrusive composed of coarse grained diorite, hornblende gabbro and a rusty magnetite gabbro containing disseminated pyrrhotite and chalcopyrite. The body is surrounded by coarse grained pink-white granite and is cut by narrow granitic and pegmatitic dykes.

V.L.F. SURVEY:

The survey was carried out by

Mark Drury
25 Norbert Cres.
Etobicoke, Ontario

June 20-22, 1979. Field strength and dip angle readings of the secondary field were taken with a Phoenix VLF-2 instrument (see Part B for specifications). The Cutler, Maine VLF transmitter was used to take readings at 25 meter

intervals on the picket lines. A base station was established on L1W at 3+25 N and field strength readings were taken at least every 2 hours.

RESULTS, CONCLUSIONS:

Profiles of the dip angles are shown on Map 2 (see Part D, Map Envelope). The field strength readings and the Fraser Filter Values (Fraser Filter Method; see Part C) of the dip angles are plotted on Map 3. The Fraser Filter Values have been contoured on Map 4.

As indicated by the crossovers shown on Map 2, there are 4 generally northeasterly trending VLF anomalies on the property:

Anomaly A is ~1200 meters long and probably has a bedrock source. The zone of interest is defined by the contoured Fraser Filtered Values (up to +90; Map 4) and is up to ~75 m. wide. Field observations (geological mapping, magnetometer surveys) indicate the zone is associated with a band of rusty magnetite-hornblende gabbro.

Anomaly B is approximately 300 m. long. The zone outlined by the Fraser Filter values (up to +84) is up

to 75 m. wide. The anomaly is associated with rusty intrusive rocks.

Anomaly C is ~400 m. long and is probably caused by conductive overburden along the creek shown on Map 1.

Anomaly D is ~250 m. long and is weak. It is probably caused by conductive overburden on the edge of the small lake located on claim TB 513140.

GEOPHYSICAL TECHNICAL DATA

Number of Stations 539 , Number of Readings 539

Station interval 25 m. Line spacing 100 m.

Profile scale Dip Angles: 1 cm. = 10°

Contour interval Fraser Filter Values: 0, +20, +40, +60

ELECTROMAGNETIC

Instrument _____

Accuracy - Scale constant _____

Diurnal correction method _____

Base Station check-in interval (hours) _____

Base Station location and value _____

Instrument Phoenix VLF-2

Coil configuration Horizontal

Coil separation None

Accuracy ± 3° of dip angle measurement

Method: Fixed transmitter Shoot back In line Parallel line

Frequency 14.0-29.9 KHZ in 100 HZ increments; Cutler Maine
(specify V.L.F. station)

Parameters measured Orientation and magnitude of the major and minor axes of
of the ellipse of polarization.

