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REPORT ON

GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL AND PANNING SURVEYS

CONDUCTED JUNE 13 TO AUGUST 27, 1980

FOR

CUB JOINT VENTURE

Ivo 1-40 Claims - YA36556-YA36595
41-80 Claims - YA45223-YA45262
81-128 Claims - YA45639-YA45686
129-173 Claims - YA55394-YA55438
174-189 Claims - YA55794-YA55809
190-212 Claims - YA56356-YA56378

WATSON LAKE M.D., YUKON

CLAIM SHEET 95E/3

Latitude 61°03'N Longitude 127°03'W

C.A. Main, B.Sc. R.J. Cathro, B.A.Sc., P.Eng.

January 15, 1981

This report has been examined by the Geological Evaluation Unit and is rec[illegible]mended to the Commissioner to be c[illegible]ed as represe[illegible] the c[illegible]

$ 98,000.00

Resident Geologist or Resident Mining Engineer

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

B. R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory

INDIAN and NORTHERN AFFAIRS

TRANSMITTAL FORM

M R File No
S. M. R. File No.
Date Fwd. 13 Feb. 81

FROM Mining Recorder at WATSON LAKE

TO: Supervising Mining Recorder at Whitehorse, Y.T.

Office of the Supervising Mining Recorder
FEB 17 1981
WHITEHORSE
Yukon Territory

FOR ACTION ARE:

☐ NEW APPL'N for PLACER LEASE to PROSPECT: Name:

☐ RENEWAL APPL'N PLACER LEASE to PROSPECT: Name: Lease No.

☐ AFFIDAVIT of EXPENDITURE on PLACER LEASE. Name Lease No.

☐ ASSIGNMENT of PLACER LEASE No.
From: To:

☐ GROUPING APPL'N UNDER SEC. 52(2) PLACER MINING ACT.
Owner:

☐ DIAMOND DRILL LOGS:
Claims: Claim sheet no.

☑ QUARTZ ASSESSMENT REPORT
Claims: IVO 1-212
Claim sheet no. 95-E-3

Type of report: Geological, Geochemical, Geophysical + Panning Surveys

Submitted by: Archer, Cathro + Assoc. LTd.

Cls. work performed on:
IVO 81-128
IVO 1-80
IVO 129-212

$ Req. for ren. application $ 98,000.00

[signature]
Signature

REPLY ACTION. Date Ret.

090730

Signature

TABLE OF CONTENTS

TABLES

ILLUSTRATIONS

SUMMARY AND RECOMMENDATIONS

The Ivo property is located on the Yukon-NWT border within the Logan Mountains, about 125 km southeast of the Cantung Mine. It was staked by CUB Joint Venture to cover skarn tungsten occurrences in lower Cambrian limestones around the Cretaceous Ivo Stock. The 1980 program was managed by C.A. Main of Archer, Cathro & Associates Limited. Ground magnetic and electromagnetic (EM-16) surveys were used to define the margin of the Ivo pluton and also outlined potential sulphide skarn targets beneath overburden. Earlier soil sampling surveys were extended over most of the perimeter of the stock and prospecting and mapping located more mineralized float near some of the known showings and resulted in the discovery of the Salivo Zone, the best target found to date.

The Salivo Zone, situated at the southeast corner of the property, consists of a magnetic anomaly ranging from 200 to 2800 gammas above background that follows the gently dipping margin of the pluton for a length of 3 km. Sporadic but intense tungsten panning and geochemical response, accompanied by the only extensive molybdenum response on the property, is associated with the magnetic anomaly. The magnetic response weakens towards the north end, but a scheelite-bearing garnet skarn occurrence was found on strike one kilometer north of the magnetic anomaly. Specimens of float from this showing assayed between 1.43 and 3.0% WO_3. The Salivo magnetic anomaly is obscured beneath a cover of coarse granitic scree and vegetation and cannot be evaluated by prospecting, mapping or trenching.

