

84-#514-12612

GEOPHYSICAL-GEOCHEMICAL
REPORT

7

KARGEN DEVELOPMENT CORPORATION
JOHN 1,2,3,4,5 and 7 MINERAL CLAIMS
6 km NW. of Jordan River,
Victoria Mining Division, B.C.
Lat. $48^{\circ}29'N$ Long. $124^{\circ}08'W$ NTS.92C/8E
Author: Glen E. White, B.Sc., P.Eng.
Date of Work: Sept.22-Oct.5, Oct.11-14/83
Date of Report: June 21, 1984

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

12,612

Glen E. White

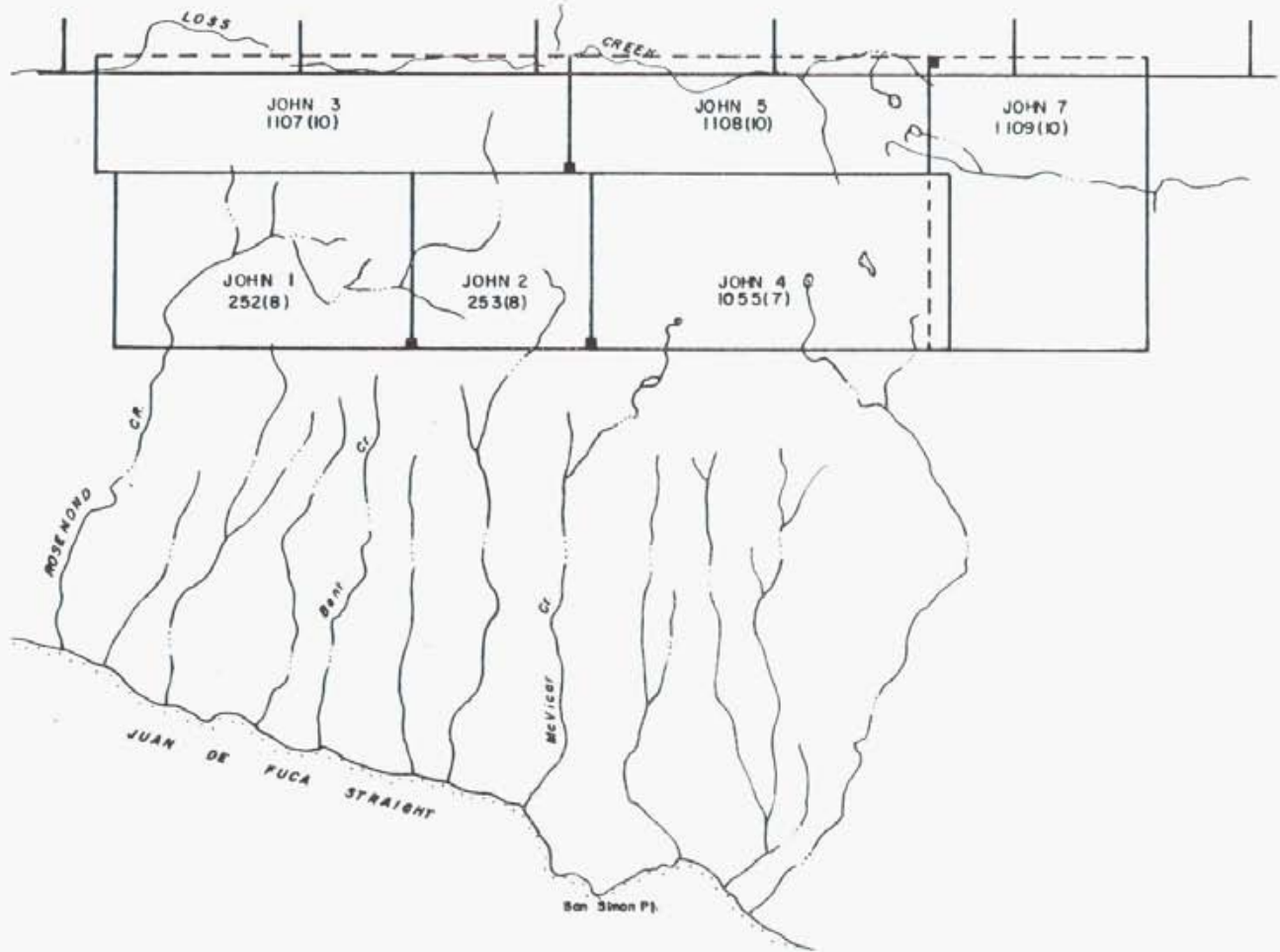
GEOPHYSICAL CONSULTING & SERVICES LTD.

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION	1
PROPERTY	1
LOCATION & ACCESS	2
GENERAL GEOLOGY	2-3
PREVIOUS WORK	3
SURVEY GRID	4
GEOCHEMICAL SURVEY	4
PROTON PRECESSION MAGNETOMETER SURVEY.....	5
VLF-ELECTROMAGNETOMETER	5
DISCUSSION OF RESULTS	6-7
CONCLUSIONS AND RECOMMENDATIONS	7-8
INSTRUMENT SPECIFICATIONS	9-10
STATEMENT OF QUALIFICATIONS.....	11
COST BREAKDOWN	12

ILLUSTRATIONS

- FIGURE 1 - Location and Claims Map
- FIGURE 2 - Ground Magnetometer & Interpretation
- FIGURE 3 - VLF-Electromagnetometer
- FIGURE 4 - Geochemical Map - Copper
- FIGURE 5 - Geochemical Map - Gold



KARGEN DEVELOPMENT CORP.
— JOHN CLAIMS —
LOCATION AND CLAIMS MAP

Gen. S. White
geophysical consulting
&
resources Ltd.

INTRODUCTION

The JOHN claims lie on the Jordan Ridge south of the Loss Creek Valley which is a pronounced topographic lineament. This lineament is known as the Leech River fault. Parallel topographic linears on the JOHN claims suggest similar tectonic features. Gold mineralization has been found in generally east-west striking quartz veins just north of the Leech River fault in the Leech River formation. A selected rock sample on the JOHN 1 claim in 1976 gave 4000 ppm copper and 340 ppb gold. This report describes a limited amount of geophysical - geochemical work undertaken to search for copper-gold mineralization during the period Sept.22 - Oct.5, 1983; 22 km of grid was established.