ELECTROMAGNETIC

Instrument _____

Scale constant _____

Corrections made _____

Base station value and location _____

Elevation accuracy _____

ELECTROMAGNETIC

Instrument _____

Method Time Domain Frequency Domain

Parameters - On time _____ Frequency _____

- Off time _____ Range _____

- Delay time _____

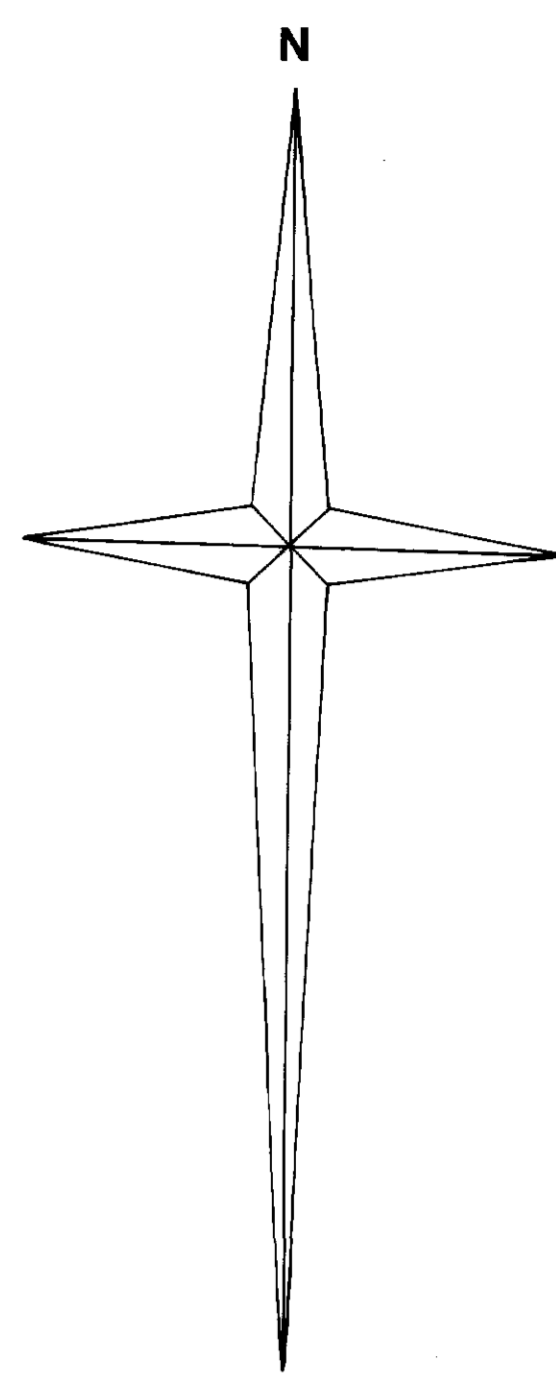
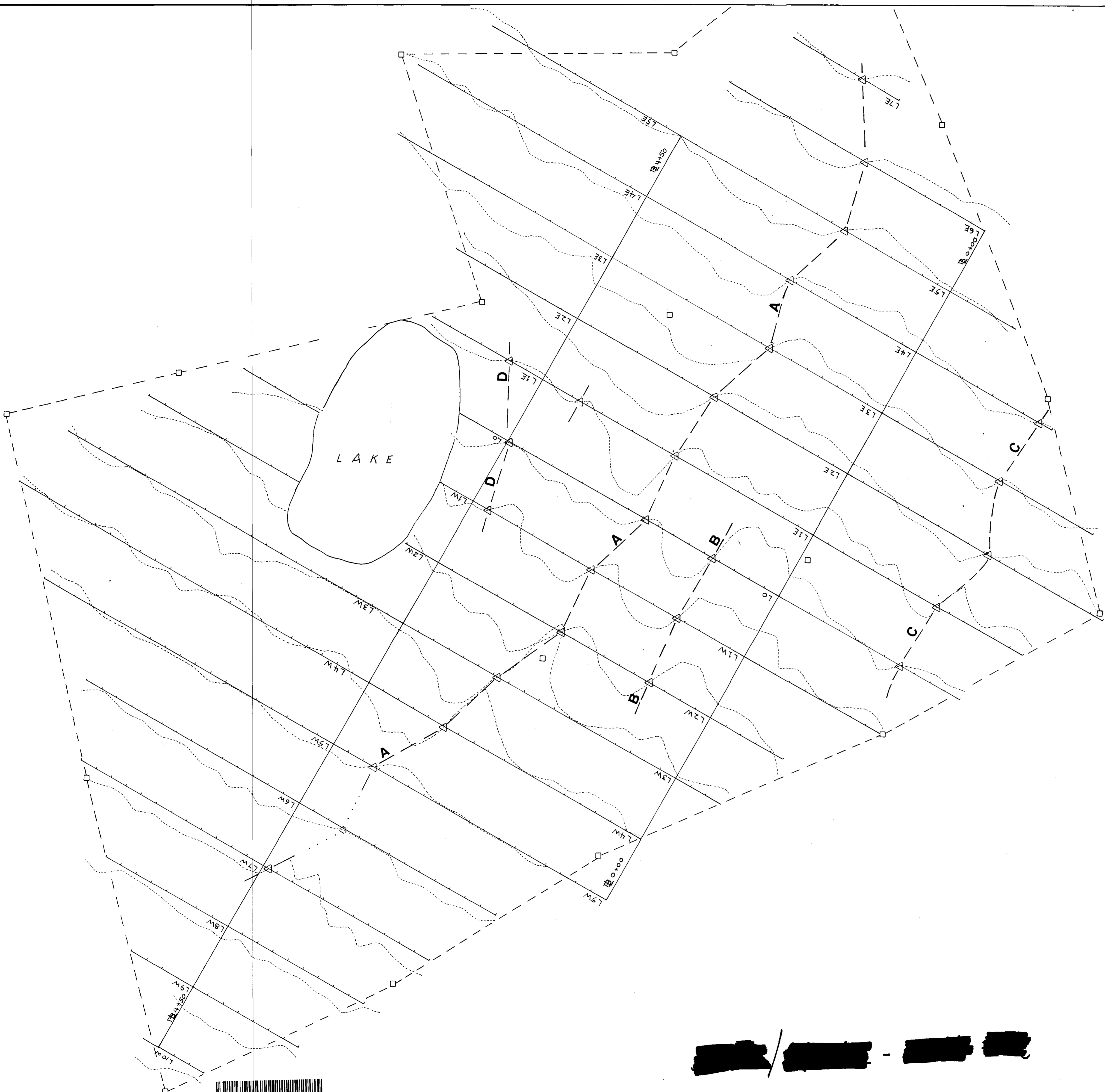
- Integration time _____

