

GEOLOGICAL REPORT
ON A
SOIL GEOCHEMISTRY SURVEY
AK CLAIM

FAIRWEATHER HILLS, NICOLA M.D., B.C.

AK CLAIM : 2.7 kms S40°E Aspen Grove,
: 49° 120° NW
: N.T.S. 92H/15H

Written for : Cal Dynamics Energy Corp.
404-850 West Hastings Street,
Vancouver, B.C.

By : David G. Mark
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Dated : April 17, 1980



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VANCOUVER, CANADA

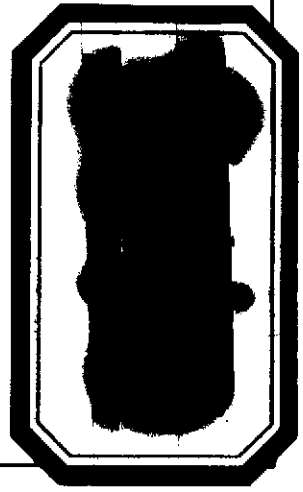


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MAPS AND GRAPHS - Bound in Report

Figure

LOCATION MAP, 1" = 134 miles

1

CLAIM MAP, 1:50,000

2

CUMULATIVE FREQUENCY GRAPH
SOIL GEOCHEMISTRY DATA

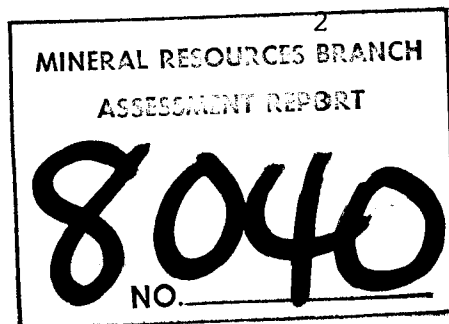


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SUMMARY

A soil geochemistry survey was carried out over the AK Claim Group during the first part of November, 1979. The purpose of the survey was to extend known zones of copper mineralization as well as locate new zones.

The legal post of the AK Claim is located 2.7 km S40E of Aspen Grove and about 0.7 km due west of Alleyne Lake. Access to much of the property is easily gained by a two-wheel drive vehicle. The terrain consists of mainly moderate slopes forested with moderately dense coniferous trees. The purpose of the surveys was to extend the known zones of copper mineralization as well as locate new ones.

Previous work on the property before it was staked as the AK Claim consists of several trenches and shafts dug out some years ago as well as soil geochemistry and IP surveys. After the AK Claim was staked, VLF-EM and magnetic surveys were carried out.

The property is mainly underlain by Upper Triassic Nicola Group volcanics. The rock-types are grey feldspar porphyry, massive green andesite, amygdaloidal and massive red andesite, and lahar deposits with a division into a red sequence and a division into a green sequence. Faulting on the property is predominantly north-south, and northeast. Mineralization occurs as chalcopyrite, chalcocite, malachite and bornite within fracture or shear zones

within the green and red volcanics.

On the soil geochemistry survey, the B horizon was sampled and all samples subsequently analyzed for copper, molybdenum and silver by the hot acid extraction method. The results were then statistically analyzed, plotted and contoured.

CONCLUSIONS

1. The two anomalies with the seemingly best economic potential are A and H, because of their relatively large size, the number of high values, and their correlation with silver and molybdenum values. The VLF-EM correlation indicates structural control. The magnetic low correlation adjacent to a magnetic high indicates either a zone of alteration and/or a contact zone (possibly between two phases of the same rock type.)
2. Anomalies J, K and L are also economically interesting. All have a number of high values, correlate fairly well with VLF-EM anomalies, and occur within magnetic lows.
3. Anomalies D and I correlate directly with magnetic highs, but have a number of high values. These anomalies, like several others, are long and narrow. Quite possibly the causative source is a narrow volcanic layer mineralized with copper sulphides.
4. The molybdenum and silver results were quite flat except for isolated cases. Though barely above background in most cases, the silver anomalies correlated fairly well with the copper anomalies.

RECOMMENDATIONS

It is felt that Stage 3 of the recommended exploration program within Sookochoff's geological report on the property should be carried out, especially considering the encouraging results of anomalies A and H. This stage constitutes an IP survey.

The IP survey should be carried out with an electrode spacing of at least 60 m, perhaps 100 m, and readings to the third separation. The IP survey should be concentrated in the areas of anomalies A and H as well as, perhaps, anomalies J, K and L.

GEOCHEMICAL REPORT

on a

Soil Geochemistry Survey

AK Claim Group

Fairweather Hills, Nicola M.D., B.C.

INTRODUCTION AND GENERAL REMARKS

This report discusses the sampling method, testing procedure and interpretation of results of a soil geochemistry survey carried out over the AK Claim Group near Aspen Grove within the Nicola M.D., B.C. All of the above work was carried out from November 2nd to the 18th, 1979 under the supervision of the writer.

The number of soil samples picked up was 842 and these were subsequently analyzed for copper, molybdenum and silver.

The purpose of the soil geochemistry was to locate areas of sulphide mineralization. Several occurrences of copper mineralization occur within the AK Claim. Molybdenum and silver mineralization have been noted in the area as well.

PROPERTY AND OWNERSHIP

The AK Claim consists of one claim of 12 units as shown on Figure 2 and as described below:

| <u>Claim Name</u> | <u>No. Units</u> | <u>Record No.</u> | <u>Tag No.</u> | <u>Expiry Date</u> |
|-------------------|------------------|-------------------|----------------|--------------------|
| AK | 12 | 380 (2) | 37138 | February 6, 1985 |

The property is owned by Cal Dynamics Energy Corp of Vancouver, British Columbia.