PROPERTY

The property consists of the JOHN 1,2,3,4,5 and 7 mineral claims (There is no JOHN 6) as follows:

<u>NAME</u>	<u>RECORD #</u>	<u>UNITS</u>	<u>EXPIRY DATE</u>
JOHN 1	252	15	Aug. 2,1985
JOHN 2	253	9	Aug. 2,1985
JOHN 3	1107	16	Oct.19,1984
JOHN 4	1055	18	July 20,1984
JOHN 5	1108	12	Oct.19,1984
JOHN 7	1109	<u>20</u>	Oct.19,1984

Total 90 Units

The JOHN 3,5 and 7 claims were staked Sept.22-27 and recorded Oct. 19, 1983.

LOCATION AND ACCESS

The JOHN mineral claims are situated on the Jordan Ridge, a plateau like feature ranging between 2000 and 2300 feet A.S.L. some 6 km northwest of Jordan River, B.C. Victoria Mining Division, Lat. $48^{\circ}29'N$ and Long. $124^{\circ}08'W$, NTS 92C/8E.

Access is by logging road northward from the Jordan River - Port Renfrew highway some 5.4 km from the Jordan River bridge. Should these logging roads be washed out access to the northern boundary of the claims is by Jordan River or Loss Creek.

GENERAL GEOLOGY

An extensive volcanic assemblage of Eocene age, exceeding 7500 feet in thickness, known as the Metchosin formation, occupies the southwestern tip of Vancouver Island from Sombrio Point at the entrance of Loss Creek to Victoria. They have a width of five to ten miles and strike in a general direction of $N60^{\circ}$ to 70° west and dip 15° to 30° northeastward. The Metchosin series consists of a variable succession of interbedded lithologies; basalt, diabase, including porphyritic varieties, pillow lavas, flow breccias, and both fine and coarse bedded tuffs and agglomerates.

Stock and sill-like masses of gabbro with great lateral continuity, known as the Sooke gabbro of Late Eocene or Early Oligocene age occur throughout the Sooke to Jordan River area. Once thought to be of a minor nature, they have now been shown geologically to underly much of the southern tip of Vancouver Island. Irregular intrusions of granitic material, hornblende granite, feldspar porphyry and diorite are believed to represent differentiates of the Sooke gabbro.

Glen E. White

Copper mineralization in the area may possibly be genetically related to the gabbro but occurs in shear zones in hornblendized basalt along the contacts with the gabbro. Three such zones are known at the Jordan River Mine; The river zone bearing N30°W, the cave zone bearing N42°W and the center zone bearing N69°W.

Late Oligocene marine sandstones and conglomerates of the Sooke formation overlie unconformably the earlier lithologies at lower elevations along the coastline.

PREVIOUS WORK

The JOHN 1 and 2 mineral claims have been partially surveyed with geochemistry, ground magnetometer, VLF-electromagnetometer and Vector pulse electromagnetometer. A large amplitude medium conductivity vector pulse conductor was drilled in 1982. A large chloritized alteration zone bearing minor native copper was detected.

The JOHN 3,4,5 and 7 claims were partially covered by a reconnaissance geochemical, magnetometer and VLF-electromagnetometer survey by the Jordan River Syndicate in 1972. Several moderate VLF-electromagnetic conductors were detected with low order copper anomalies. This report covers a portion of that survey area.

SURVEY GRID

Twenty-two kilometres of survey grid were established including the baseline. The lines are orientated in a north-south direction with stations at 25 m intervals.

GEOCHEMICAL SURVEY

Soil samples of the upper "B" horizon were taken along the traverse lines at 25 m intervals. The soil samples were then placed in soil envelopes provided by Chemex Labs Ltd. of North Vancouver, B.C. The samples were delivered to the lab where they were ring ground and then sieved through a -80 mesh screen. Digestion by Aqua regia was done for the gold and hot perchloricnitric acid for the copper. Analysis by atomic absorption was carried out under the supervision of professional geochemists, 392 samples were obtained and analyzed for gold and copper.

PROTON PRECESSION MAGNETOMETER SURVEY

The magnetometer survey was carried out utilizing two GSM-8 proton precession magnetometers. One of these was operated in conjunction with a CMG MR-10 base magnetometer recorder to allow diurnal and micropulsation variation removal. Operator precautions of demagnetization and consistency were observed and field clock to base magnetometer timing skew was maintained within one second per day. Corrected, unfiltered data are plotted on each of the base maps.

VLF-ELECTROMAGNETOMETER SURVEY*Seattle, Wa*

This survey was conducted using a Geonics EM-16 VLF-Electromagnetometer. This instrument acts as a receiver only. It utilizes the primary electromagnetic fields generated by VLF marine communication stations. These stations operate at a frequency between 15-25 KHZ, and have a vertical antenna-current resulting in a horizontal primary field. Thus, this VLF-EM measures the dip-angle of the secondary field induced in a conductor.

For maximum coupling, a transmitter station located in the same direction as the geological strike should be selected, since the direction of the horizontal electromagnetic field is perpendicular to the direction of the transmitting station.

Readings were taken at 30m intervals and the data filtered in the field by the operator as described by D.C. Fraser, Geophysics Vol.34, No.6 (December 1969). The advantage of this method is that it removes the dc and attenuates long spatical wave lengths to increase resolution of local anomalies, and phase shifts the dip-angle data by 90 degrees so that crossovers and inflections will be transformed into peaks to yield contourable quantities.

DISCUSSION OF RESULTS

The ground magnetometer map Figure 2 also serves as an interpretation map where the VLF-electromagnetometer and geochemical data have been highlighted. The ground magnetometer data shows a series of east-west trending magnetic highs which likely relate to magnetite bearing andesite tuffs and/or flows which have been sheared in an east-west direction. Similar magnetic responses were obtained on the JOHN 1 and 2 claims. The magnetic patterns are cut by weak to moderate VLF-electromagnetic conductors. These conductors would appear to be caused by fault zones. The moderate conductors likely reflect an increase in fault gouge or talcose-chlorite alteration zones in the basic rocks. A very strong VLF-electromagnetic conductor was detected on lines 10E and 12E at 9N. It is in a pronounced magnetic low and may possibly be a highly faulted and chemically altered area. This anomaly is close to the projected position of the Leech River fault zone.

A relatively strong copper geochemical anomaly occurs on line 2W at 8N. This anomaly is downslope from a moderate VLF-electromagnetometer anomaly and should be further investigated. The gold geochemical soil sampling shows an apparent southwest-northeast striking anomaly which gives highs of 120 and 240 ppb gold. This anomaly is stronger than those obtained near areas of interest on the north side of the Leech River fault in the Leech River formation.