Elsewhere on the Ivo property, survey results over the Ivo, Trevor and Tuanipel showings indicate that they are very local and do not warrant further work. The Main Showing is also small, however an adjacent target outlined by magnetic surveys (the K zone) warrants more prospecting, geochemical surveys and detailed geophysical evaluation. Additional surveys are also recommended at the northeast and northwest corners of the property where the margins of the stock follow gentle valleys and have proven difficult to trace.

The Ivo property has an excellent potential for tungsten mineralization because it occurs in the same geological setting and has many important similarities to the eastern margin of the Selwyn Basin farther north, site of the largest tungsten deposits in North America (Cantung and Mactung). In particular, the tungsten-bearing Cretaceous Ivo pluton has intruded Cambrian rocks close to the facies boundary between the carbonate platform to the east and the shale basin to the west. As well, erosion has only cut down into the roof of the stock, exposing many complex structural traps along the 33 km perimeter of the stock that are particularly favourable for mineralization.

Further reconnaissance work should consist of geophysical surveys to define the balance of granitic contact more accurately, particularly in the northeast and northwest corners of the property and south of Fortit Creek, with emphasis to the northeast since it is closer to the eastern carbonate facies. Geochemical surveys should be extended to cover the south end of the South Salivo zone, the sides of Crisake Creek, upper Fortit Creek, lower Tuanipel and Chicken creeks and to the northwest up Janet Creek.

Detailed work should consist of geophysics to define possible drill targets along the Salivo zone, over the "K" zone of the Main pendant, and over the trend along Tuanipel Creek. Favourable targets, particularly the Salivo zone, should be drilled in 1981.

INTRODUCTION

The Ivo claim group was staked between May 1979 and September 1980 by CUB Joint Venture (Cassiar Asbestos Corporation Limited, Highland-Crow Resources Ltd. and Union Carbide Canada Limited). The only prior work in this area was the discovery of a small scheelite-bearing skarn by a Union Carbide prospector in 1971 and a brief examination by CUB JV in 1978 that resulted in the discovery of a second small showing.

The northern half of the property was staked in May, 1979 and the covered portions of the contact were explored with grid panning, soil sampling and prospecting later in the year. This led to discovery of two more showings and two areas of mineralized float. Detailed mapping of the Ivo Stock showed that it is much larger than originally thought, with over 30 km of contact. Of this, less than 8 km is exposed.

The 1980 program traced and evaluated as much of the granite contact as possible using reconnaissance ground magnetics and electromagnetic surveys. This work was contracted to W.A. Barclay Exploration Services Ltd. and a report by W.A. Barclay is included in this report as Appendix One. Geochemical and soil panning surveys were extended over untested parts of the contact, particularly to the south and east. Property mapping was confined to detailed prospecting around known showings since most of the outcrop on the property had already been mapped.

PROPERTY, LOCATION AND ACCESS

The property straddles the Yukon-NWT border at latitude 61°03'N and longitude 127°03'W as shown on the location map on Figure 1 (in pocket). It is some 140 km northeast of Watson Lake and 125 km southeast of the Cantung Mine. The nearest roads are the Nahanni Range (Cantung) Road 70 km to the west and a winter road from the Alaska Highway to the Mel lead-zinc property, 75 km to the south.

It consists of 212 contiguous Yukon claims and 5 contiguous NWT claims (equivalent in area to about 67 Yukon claims). The Yukon claims are recorded in the name of Archer, Cathro & Associates Limited at the Watson Lake Mining Records office and the NWT claims are recorded at the Yellowknife Mining Record office in the name of Union Carbide Canada Ltd. as follows:

Claim Name	No. of Claims or Units	Mining District	Tag Numbers	Expiry Date
Ivo 1-40	40	Watson Lake	YA36556-YA36595	22 May/84
41-80	40	"	YA45223-YA45262	22 May/83
81-128	40	"	YA45639-YA45686	22 May/85
129-173	45	"	YA55394-YA55438	24 Jun/81
174-189	16	"	YA55794-YA55809	4 Aug/81
190-212	23	"	YA56356-YA56378	19 Aug/81
1	16	Nahanni (NWT)	F02067	24 May/81
2	24	"	F02066	28 May/81
3	8	"	F02065	27 Aug/81
4	6	"	F02068	18 Aug/82
5	18	"	F02069	12 Sep/82
	284			

FIELD AND ANALYTICAL PROCEDURES

Baselines were chained, picketed and cut where necessary and cross lines were located by using compass and topofil without slope correction. Stations were marked every 100 m with 1 m lath pickets with flagging every 25 m.