Power _____

Electrode array _____

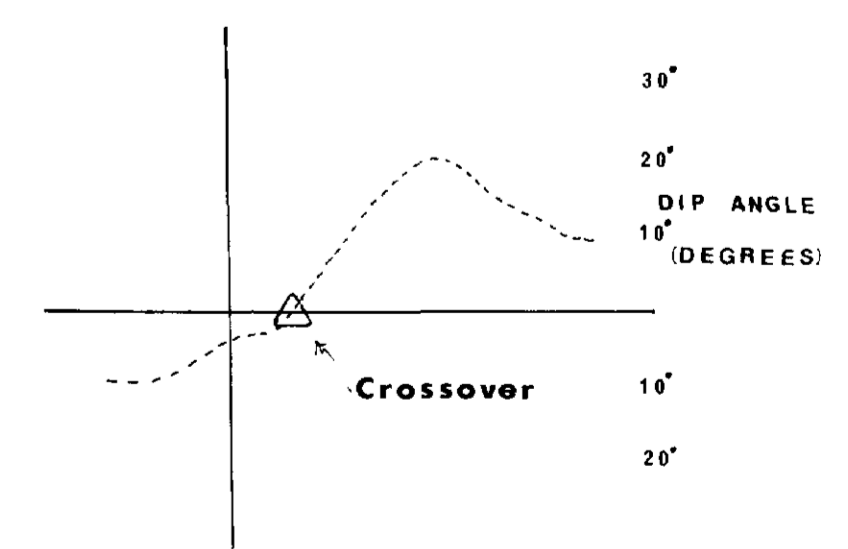
Electrode spacing _____

Type of electrode _____