Third generation hydrothermal quartz veins with high grade gold mineralization have been located which cut all rock types in the Leech River formation. This anomaly should be checked geologically and the anomaly varified with detailed soil sampling. The author undertook a cursory examination of the copper-gold geochemical anomaly on line 26N at 8+50N. A major andesite breccia zone healed with quartz-carbonate mineralization was found on the road bend and in the area of the magnetic low. Considerable float of the same rock type occurs in the small northward flowing creek. A heavily pyritized sample contained 10 ppb gold. No chalcopyrite or copper bearing mineralization was detected.

CONCLUSIONS AND RECOMMENDATIONS

The geophysical - geochemical survey work located several areas of interest. A relatively strong copper geochemical anomaly was detected downslope from a moderate VLF-electromagnetic conductor. A definite gold anomaly was delineated which gives values of 120 and 240 ppb gold. Values of this intensity and configuration are usually not transported anomalies and thus should be further examined. The very strong VLF-electromagnetic conductor, on lines 10E and 12E, usually relates to graphite - heavy fault gouge or sulphide mineralization. The weaker VLF

conductor, on line 24E in association with the copper-gold geochemical response on line 26E, is also an exploration target since it appears to be associated with a breccia pipe in andesite rocks which has been healed with considerable carbonate-quartz filling.

Respectfully submitted,



Glen E. White B.Sc., P.Eng.

GSM-8 PROTON PRECESSION MAGNETOMETERSPECIFICATIONS

RESOLUTION: 1 gamma

ACCURACY: ± 1 gamma over operating range

RANGE: 20,000-100,000 gamma in 23 overlapping steps

GRADIENT TOLERANCE: Up to 5000 gamma/metre

OPERATING MODES: MANUAL PUSHBUTTON, new reading every 1.85 sec., display active between readings

CYCLING, pushbutton initiated, 1.85 sec. period

SELFTEST, pushbutton controlled, 7 sec. period

OUTPUT: VISUAL: 5 digit 1 cm (0.4") high Liquid Crystal Display, visible in any ambient light

DIGITAL: Multiplied precession frequency and gating pulse

ANALOG: Optional 0-99 or 0-999 gamma

EXTERNAL TRIGGER: Permits externally triggered operation with periods longer than 1.85 sec. (optional minimum period 0.9 sec.)

POWER REQUIREMENTS: 12V 0.7A peak, 5mA standby

POWER SOURCE: INTERNAL: 12V 0.75Ah NiCd rechargeable battery 3,000 readings per full charge

EXTERNAL: 12-32V

BATTERY CHARGER: Input: 110/220V 50/60Hz; output: 14V 75mA DC

OPERATING TEMPERATURE: -35 to +55C

DIMENSIONS: CONSOLE: 15x8x15cm (6x3 $\frac{1}{4}$ x6")

SENSOR: 14x7cm dia (5 $\frac{1}{2}$ x3" dia)

STAFF: 175cm (70") extended, 53cm (21") collapsed

WEIGHT: 2.7kg (6 lb) per standard complete with batteries

A P P E N D I XInstrument SpecificationsELECTROMAGNETOMETERA. Instrument

- (a) Type - Geonics VLF - EM
- (b) Make - Ronka EM 16

B. Specifications

- Measurement -
- (i) Utilizes primary fields generated by VLF marine communication stations measures the vertical field components in terms of horizontal field present.
 - (ii) Frequency range 15-25 KHZ
 - (iii) Range of measurement - in phase $\pm 150\%$
or $\pm 90^\circ$
- quadrature
 $\pm 40\%$
 - (iv) Method of reading - null detection by earphone, real and quadrature from mechanical dials.
 - (v) Accuracy - $\pm 1\%$ resolution

C. Survey Procedures

- Method
- (a) Select closest VLF station perpendicular to traverse lines.
 - (b) In-phase dial measures degree of tilt from vertical position.
 - (c) Quadrature dial calibrated in percent - null.
 - (d) Station plot - plot values read at station surveyed.
 - (e) Manually filter dip-angle data.

STATEMENT OF QUALIFICATIONS

NAME: WHITE, Glen E., P.Eng.

PROFESSION: Geophysicist

EDUCATION: B.Sc. Geophysicist - Geology
University of British Columbia.

PROFESSIONAL
ASSOCIATIONS: Registered Professional Engineer,
Province of British Columbia.
Associate member of Society of Explor-
ation Geophysicists.
Past President of B.C. Society of
Mining Geophysicists.