LOCATION AND ACCESS

The legal post of the AK Claim is found about 0.65 km due west of the Alleyne Lake and about 2.7 km S40E of Aspen Grove.

The geographical coordinates are $49^{\circ} 56'N$ latitude, and $120^{\circ} 35'W$ longitude.

Access to the property is quite good and can be gained by a passenger car providing the road is dry (see Figure 2). One travels along Highway 5 for 30 km south of Merritt or 5 km south of Aspen Grove and then turns east on a well-used gravel road. About 2 km on this road is a second turn-off to the northeast onto a dirt road. The southern boundary of the AK Claim is about 2.5 km along the dirt road.

PHYSIOGRAPHY

The AK Claim lies in the southern part of the physiographic division known as the Thompson Plateau which is part of the Interior Plateau System. The terrain is generally that of flat or rolling hills over most of the property. The general trend of the topography runs north-south. Elevations vary from 1,030 meters a.s.l. along the eastern boundary to 1,280 meters a.s.l. in the northwest corner to give a relief of only 250 meters.

The main water source would be Alleyne Lake or one of the smaller lakes which sit 0.65 km off of the eastern boundary of the Claim. There are a few creeks which drain southerly and one easterly through the property.

Vegetation on the property varies from a lightly dense forest on

the western half to a moderately dense forest on the eastern half. It consists of pine, fir and spruce.

HISTORY OF PREVIOUS WORK

There is evidence of much physical work having been done on the property, but the writer is unsure of the dates. The trenches and several shafts, however, probably predate 1940. Soil geochemistry and induced polarization surveys have been done in the area as well, parts of which cover the AK Claim. After the AK Claim was staked, VLF-EM and magnetic surveys were carried out of which the results are contained in a report by the writer.

GEOLOGY

The following is based upon the geology mapping and subsequent report done by L. Sookochoff in the beginning of December, 1978.

The AK Claim is underlain by a sequence of Upper Triassic Nicola rocks. Preto, et al, has divided the Nicola Group into three basic belts; the Western Belt, the Central Belt, and the Eastern Belt. The AK Claim is found within the Central Belt which contains the majority of the mineral occurrence in the Aspen Grove area.

The rock-types found on the property are red and green feldspar porphyry volcanics, both units containing clasts up to 25 cm in diameter; amygdaloidal and massive red andesite; massive green andesite; and grey feldspar porphyry.

The major faults on the property strike mainly north-south and are associated with splay faults. Shear fracture zones occur throughout the property but predominate along the central north-south portion.

Epidote is the primary alteration mineral and occurs as disseminations, veinlets and predominantly along the fracture. Two northerly striking epidote zones occur within the central and western portions of the property, respectively.

Mineralization occurs as chalcopryrite, chalcocite, bornite, and malachite, and is generally associated with a high degree of fracturing and hematite-carbonate-epidote association. It is not restricted to any one sequence and is found in the red clastic volcanics, the massive red andesites, and the massive green andesites.

SOIL GEOCHEMISTRY

1. Survey Procedure:

The soil sample was carried out on the grid previously established by the VLF-EM and magnetic surveys - that is the baseline runs north-south and the survey lines run east-west at intervals of 120 meters.

The samples were picked up on the survey lines at 30-meter centers. The soil horizon sampled was B which was dark brown to reddish-brown colour. The samples were taken at an 8- to 15-cm depth by a mattock and placed in brown, wet-strength paper bags with the grid coordinate marked thereon.

2. Testing Procedure:

All samples were tested by Acme Analytical Laboratories of Burnaby, B.C. The sample is first thoroughly dried and then sifted through a -80 mesh screen. A measured amount of the sifted material is then put into a test tube with subsequent measured additions of hot aqua regia. This mixture is next diluted with water. The parts per million (ppm) copper, molybdenum and silver was then measured by atomic absorption.

3. Treatment of Data:

The values in ppm copper were first grouped into a logarithmic interval of 0.1. The cumulative frequency for each interval was then calculated and then plotted against the correlating interval to obtain the logarithmic cumulative frequency graphs as shown in Figure 3. The molybdenum and silver values were not statistically analyzed since the range of each metal's values were severely limited.

The co-efficient of deviation, indicative of the range or spread of values for copper was calculated to be 0.21 which is a moderate value. This indicates a moderate mobility of the copper ions.

The mean background value for copper is taken at the 50% level. The sub-anomalous threshold value (a term used by the writer to denote the minimum value that is not considered anomalous but still important as an indicator of mineralization), is taken at a one standard deviation from the mean background value which is at the 16% level and the anomalous threshold value is two standard deviations away at the 2 1/2% level.

For the molybdenum and silver values, the above parameters were determined by "eyeballing".

The subsequent parameters for each element are thus as follows:

| | Copper | Molybdenum | Silver |
|-------------------------------|--------|------------|--------|
| Mean Background value | 40 | 1 | 0.1 |
| Sub-anomalous threshold value | 65 | 2 | 0.2 |
| Anomalous threshold value | 108 | 3 | 0.3 |

The graph shows a break at close to the sub-anomalous for the copper values and therefore indicates there is a greater than

normal number of high copper values on the AK claim. This is a common result of areas with sulphide mineralization.

The copper, molybdenum and silver results were then subsequently plotted on Sheets 3 to 5, respectively, at a scale of 1:3,000 (1 cm = 30 m) and then contoured at intervals close to the standard deviations. The sub-anomalous contours were dashed in and the anomalous contours drawn in solid.

DISCUSSION OF RESULTS

The copper anomalies of interest have been labelled by the upper case letters A to N. The molybdenum and silver anomalies have been labelled according to their correlation with the copper anomalies. An additional molybdenum anomaly has been labelled by the letter O.