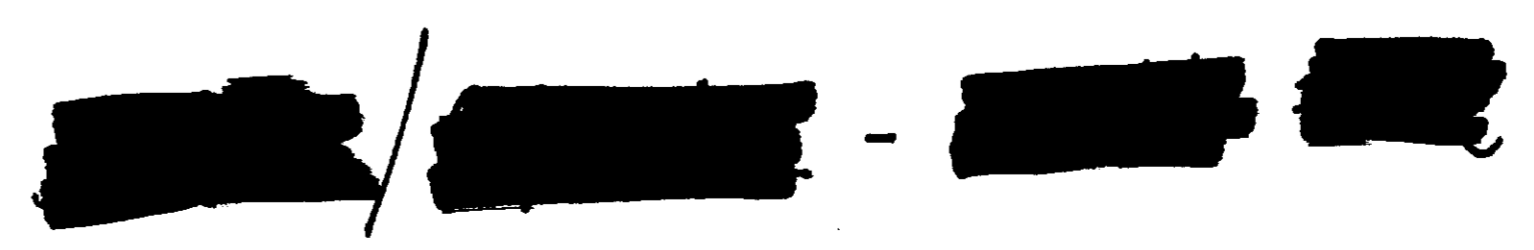
LEGEND

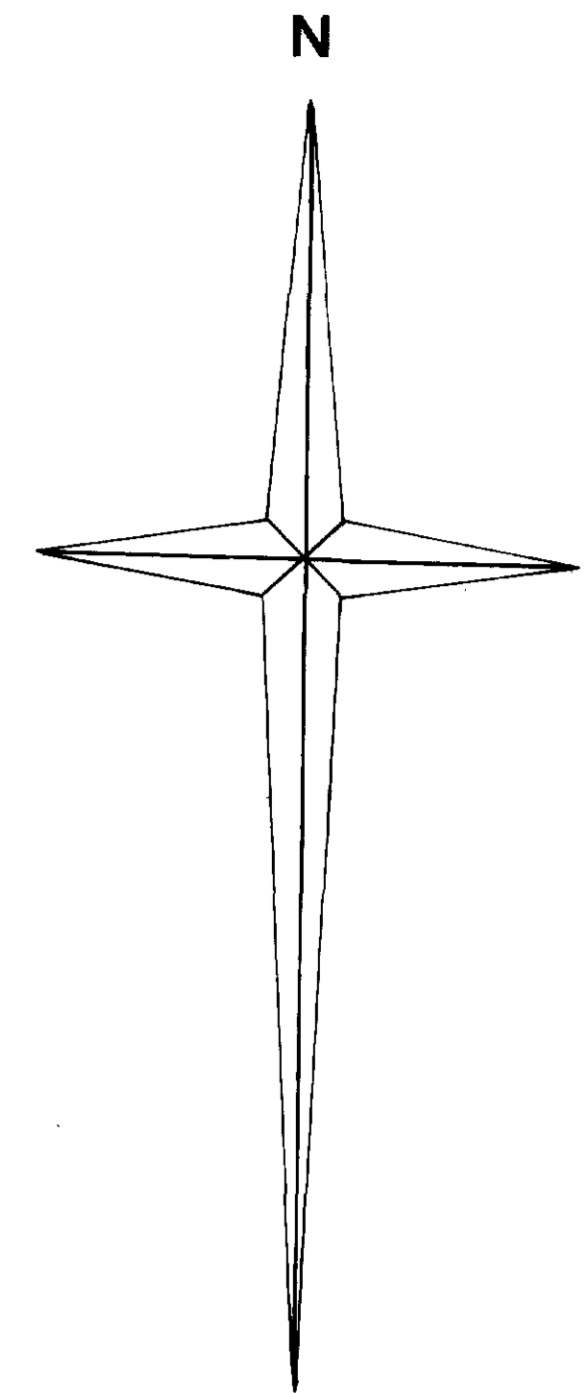
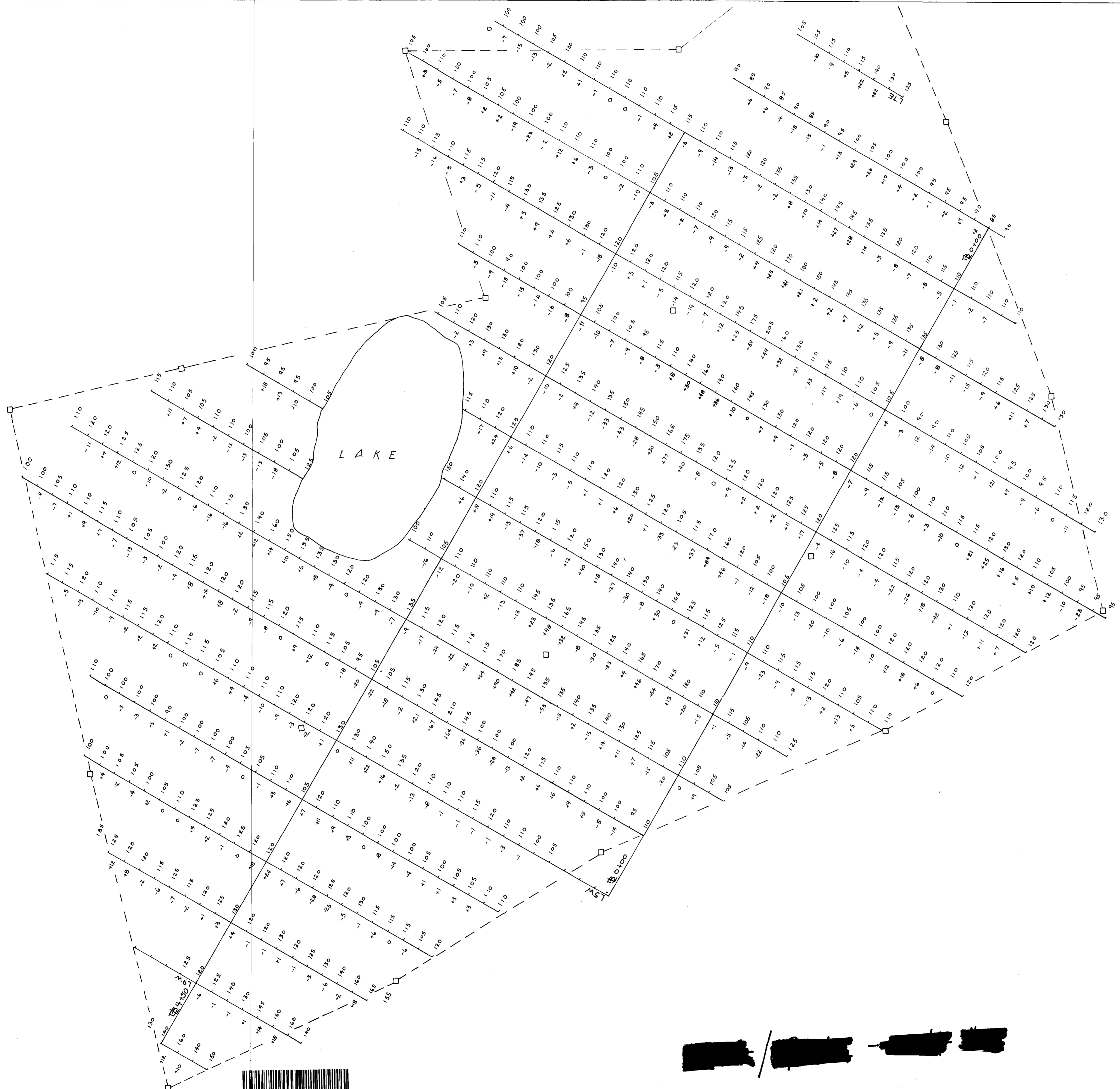
—△— A △— VLF ANOMALY (CULTER)