Soil samples collected for panning surveys were slightly larger than a pan in size, weighed 2.5 to 3.0 kg, and were collected in large plastic bags. The samples were either carried to the nearest water or cached at helicopter pads and flown to camp for panning. Concentrates were collected in filter paper, dried and then examined under an ultraviolet lamp.

As a check on panning results, a portion of each panning sample was collected in a kraft envelope from each panning sample and shipped by air freight to Chemex Labs Ltd., North Vancouver, B.C. for routine geochemical analysis. These samples were pulverized like rock samples to ensure that coarse scheelite grains in the soil would be included in the assay.

All samples were analyzed for tungsten with a colorimetric determination after fusing with potassium bisulfate, leaching with concentrated HCl, extracting into an amyl acetate solution containing dithiotoluene, and reducing interfering elements with stannous fluoride in a hot water bath. The samples were also analyzed for copper and molybdenum, using a nitric-perchloric acid extraction and atomic absorption spectrometry.

The field procedures for the EM-16 and guard magnetic surveys as described by N. Rebolski, geophysical operator, are included in Appendix One.

GEOMORPHOLOGY

The Ivo property is located along the crest of a north-trending upland at the height of land between the headwaters of Rock River to the southeast, the Coal River to the west and the Flat River to the northeast. Maximum elevations reach 2000 m and local relief is about 700 m. Most of this district is mantled by thick vegetation cover below timberline, which occurs at about the 1600 m elevation. With the exception of steeper terrain along the southern half of the property, valleys are broad and U-shaped, Outcrop is generally scarce and thickness of overburden varies greatly. Above valley floors, overburden usually consists of a thin layer of locally derived talus or felsenmeer. Granitic glacial erratics are common even to 2000 m in elevation, and these can be easily confused with rounded cobbles derived from the weathering of granite in place. Along valley floors, overburden varies from a thin layer of locally derived boulders to relatively thick accumulations of glacial drift, as seen along Chunder and upper Rock River.

During the late Pleistocene, major valley glaciers occupied Coal River valley to the west and the smaller valleys near the Ivo property have been strongly affected by deglaciation processes. For example, severe disruption has obviously occurred in several of the easterly-draining valleys due to ice damming. Christos Lake now drains east through a bedrock canyon although it appears to have originally drained to the west through a wider, more mature valley. The southeast corner of the Ivo property is the site of a former, short-lived lake that apparently drained northward and was partially filled by up to 30 m of lake silt. Subsequent restoration of the stream flow in a southerly direction into the headwaters of Rock River has resulted in active erosion of the silt as mud flows.

GEOLOGY

The Coal River district consists of a belt of small, high-level plutons including the Ivo Stock which occurs along the axis of the Grizzly Anticline. This major structure roughly follows the Cambro-Ordovician continental facies boundary and strikes northerly, across the structural trend of the Logan Mountains. This geological setting has many important similarities to the eastern margin of the Selwyn Basin farther north, site of the largest tungsten deposits in North America.

The geology of the Ivo property is shown at a scale of 1:10,000 on Figure 1 (in pocket) and the various map units are described in the Table of Formations on the following page. The property was staked to cover the Ivo stock and its contacts with a sequence of quartzite, phyllite, dolomite and limestone at least 500 m thick exposed in the core of the Grizzly Anticline. Mapping along strike to the north has shown that these sedimentary rocks underlie the Sekwi Formation and belong mainly to

TABLE OF FORMATIONS

CRETACEOUS

Kqm		Quartz monzonite

UPPER CAMBRIAN to ORDOVICIAN

€Or	Rabbitkettle Fm	Wavey banded limestone

LOWER CAMBRIAN

l€s	Sekwi Fm	Limestone and dolomite; swiss cheese limestone

LOWER CAMBRIAN and OLDER (?)