The following table gives the basic characteristics of each anomaly:

| Anomaly | Strike | Length | Width | Copper High | Moly High | Silver High | VLF-EM Correlation | Mag Correlation |
|---------|--------|--------|------------|-------------|-----------|-------------|--------------------|---------------------|
| A | N | 450m | 30-120m | 660 ppm | 3 ppm | 0.3 ppm | j-excellent | low on edge of high |
| B | ? | 100 | 30 | 190 | - | - | k-fair | high |
| C | N | 240 m+ | up to 120m | 114 | - | 0.3 | k-fair | high |
| D | N | 600 | 30-90 | 250 | - | - | h-poor | high |
| E | N-N30E | 120+ | 30 | 142 | - | 0.3 | - | low |
| F | N | 360 | 30 | 240 | - | 0.3 | g-v.good | low |
| G | N-N30W | 360+ | 30 | 230 | 4 | - | g-fair | low |
| H | N20E | 480 | 90 | 205 | 2 | 0.9 | f-excellent | high & low |
| I | N | 600 | 30-150 | 510 | 4 | 0.4 | e-fair | high |
| J | N15E | 150+ | 30-150 | 220 | - | 0.3 | e-poor | low |
| K | N30W-N | 650 | 30 | 210 | - | 0.3 | d-excellent | low |
| L | N-N20E | 480 | 30-60 | 510 | 4 | 0.3 | b-good | low |
| M | N10W | 240+ | 30-60 | 156 | - | 0.4 | - | low |
| N | N15W-N | 180 | 30 | 108 | - | 0.5 | - | high |
| O | N10W | 150+ | 30 | - | - | 11 | e-fair | low |

The soil geochemistry survey has revealed numerous anomalies, many of them being rather small. However, two of the soil anomalies, A and H, are very interesting displaying more economic potential than any other anomaly.

Both A and H anomalies are relatively large, have a number of anomalous values, correlate excellently with VLF-EM anomalies, correlate with a magnetic low adjacent to a magnetic high, and have correlating molybdenum and silver values.

Anomaly A correlates with a fault as mapped by Sookochoff which is the probable cause of the VLF-EM anomaly. The causative source of this soil anomaly appears to occur within massive green andesite on its contact with green volcanics.

Sookochoff has mapped no faults on or near Anomaly H. However, it partially correlates with an epidote zone and within it a shaft has been sunk. This anomaly occurs entirely within amygdaloidal and/or massive red andesite.

Anomaly K, like anomaly A, also correlates excellently with a VLF-EM anomaly as well as occurring within massive green andesite. In addition there is correlation with a fault. Anomaly K has been drawn as three separate anomalies which the writer feels could all be the same anomaly.

Anomalies correlating with magnetic highs have low economic interest except for perhaps anomalies D and I. Both of these anomalies are long and narrow with a number of high values.

Anomaly L is also fairly interesting because of its correlation with a VLF-EM anomaly as well as its length and high values. Sookochoff has mapped a fault adjacent to this anomaly. Anomaly L occurs within red volcanics.

Anomaly J also occurs within red volcanics, but near its contact with as well as within massive green andesite. There is correlation with faulting. A shaft with copper mineralization is found within Anomaly J.

Anomalies E and F occur along a fault.

Both the molybdenum and silver results were for the most part quite flat. Two exceptions to this are the 0.9 ppm silver within Anomaly H and the 11 ppm molybdenum of Anomaly O. There is also quite good correlation between the silver and copper results, though often the silver is barely above background.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.,



David G. Mark
Geophysicist

April 17, 1980.

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Cal Dynamics Energy Corp., Pan-American Consultants
Ltd., December, 1978.

GEOPHYSICIST'S CERTIFICATE

I, David G. Mark, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

THAT I am a Consulting Geophysicist of Geotronics Surveys Ltd. with offices at 420-890 West Pender Street, Vancouver, British Columbia.

I further certify:

1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc., degree in Geophysics.
2. I have been practising my profession for the past twelve years and have been active in the mining industry for the past fifteen years.
3. That I am an active member of the Society of Exploration Geophysicists and a member of the European Association of Exploration Geophysicists.
4. This report is compiled from data obtained from a soil geochemistry survey carried out under the supervision of myself during the first part of November, 1979.
5. I am a Director of Cal Dynamics Energy Corp. and own 7000 shares both directly and indirectly.