BETH CANADA MINING COMPANY EMPIRE LAKE	
VLF DIP ANGLE PROFILES	
PROJ. 060N13	DATE SEPTEMBER 1979
MAP 2	SCALE 1:2500
APPROVED BY	

David E. Molloy
2.3444





LEGEND

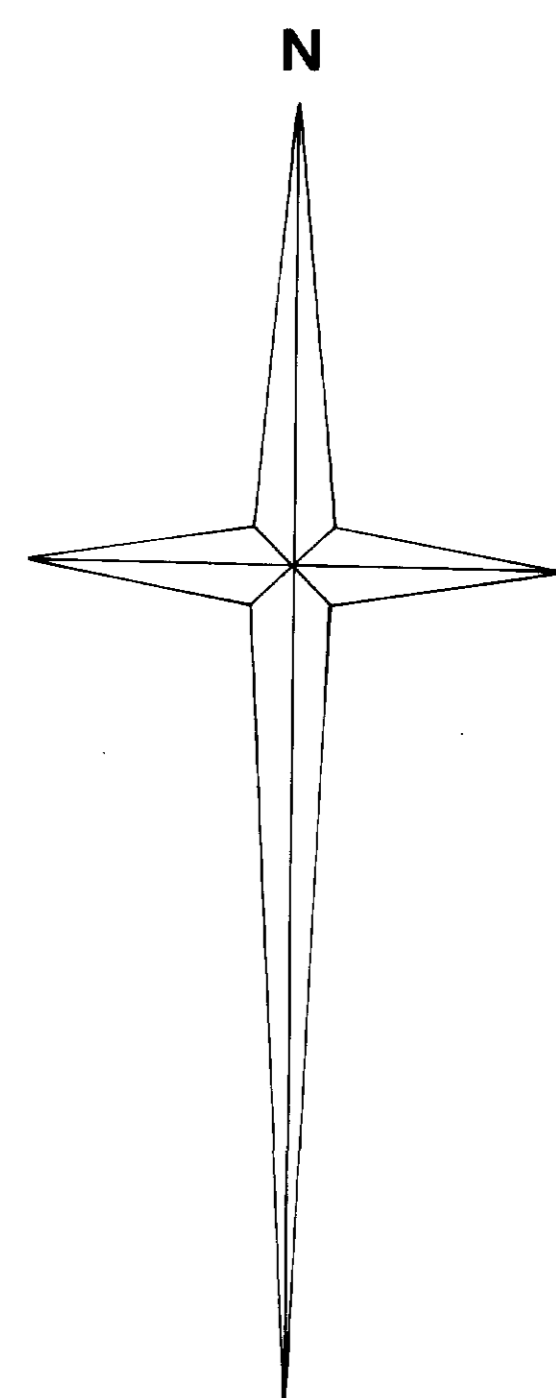
- CLAIM POST
- CLAIM LINE
- GRID LINE
- VLF SURVEY (CUTLER)
- FIELD STRENGTH (ppm)
- FRASER FILTERED DIP ANGLES

BETH-CANADA MINING COMPANY	
EMPIRE LAKE	
VLF SURVEY	
PROJECT	DATE
080N13	SEPTEMBER 1979
MAP	SCALE
3	1:2500
APPROVED BY	

David E. Molloy



52089882 2.3444 EMPIRE LAKE



LEGEND

- CONTOUR INTERVAL FRASER FILTER VALUES
- +80
 - +40
 - +20
 - 0
- CLAIM POST
- CLAIM LINE
- +— GRID LINE

BETH CANADA MINING COMPANY	
EMPIRE LAKE	
VLF SURVEY (CUTLER)	
FRASER FILTER VALUES CONTOURED	
PROJ. 080N13	DATE SEPTEMBER 1979
MAP 4	SCALE 1:2500
	APPROVED BY

David E. Molloy