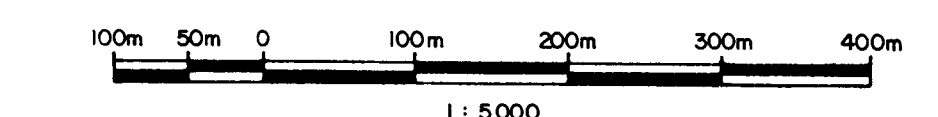
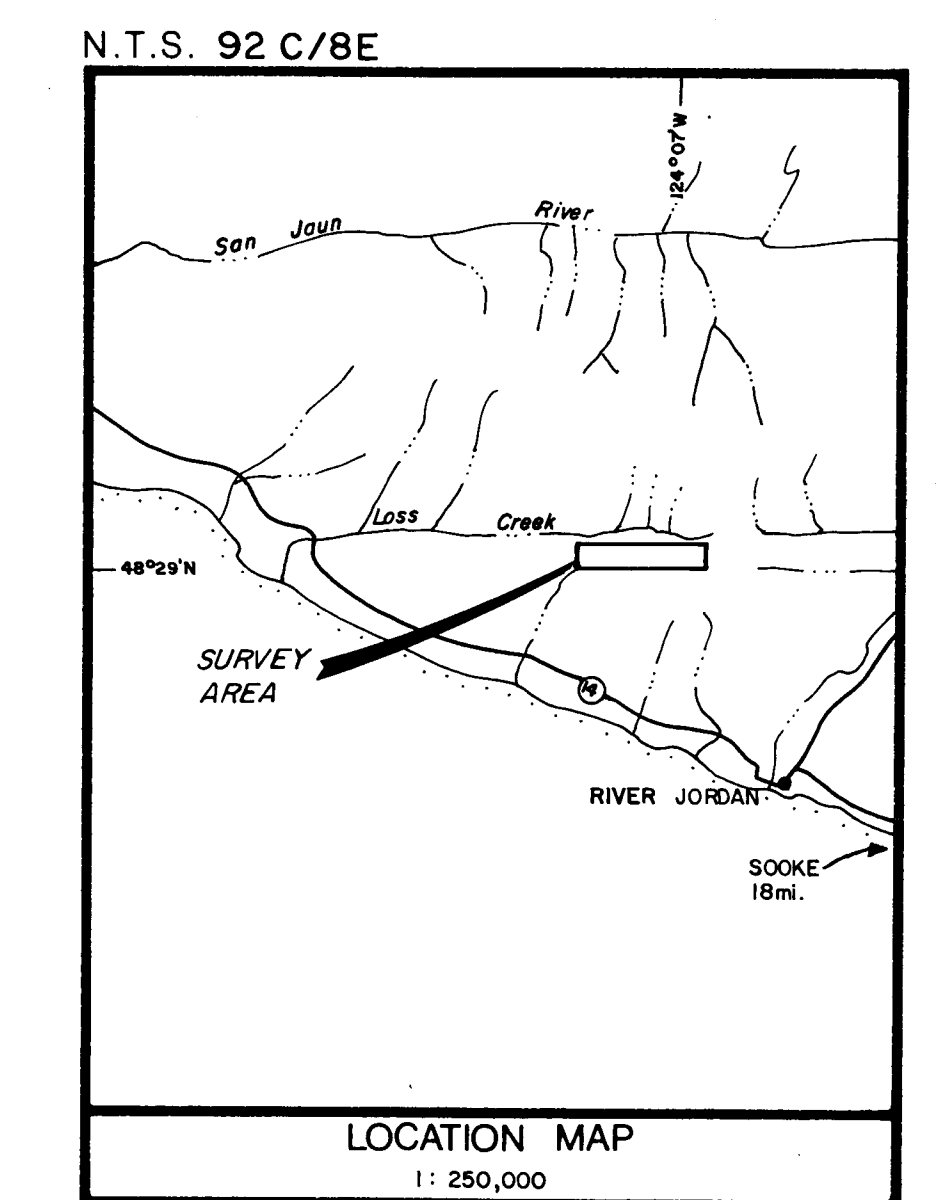
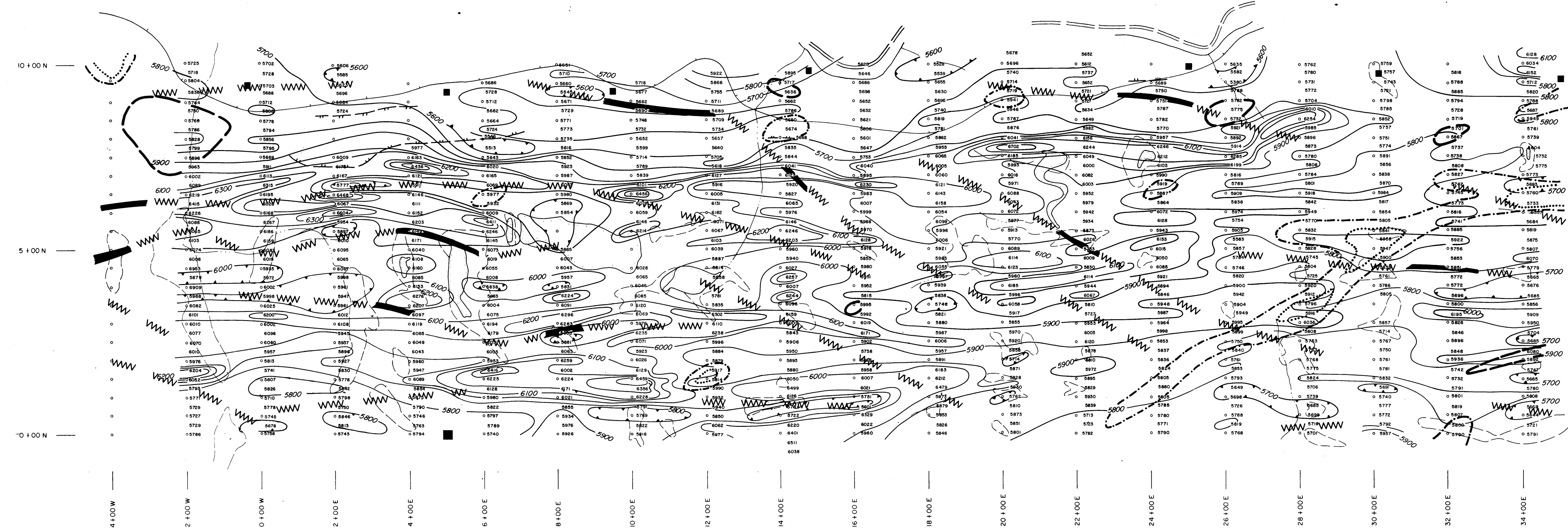
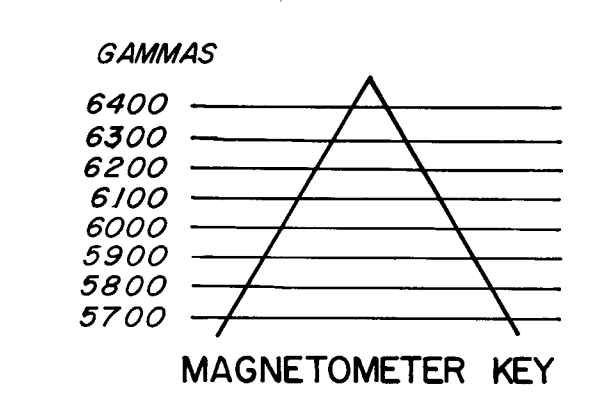
EXPERIENCE: Pre-Graduate experience in Geology -
Geochemistry - Geophysics with Anaconda
American Brass.
Two years Mining Geophysicist with
Sulmac Exploration Ltd. and Airborne
Geophysics with Spartan Air Services
Ltd.
One year Mining Geophysicist and Tech-
nical Sales Manager in the Pacific
north-west for W.P. McGill and Assoc-
iates.
Two years Mining Geophysicist and
supervisor Airborne and Ground Geo-
physical Divisions with Geo-X Surveys
Ltd.
Two years Chief Geophysicist Tri-Con
Exploration Surveys Ltd.
Twelve years Consulting Geophysicist.
Active experience in all Geologic pro-
vinces of Canada.