l€brq	Backbone Ranges Fm	Quartzite, siliceous light grey hornfels, quartz-biotite schist, lesser green phyllite and siltstone
l€brl		Siliceous limestone, pebbly limestone
l€brd		Pink or cream coloured dolomite

LOWER CAMBRIAN (?) and OLDER

€H	Phyllite Unit	Green muscovite-chlorite phyllite, siltstone, banded argillite, dark grey phyllite, dark grey pyritic hornfels

IVO PROPERTY

the lower Cambrian Backbone Ranges Formation and, in part, to the lower Cambrian and older "Phyllite Unit".

The regional north-trending hinge line that passes through the property (and is roughly coincident with the trace of the Grizzly Anticline) is defined by an abrupt facies change from carbonate to clastic rocks as well as a general westward thinning of carbonate units and fining of clastic rocks. As a result, only four lithologic subdivisions are practical within rocks underlying the Sekwi Formation. These are phyllite (ЄH), quartzite (lЄbrq), dolomite (lЄbrd) and limestone (lЄbrl). Because of the uncertainty of stratigraphic correlations, the carbonate rocks are discussed first and the clastic rocks second, rather than the more usual order from oldest to youngest.

Massive pink and cream weathering dolomite (unit lЄbrd), exposed mainly in the southeastern and southwestern portions of the claim group, is the most distinctive rock type present and is apparently restricted to one stratigraphic horizon. From east to west, its thickness varies from about 250 m down to 75 m.

The dolomite is overlain by at least two horizons of distinctive buff to grey weathering, sandy to pebble limestone of unit lЄbrl. Quartz grains up to 1 cm across form the clastic component. Bedding is commonly prominent and in places forms westerly-directed crossbeds up to one metre or more in height.

One apparently continuous limestone horizon directly overlies the dolomite and at least one other occurs within quartzite about 50 m higher in the section. From east to west across the property, the lower limestone varies in thickness from about 30 m to less than 10 m and the upper, from about 3 m to 1 m. Along the northern and western sides of the property, sandy limestone up to 10 m thick forms lenses within both quartzite and phyllite. Neither the configuration nor stratigraphic position of these lenses is certain.

Dark, grey-green non-calcareous phyllite and siltstone interbedded with massive, cross-bedded, grey quartzite and quartz grit enclose the carbonate rocks. The clastic rocks have been subdivided into a quartzite unit (IЄbrq) and a phyllite unit (ЄH). The distinction between the two is sometimes arbitrary and depends on the predominance of one rock type or the other. All clastic rocks overlying the dolomite are included within the quartzite unit, although phyllite is locally a large component. In general, phyllite with minor sandstone and quartzite underlies the carbonate sequence but similar rocks also comprise the westward facies equivalents for the upper members. These rocks have been mapped regionally as the lower Cambrian (?) and Hadrynian "Phyllite Unit" by the GSC.

The Backbone Ranges Formation is conformably overlain along the eastern margin of the property by massive limestone and dolomite of the Sekwi Formation. The Sekwi Formation is over 1000 m thick regionally, but only the lowermost members are exposed on the property. These consist of a basal member less than 20 m thick of thin-bedded, brown and grey weathering, nodular "swiss cheese" limestone and overlying massive, structureless grey limestone at least 100 m thick.

A tentative correlation of the local geology to regional stratigraphy is shown on Figure 2 on the following page. The regional stratigraphy has been mainly determined from a relatively well exposed section located 8 km north of the property, just north of Christos Lake. From this section, it is apparent that as many as four limestone and two dolomite horizons may be exposed on the eastern side of the property. On the west side, however, the number and thickness of carbonate horizons is not known, although a tentative correlation is shown on the same figure.