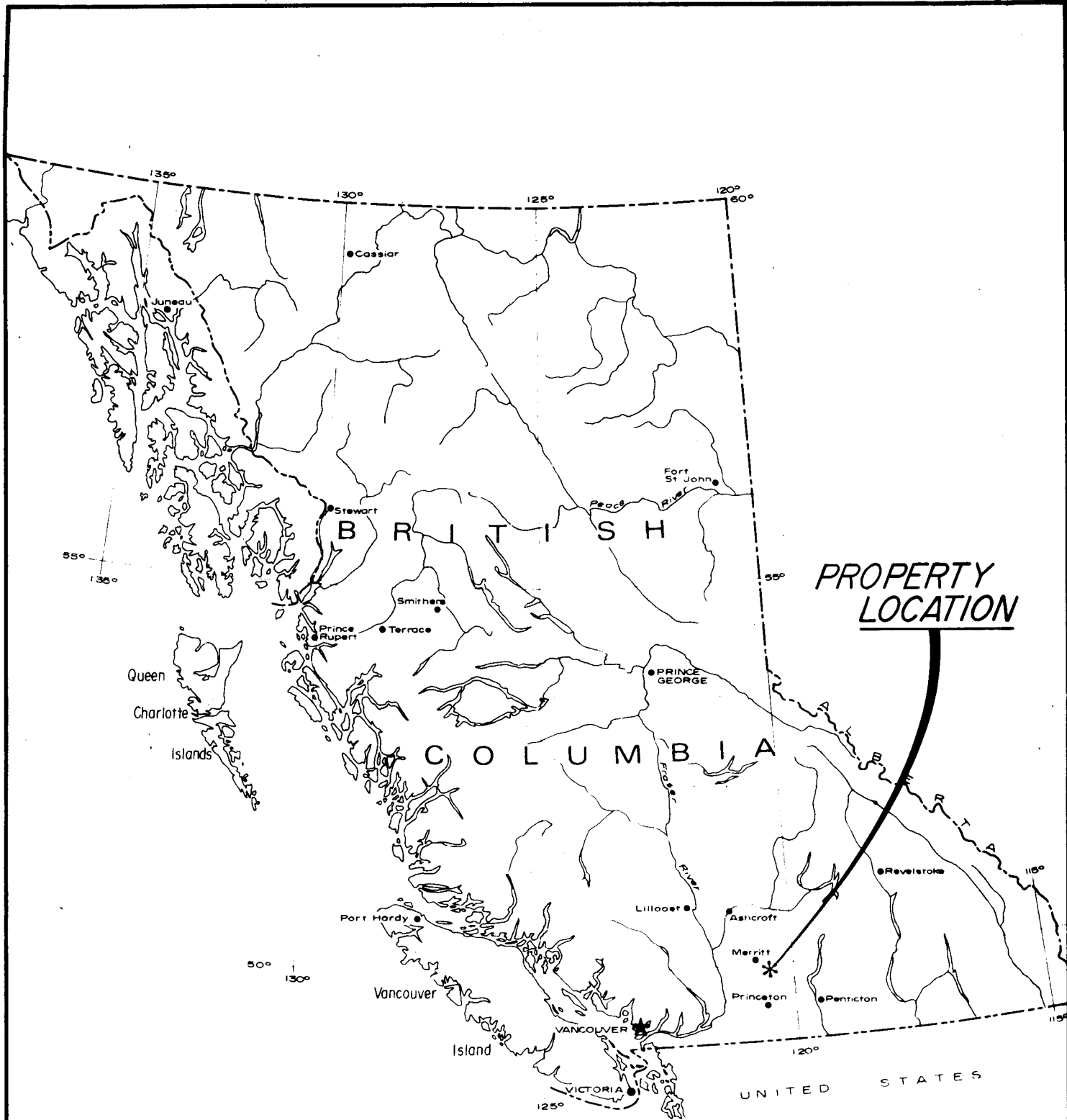
David G. Mark
Geophysicist

April 17, 1980

COST BREAKDOWN

| | |
|--|-------------------|
| Two geophysical technicians, 13 man days at \$190/man day | \$2,470.00 |
| Board and Room | 364.00 |
| Truck rental | 262.47 |
| Survey supplies | 92.85 |
| Soil sample analysis, 807 samples at \$2.55/sample | 2,052.75 |
| Report | 1,000.00 |
| | <u>\$6,242.07</u> |

The field work was carried out from November 2nd to 18th, 1979.