COST BREAKDOWN

<u>PERSONNEL</u>	<u>DATE</u>	<u>WAGES</u>	<u>TOTAL</u>
B. ROBERTSON	Sept.22- Oct.5,11-14/84	325	5,850
O. AARRESKJOLD	Sept.22-28	225	1,575
K. JONES	Sept.27-Oct.5	225	2,025
G. McNEIL	Sept.22-Oct.5	180	2,520
G. WHITE P.Eng.	Oct.13,14/84	400	800
Meals and Accommodations			2,400
Geochemical analysis & supplies			3,500
Instrument rentals			720
Drafting and data plotting			550
Interpretation and reports			1,200
Materials and travel			325
Vehicle 4x4 inclusive \$125/day			<u>2,250</u>
		TOTAL ...	\$23,715

LEGEND:

- ROAD
- STREAM
- CLIFF
- SWAMP
- LAKE
- CLAIM POST
- 5900 MAGNETIC INTENSITY—GAMMAS
- INFERRED CONDUCTIVE FAULTS
- CONDUCTIVE ZONE
- COPPER, PPM. GEOCHEMISTRY TREND
- GOLD, PPB. GEOCHEMISTRY TREND



KARGEN DEVELOPMENT CORP.
JOHN 5 & 7 CLAIMS
VICTORIA MINING DIVISION — BRITISH COLUMBIA

TOTAL FIELD MAGNETIC INTENSITY
AND
INTERPRETATION MAP

Glen E. White
geophysical consulting
&
services Ltd.

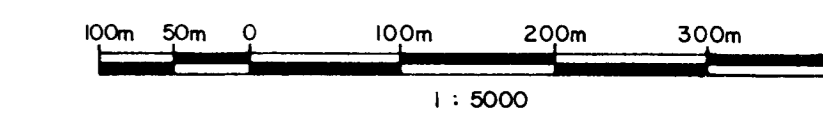
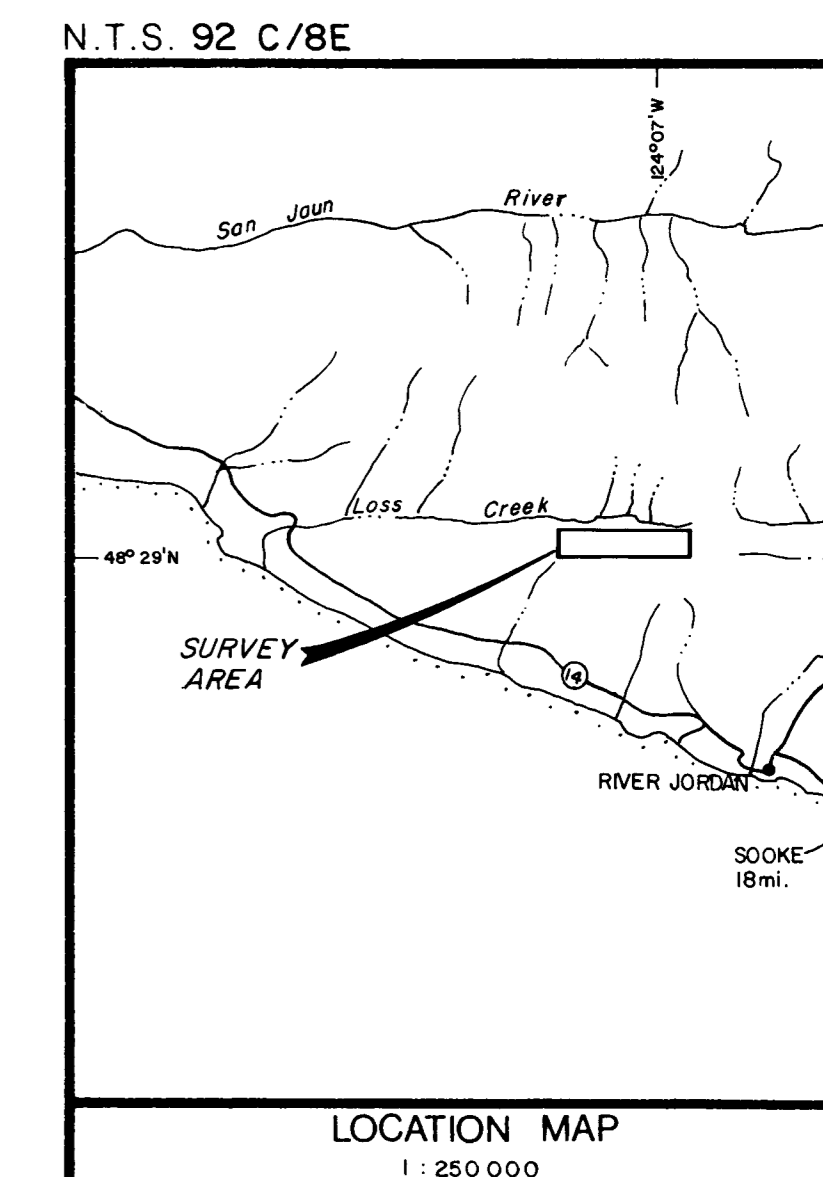
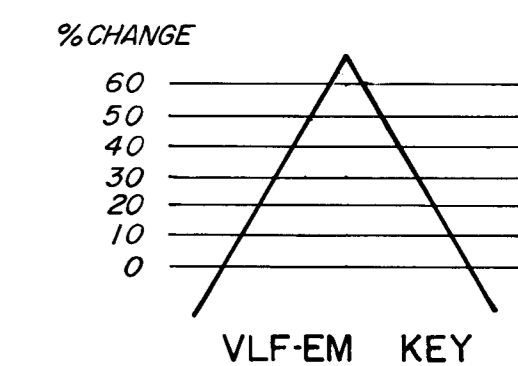
Interpreted By: G.E.W.
Drawn By: FINELINE DRAFTING
Checked By: G.E.W.
Date: JAN / 84
Fig. No.: 2

To Accompany Geophysical
JOHN CLAIMS
Date: JAN. / 84
By GLEN E. WHITE B.Sc. GEOPHYSICIST



LEGEND:

- ROAD
- STREAM
- CLIFF
- SWAMP
- LAKE
- CLAIM POST
- DIP ANGLE - DEGREES
- FRASER FILTERED DIP ANGLE - % CHANGE



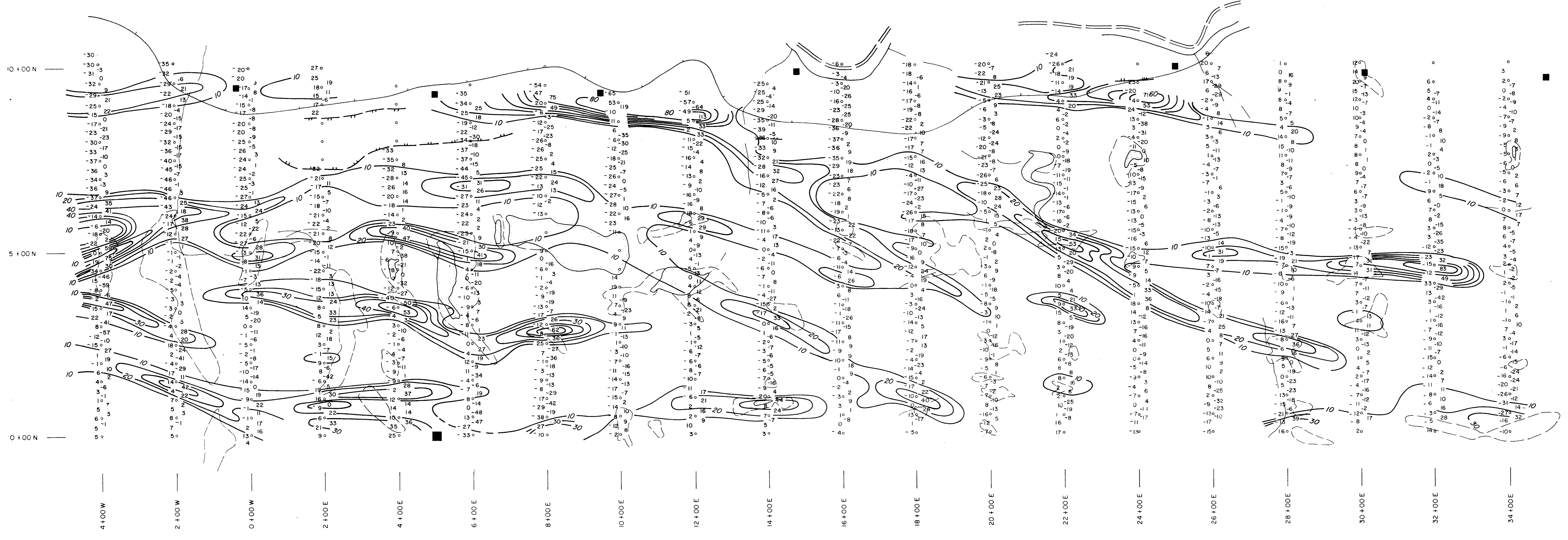
KARGEN DEVELOPMENT CORP.
JOHN 5 & 7 CLAIMS
VICTORIA MINING DIVISION - BRITISH COLUMBIA

VLF - EM SURVEY
FRASER FILTERED DIP ANGLE - %

Glen E. White
geophysical consulting
services Ltd.

Interpreted By: G.E.W.
Drawn By: FINELINE DRAFTING
Checked By: G.E.W.
Date: JAN / 84
Fig. No.: 3

To Accompany Geophysical
JOHN CLAIMS
Date: JAN / 84
By GLEN E. WHITE - B.Sc. GEOPHYSICIST

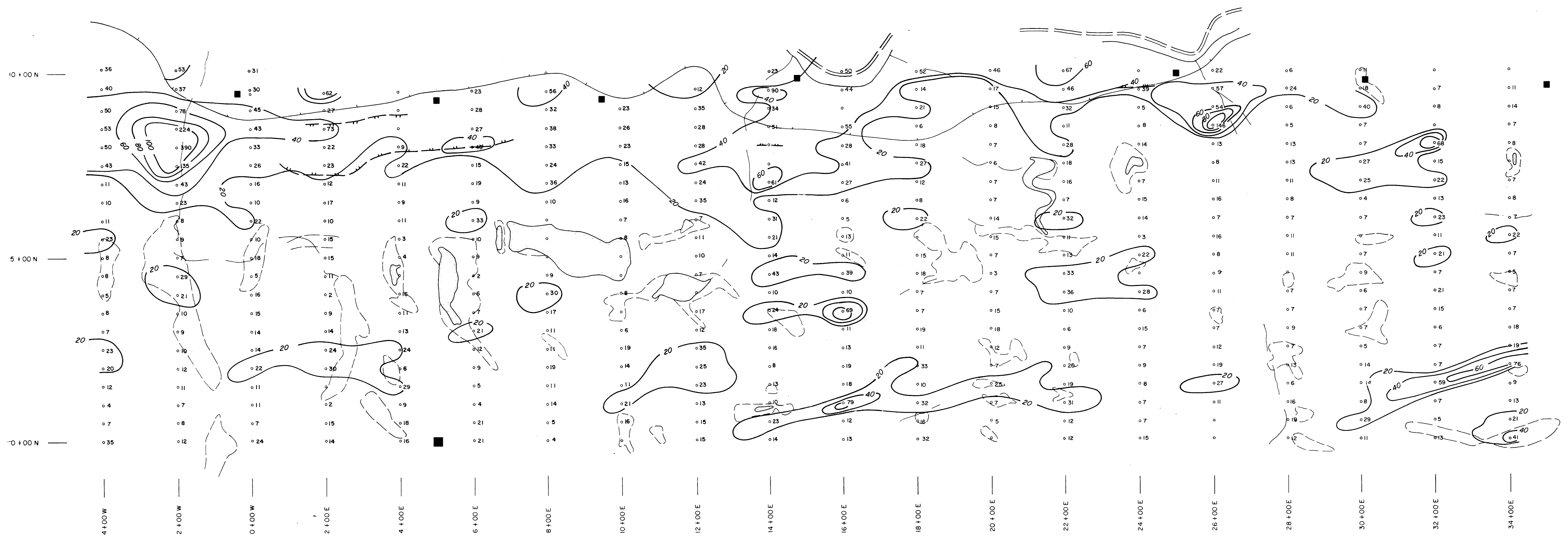
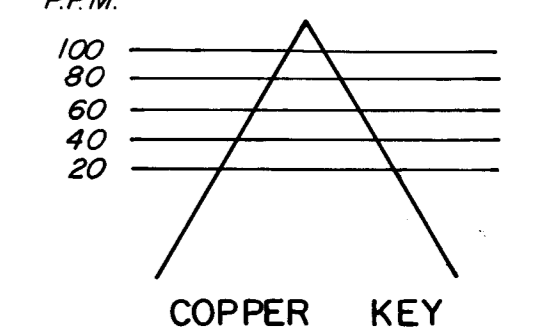