The Ivo Stock is composed of medium-grained, equigranular to porphyritic granodiorite or quartz-monzonite, and is similar in composition to Cretaceous intrusions throughout eastern Selwyn Basin. The small size of the stock, domal

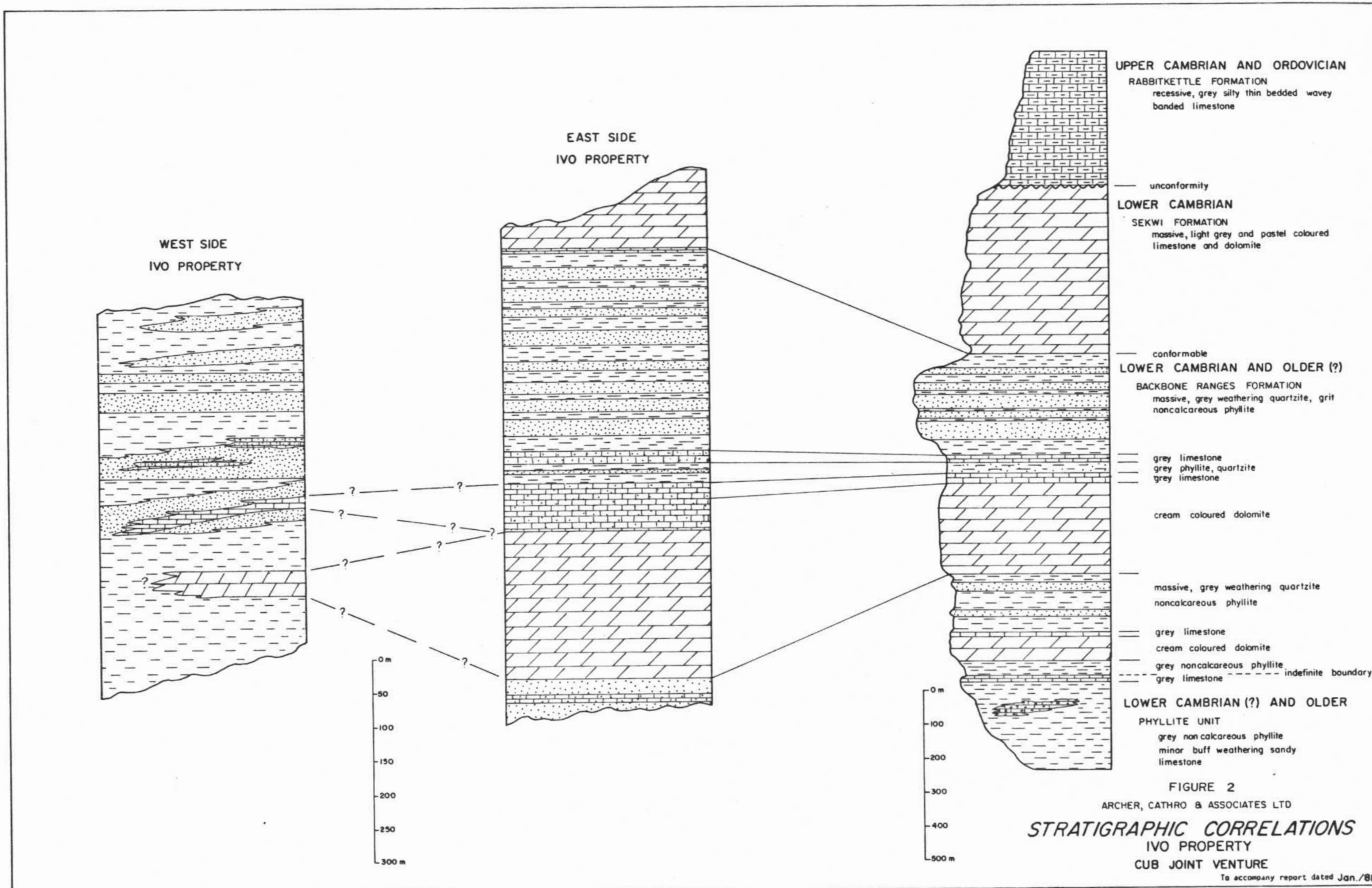

FIGURE 2

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STRATIGRAPHIC CORRELATIONS

IVO PROPERTY

CUB JOINT VENTURE

To accompany report dated Jan./81

configuration of host rocks along the relatively well exposed northern contact, gently-dipping contacts near the Main and Trevor showings and abundance of roof pendants indicate that the pluton has only been barely unroofed. Most of the granite contact is covered but it likely dips moderately to steeply away from the core of the stock in most places. There is no apparent difference in the various parts of the stock although the segment south of Ivo's knob has a magnetic background approximately 200 gammas higher than the northern part. A 10 kg sample of fresh biotite-rich granodiorite was taken from an outcrop on the Ivo grid at 175N67W for possible age dating by UCEX.