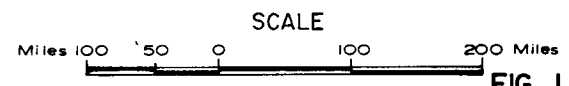


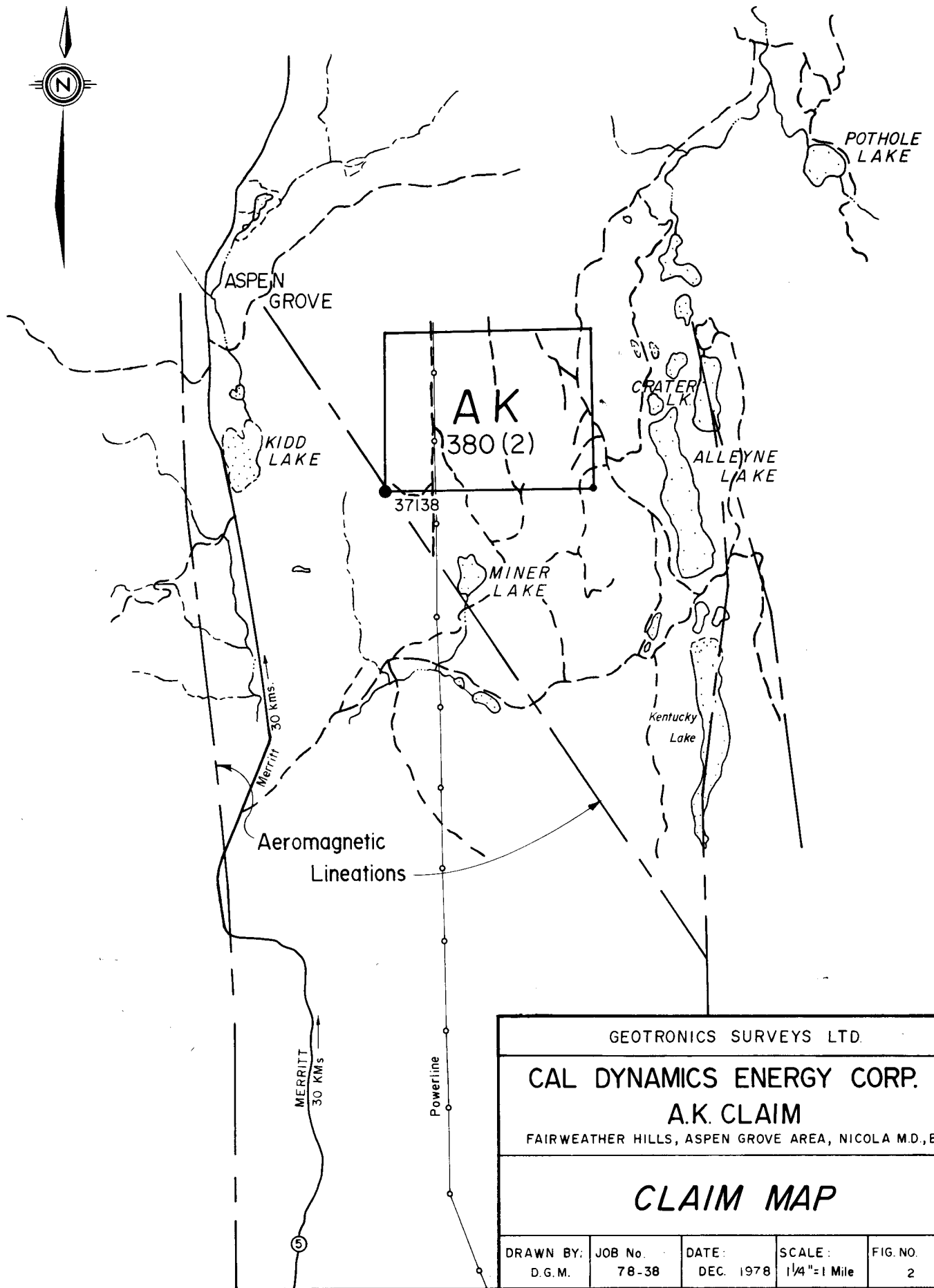
**PROPERTY
LOCATION**

GEOTRONICS SURVEYS LTD.
CAL DYNAMICS ENERGY CORP.
 AK CLAIM

ASPEN GROVE AREA, NICOLA M.D., B.C.