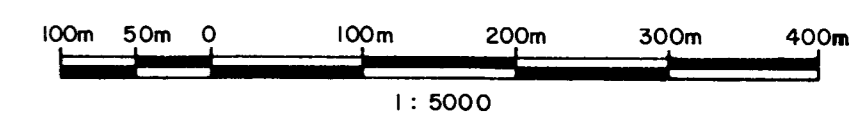
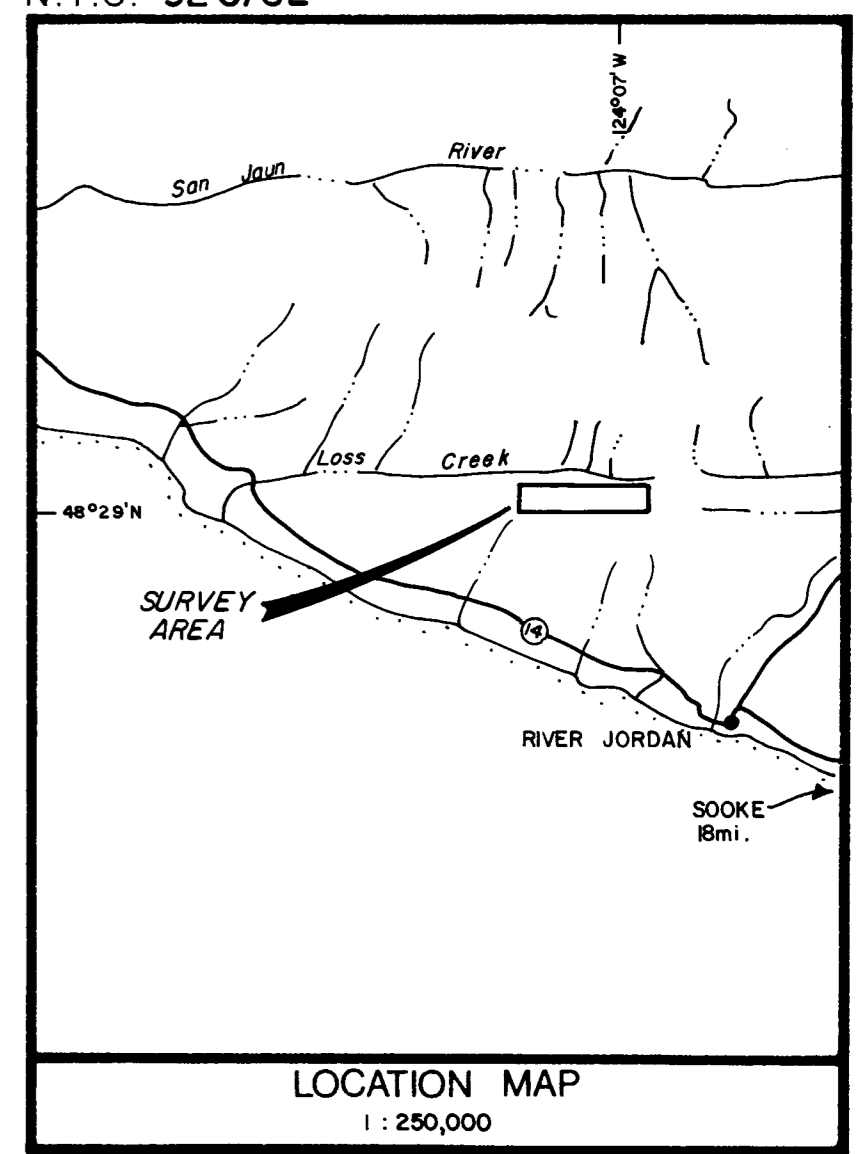
- ROAD
- STREAM
- CLIFF
- SWAMP
- LAKE
- CLAIM POST

GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,612
P.P.M.

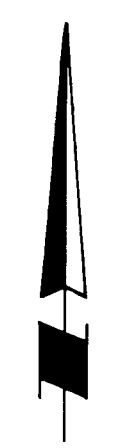


N.T.S. 92 C/8E



KARGEN DEVELOPMENT CORP. JOHN 5 & 7 CLAIMS VICTORIA MINING DIVISION — BRITISH COLUMBIA	
GEOCHEMICAL SURVEY COPPER — P.P.M.	
<i>Glen E. White</i> geophysical consulting & services Ltd.	Interpreted By: G.E.W. Drawn By: FINELINE DRAFTING Checked By: G.E.W. Date: JAN / 84 Fig No.: 4

To Accompany Geophysical Survey of
JOHN CLAIMS
Date: JAN. / 84
By GLEN E. WHITE - B.Sc. GEOPHYSICIST