MINERALIZATION

Seven skarn showings have been discovered on the Ivo property to date, named the Ivo, 78, North, Trevor, Tuanipel, Main and Salivo Showings. Of these, the first three consist only of float. The 78 Showing is hosted by dolomite and all others by massive, pebbly or sandy limestone. With the exception of the Tuanipel and Salivo Showings, all are basically similar and consist of dark green and reddish brown garnet-diopside skarn with variable sulphide content.

The Ivo Showing is the original 1971 Union Carbide discovery near the centre of the stock. Mapping indicates that the mineralized float boulders, which are completely surrounded by granitic float, were very few in number and represent erosional remnants of a larger skarn zone that was probably situated mainly within limestone above the contact. Additional float was found in this area in 1980 near 154N45W but selected specimens graded only .40% WO_3. Several lines of a reconnaissance magnetic survey crossed this zone and showed no evidence of a hidden structure or pendant. This showing has no potential.

The 78 Showing consists of a few pieces of float grading up to 3.84% WO_3 found by CUB JV in 1978 in a talus slope at the contact between dolomite and granite. Mapping in 1979 indicates that the dolomite unit exposed at surface is probably underlain by at least one other dolomite horizon and two favourable limestone horizons. The presence of this erratic high grade mineralization within the upper dolomite could indicate the presence of better mineralized zones at depth. A reconnaissance magnetic survey over this area gave no indication of hidden mineralization or a granite contact; however an extensive soil panning and tungsten geochemical anomaly over this zone still remains unexplained.

The North Showing found in 1979 consists of a few weakly mineralized, angular boulders up to 1 m across situated in brushy, gently sloping and poorly drained terrain. Glacial till is apparently thin or absent but exposures are limited to scattered, frost-heaved, angular boulders. Granite boulders accompany the float, suggesting that the margin of the stock is nearby. Additional very low grade mineralization was discovered in 1980 along the contact to the west at 187N55W. Typical skarn is miarolitic, fine-grained and thinly laminated with garnet forming patches up to 1 cm across within a pyroxene matrix. This unusual texture is similar to that of pebbly limestone, the probable host rock. A representative specimen assayed 0.16% WO_3. Although exposure is poor, the contact in this area appears to be flat lying and could extend outside the surveyed area. Because of the large and unexplained panning and tungsten geochemical anomaly, this area warrants further reconnaissance and detail work.

The Tuanipel Showing was discovered in 1979 by soil panning and was exposed by hand trenching. Scheelite occurs with massive pyrrhotite, quartz and clay in a vertical, northwest-trending zone bounded by massive, grey limestone on one side and fine-grained, leucocratic intrusive rocks on the other. Unlike the other showings, the host rock is pale calc-silicate skarn and dark coloured garnet-diopside skarn is absent. A random chip sample from the mineralized zone, which is exposed for a length of about 5 m and varies between 0.2 m and 0.6 m in width, gave an assay of 1.04% WO_3. There was no further work on the Tuanipel Showing in 1980 other than a reconnaissance geophysical survey, which showed that the mineralization is associated with an isolated magnetic anomaly. No further work is recommended at this time.

The Trevor Showing was discovered at the end of the 1979 program. Scheelite occurs intermittently within both dark and pale garnet-diopside skarn within coarse talus above timberline. The showing has a strike length of about 100 m and mineralized skarn comprises about 5% of talus fragments. A weakly mineralized zone about 30 cm wide occurs within a small outcrop of phyllitic hornfels but does not appear to be the main source of float. Typical specimens of garnet-diopside skarn and massive sulphides assayed 0.46% and 1.65% WO_3 respectively. Prospecting in 1980 was unsuccessful in locating any extension of this zone and the lack of geochemical or panning anomalies downhill from the showing indicates that the extent of mineralization is probably limited. No further work is recommended at this time.