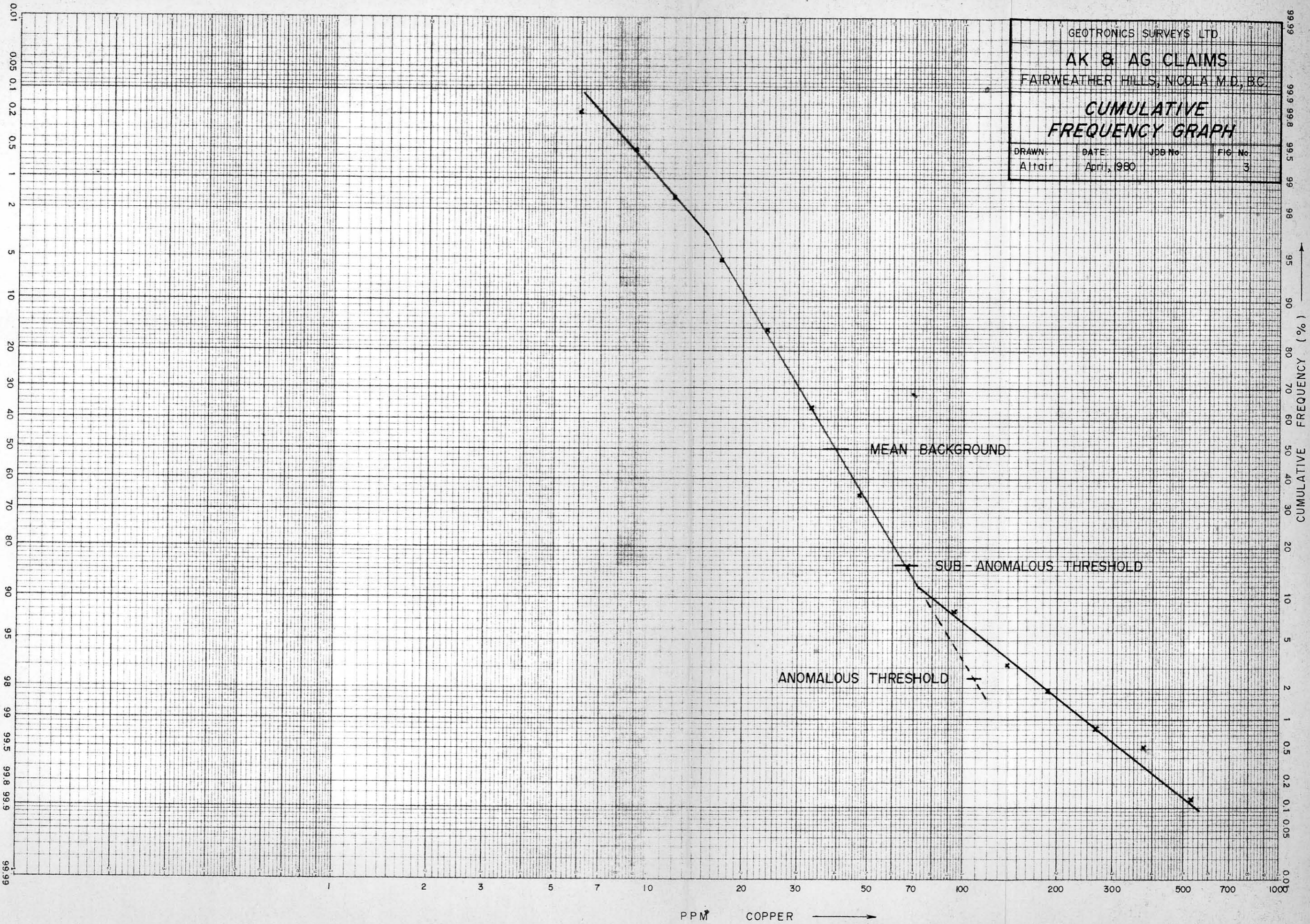
LOCATION MAP

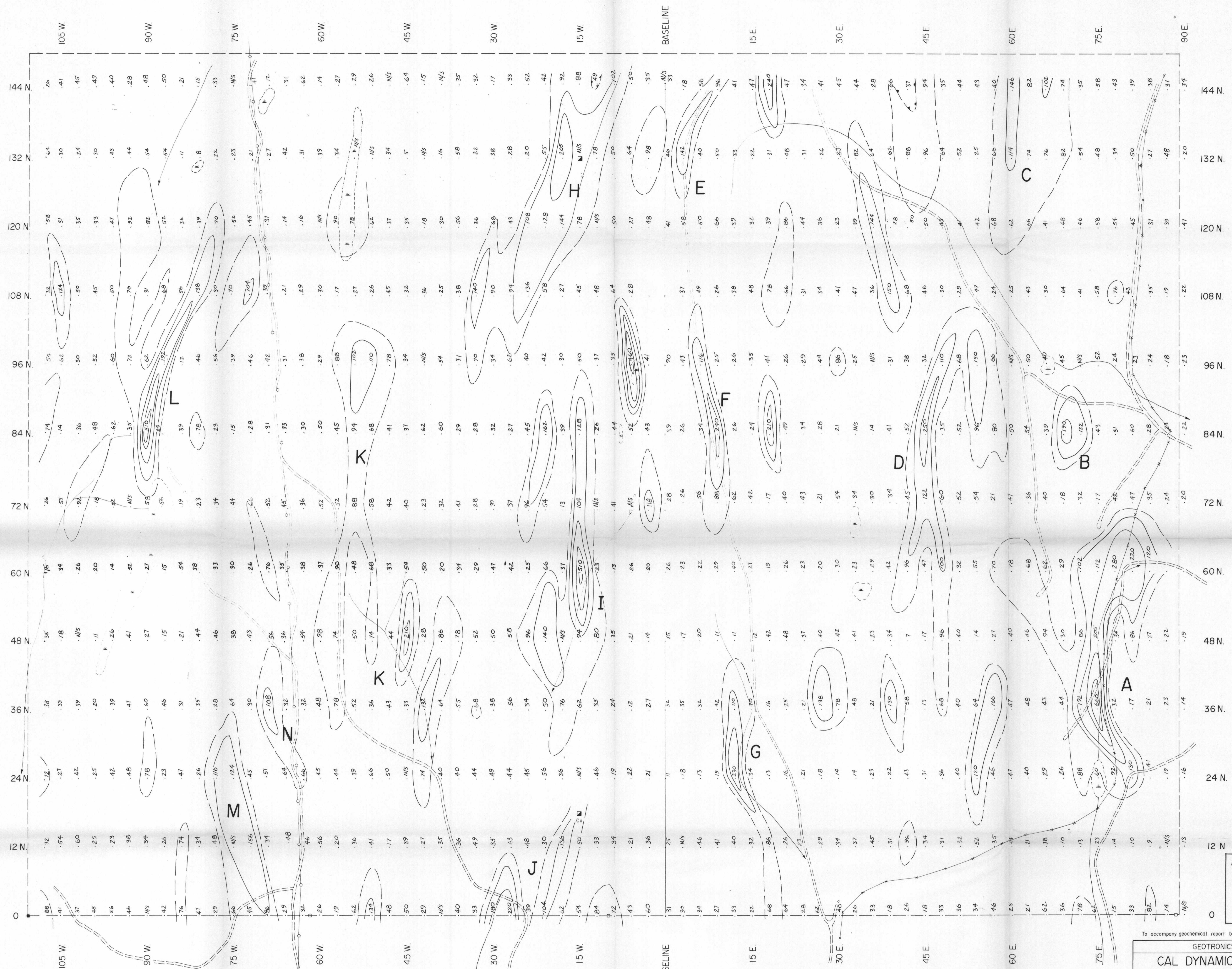




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|--|------------------|--------------------|-------------------------|
| GEOTRONICS SURVEYS LTD. | | | |
| CAL DYNAMICS ENERGY CORP. | | | |
| A.K. CLAIM | | | |
| FAIRWEATHER HILLS, ASPEN GROVE AREA, NICOLA M.D., B.C. | | | |
| CLAIM MAP | | | |
| DRAWN BY: D.G.M. | JOB No. 78-38 | DATE: DEC. 1978 | SCALE: 1/4" = 1 Mile |
| | | | FIG. NO. 2 |

GEOTRONICS SURVEYS LTD.
AK & AG CLAIMS
 FAIRWEATHER HILLS, NICOLA M.D., B.C.
**CUMULATIVE
 FREQUENCY GRAPH**
 DRAWN: Altair DATE: April, 1980 JBB No. FIG No. 3



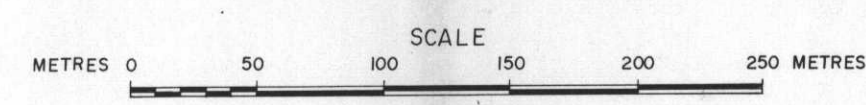


CONTOURS
 CONTOUR INTERVAL - 1 STANDARD DEVIATION
 --- 65 ppm (sub-anomalous)
 --- 100, 170, 280, 450 ppm (anomalous)

PARAMETERS
 MEAN BACKGROUND VALUE: 40 ppm
 SUB-ANOMALOUS THRESHOLD VALUE: 65 ppm
 ANOMALOUS THRESHOLD VALUE: 108 ppm

LEGEND

- ✕ Fence
- Claim line showing claim post
- Center of power line
- Creek
- Logging road
- Swamp
- Shaft
- Cu
- Copper