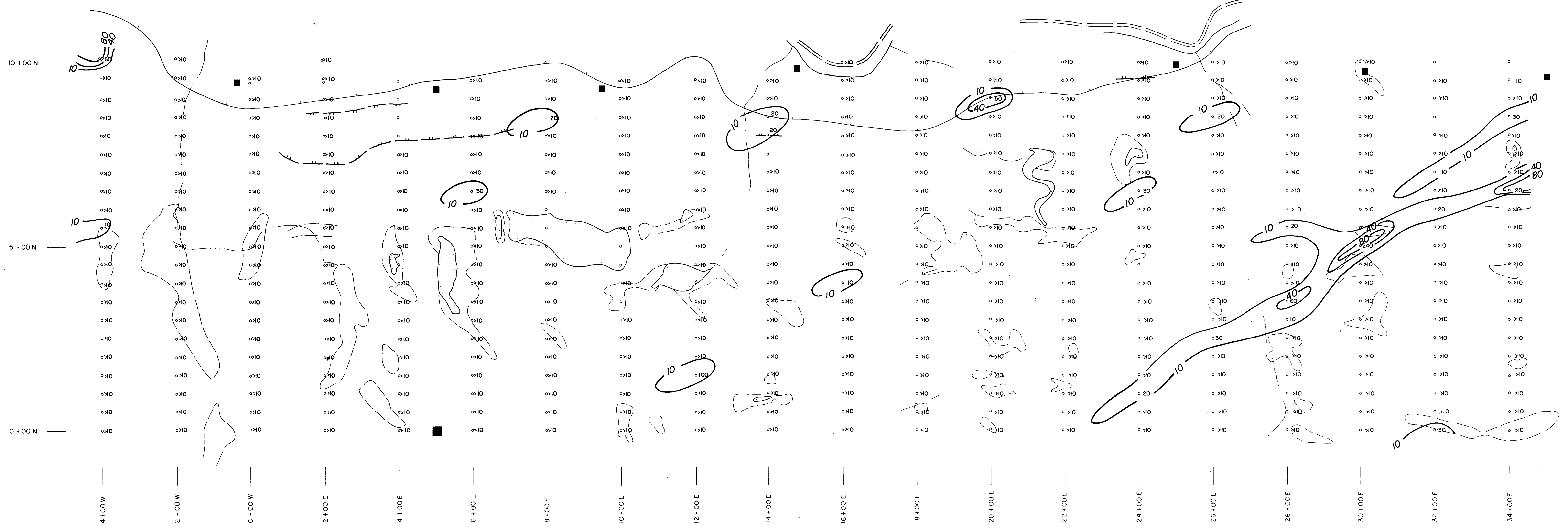
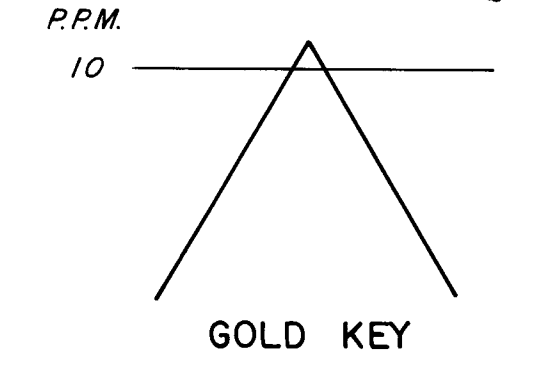


LEGEND:

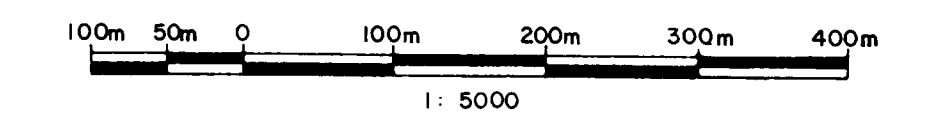
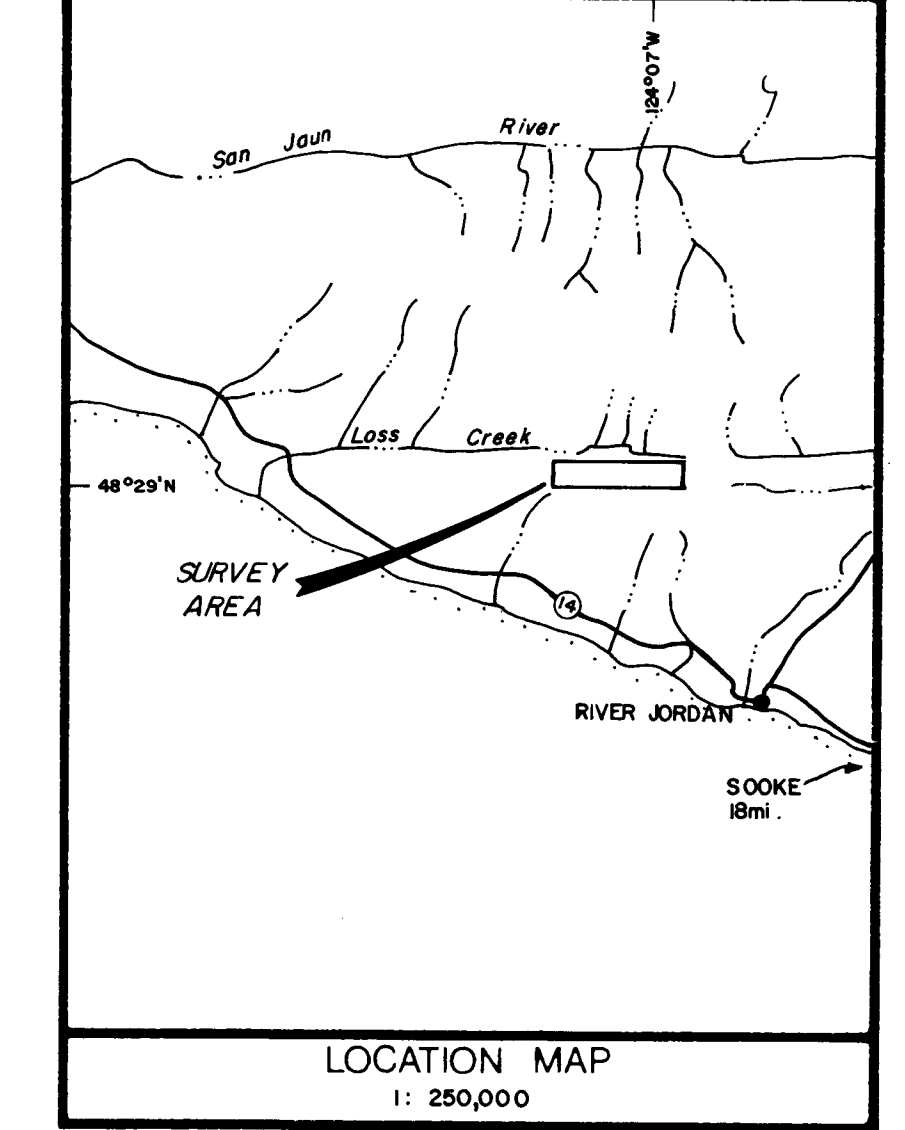
- ROAD
- STREAM
- CLIFF
- SWAMP
- LAKE
- CLAIM POST

GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,612



N.T.S. 92 C/8E



KARGEN DEVELOPMENT CORP JOHN 5 & 7 CLAIMS VICTORIA MINING DIVISION - BRITISH COLUMBIA	
GEOCHEMICAL SURVEY GOLD - P.P.M.	
<i>Glen E. White</i> geophysical consulting services Ltd.	Interpreted By: G.E.W. Drawn By: FINELINE DRAFTING Checked By: G.E.W. Date: JAN / 84 Fig No.: 5

To Accompany Geophysical Report
JOHN CLAIMS
Date: JAN / 84
By: GLEN E. WHITE - B.Sc. GEOPHYSICIST