The Main Showing was found in 1979 near the crest of a gentle ridge just above timberline. Overburden comprises a mixture of erratic granitic boulders and solifluction lobes of locally derived felsenmeer and reaches a thickness of several metres near the showing. Outcrop is generally restricted to the ridge crest and to the slope located about 50 m north of the Main Showing. The detailed geology of the Main Showing is shown on Figure 3. Four hand trenches (nos. 1-4) were dug within the highest grade part of the skarn zone in 1979. Trench 4 was dug to find the source of particularly well mineralized, massive sulphide float but was abandoned at a depth of 1.5 m without reaching bedrock. Float from the trench consisted mainly of rusty, massive sulphide boulders with minor limestone and hornfels in a soil matrix. Trenches

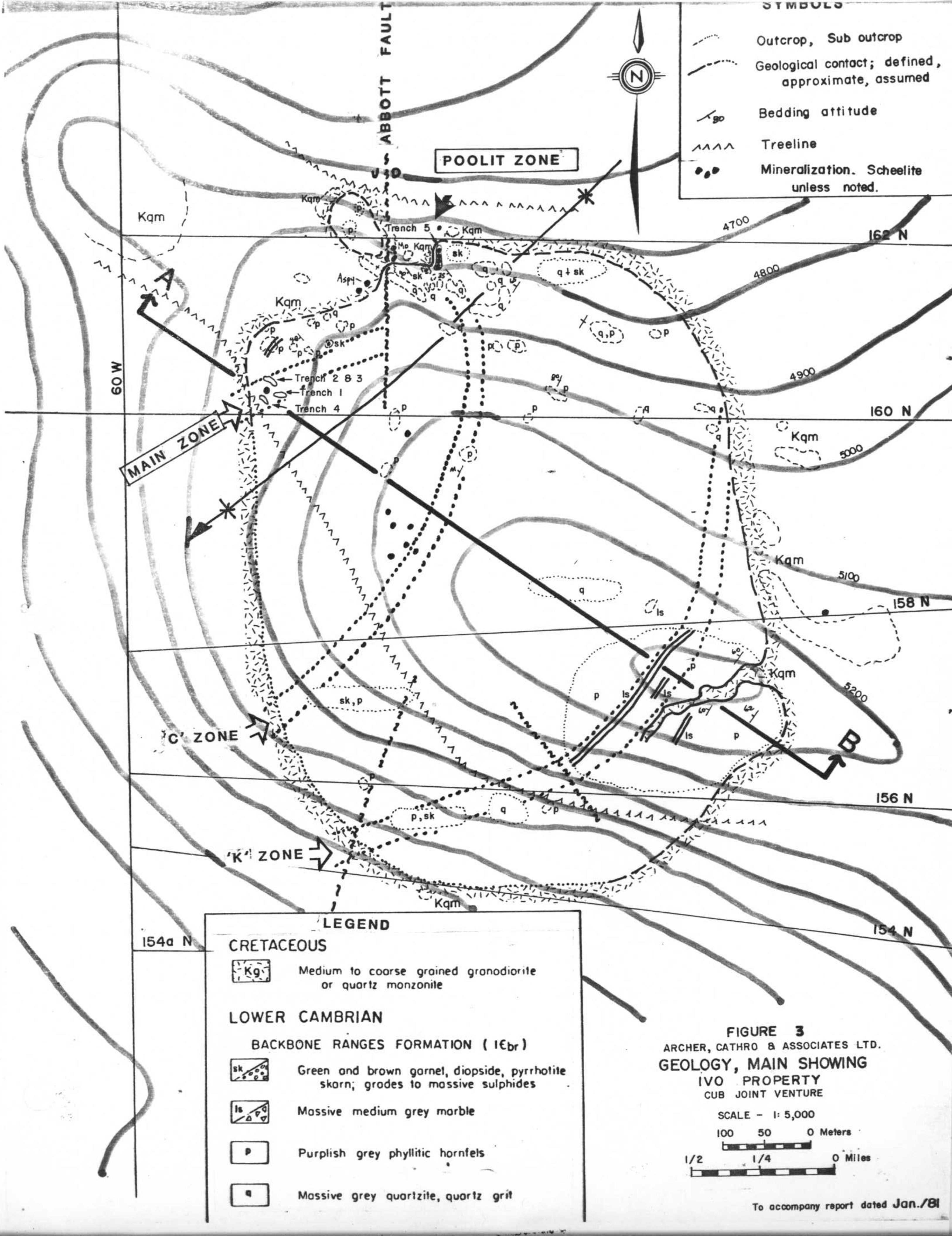


FIGURE 3
ARCHER, CATHRO & ASSOCIATES LTD.
GEOLOGY, MAIN SHOWING
IVO PROPERTY
CUB JOINT VENTURE

To accompany report dated Jan./81

1, 2 and 3 were dug across the widest and best exposed part of the zone. Outcrop was only reached in trench 3 but rubble in the other two is coarse, angular and close to its source. Skarn is exposed in two zones separated by a barren limestone interval of 4 m across a total width of 20 m. The full width of the zone was not exposed and the southwest side is open. Skarn in trenches 2 and 3 consists of massive, dark green and brown garnet and diopside with minor sulphides, whereas that in trench 1 is sulphide-rich and grades to massive sulphides. The following assays were obtained from random chip samples from each trench:

Trench 1 - 0.50% WO_3/9m

2 - 0.26% WO_3/4m

3 - 0.24% WO_3/5m

4 - 0.47% WO_3/10m

Selected massive sulphide specimens from trenches 1 and 4 assayed 0.66 and 2.51% WO_3 respectively. All samples gave low values in Cu, Mo, Ag and Au. Both tungsten grade and sulphide content increase to the southwest, along the trend of the zone, which is towards the intrusive contact.