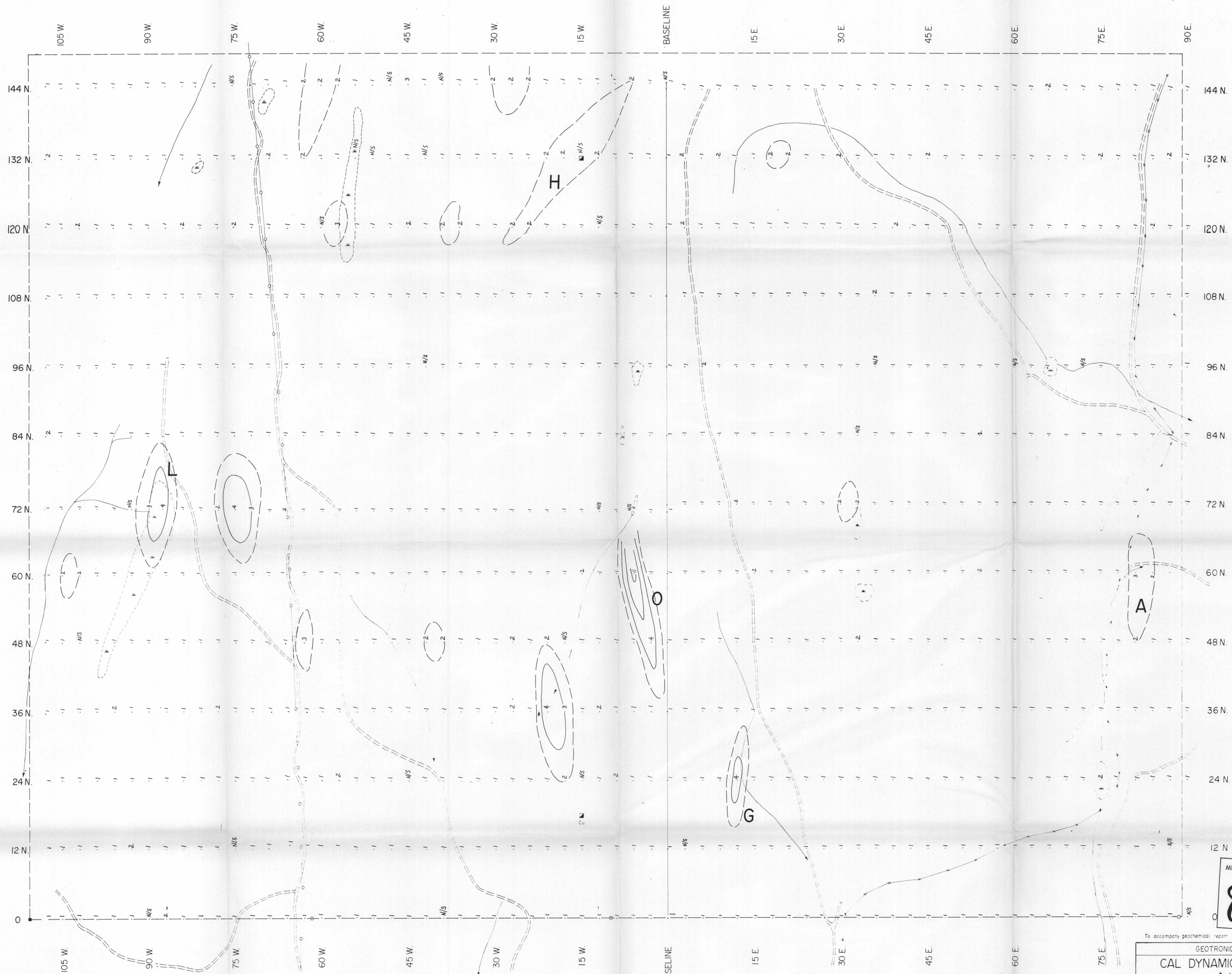
MINERAL RESOURCES BRANCH
 ASSESSMENT REPORT
8040
 NO.

To accompany geochemical report by DAVID G. MARK, geophysicist.

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 CAL DYNAMICS ENERGY CORP.
 A.K. CLAIM
 FAIRWEATHER HILLS, ASPEN GROVE AREA, NICOLA M.D., B.C.

**SOIL GEOCHEMISTRY SURVEY
 COPPER
 DATA & CONTOURS**

| | | | | |
|----------------------------|------------------|---------------------|------------------|----------------|
| DRAWN BY: DGM. B R.R.F. | JOB No: 79-46 | DATE: Dec., 1979 | SCALE: 1:3000 | SHEET No. 3 |
|----------------------------|------------------|---------------------|------------------|----------------|



CONTOURS
 CONTOUR INTERVAL - AS BELOW
 - - - - - 2 ppm (sub-anomalous)
 ———— 3, 5, 10 ppm (anomalous)

PARAMETERS
 MEAN BACKGROUND VALUE 1 ppm
 SUB-ANOMALOUS THRESHOLD VALUE 2 ppm
 ANOMALOUS THRESHOLD VALUE 3 ppm

LEGEND

- +— Fence
- +— Claim line showing claim post
- +— Center of power line
- +— Creek
- +— Logging road
- +— Swamp
- +— Shaft
- +— Cu Copper

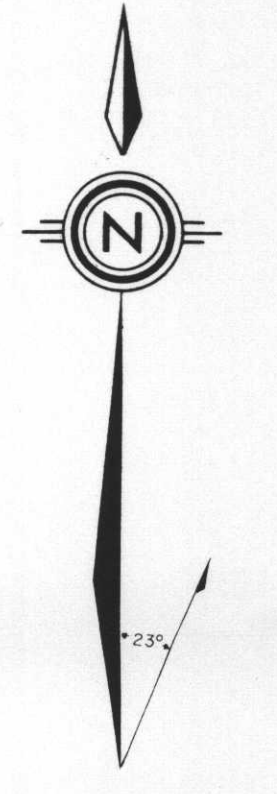
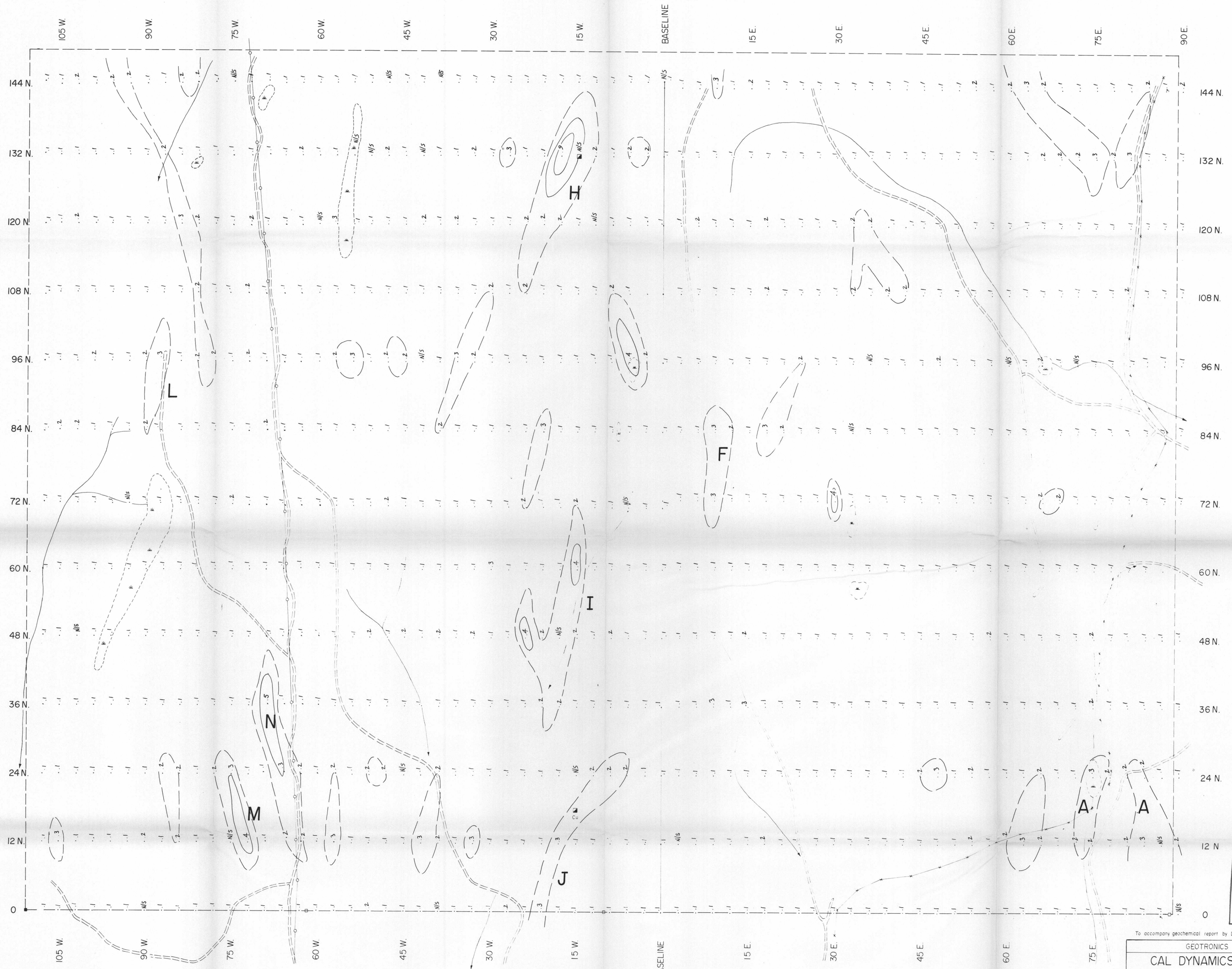
SCALE
 METRES 0 50 100 150 200 250 METRES

MINERAL RESOURCES BRANCH
 ASSESSMENT REPORT
8040
 NO.

To accompany geochemical report by DAVID G. MARK, geophysicist

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 A.K. CLAIM
 FAIRWEATHER HILLS, ASPEN GROVE AREA, NICOLA M.D., B.C.
SOIL GEOCHEMISTRY SURVEY
MOLYBDENUM
DATA & CONTOURS

| | | | | |
|------------------------|------------------|---------------------|----------------|----------------|
| DRAWN BY: DGM & RRF | JOB No: 79-46 | DATE: Dec., 1979 | SCALE: 3000 | SHEET No: 4 |
|------------------------|------------------|---------------------|----------------|----------------|



CONTOURS
 CONTOUR INTERVAL: AS BELOW
 - - - - - 0.2 ppm (sub-anomalous)
 ———— 0.3, 0.5 ppm (anomalous)

PARAMETERS
 MEAN BACKGROUND VALUE 0.1 ppm
 SUB-ANOMALOUS THRESHOLD VALUE 0.2 ppm
 ANOMALOUS THRESHOLD VALUE 0.3 ppm

LEGEND

- +—+— Fence
- |—|— Claim line showing claim post
- o—o— Center of power line
- |—|— Creek
- |—|— Logging road
- |—|— Swamp
- Shaft
- Cu— Copper

SCALE
 METRES 0 50 100 150 200 250

MINERAL RESOURCES BRANCH
 ASSESSMENT REPORT
8040
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 CAL DYNAMICS ENERGY CORP.
 A.K. CLAIM
 FAIRWEATHER HILLS, ASPEN GROVE AREA, NICOLA MD, BC

SOIL GEOCHEMISTRY SURVEY
SILVER
DATA & CONTOURS

| | | | | |
|------------------------|------------------|---------------------|------------------|----------------|
| DRAWN BY: DGM & RRF | JOB No: 79-46 | DATE: Dec., 1979 | SCALE: 1:3000 | SHEET No: 5 |
|------------------------|------------------|---------------------|------------------|----------------|