The Main zone occurs on the perimeter of the "Main Pendant", a remnant of country rock about 600 by 700 m in extent within the Ivo Stock. The pendant is comprised of quartzite, phyllite and minor limestones that probably belong to the upper part of the Backbone Ranges Formation. The quartzite and phyllites appear to be interbedded. The limestones occur as discontinuous lenses several meters thick that are probably conformable within the phyllites and quartzites. On the crest of the ridge, the limestones are present as coarse crystalline marble whereas they have been altered to pale green calc-silicates and, less commonly, to dark green sulphide-rich garnet-diopside skarn topographically lower on the hill. The Main zone occurs in one of these small skarn lenses.

Knowledge of the structure of the pendant is important for evaluation of this target. Bedding strikes about NNE and dips 60° northwesterly in the south and east part of the pendant. At the northwest corner near the Main Showing, the attitudes swing to the NW, dipping about 40° southwesterly. If these attitudes are representative of most of the beds, they indicate a synclinal axis striking and plunging southwesterly that passes just to the southeast of the Main Showing (see Figure 3 on previous page).

The Abbott Fault, a prominent N/S structure that cuts this fold, is interpreted from the magnetic data and from surface mapping. This fault terminates or offsets the Main zone skarn limiting it to a maximum length of some 200 m. Depth to the granite contact is no more than 50 m. The Abbott Fault seems to be accompanied by conjugate or parallel faults to the east, which are indicated by strongly altered (granitic?) material. This general area of faulting and mineralization is called the "Poolit" zone. Some vein material is strongly mineralized with scheelite, with assays from selected specimens of up to 2.12% WO_3 and up to .195% Mo. It is unlikely that this vein system is large enough to warrant further investigation by drilling but the gold potential requires more testing.

The magnetic data (see Figure 4 on following page) agrees with this geological model and indicates that the size and configuration of the Main Showing is limited. However, a magnetic anomaly (the "K" zone) crosses the southeastern part of the pendant with a northeasterly strike. Section A-B through the ridge (see Figure 5 below) suggests that the limestones, which occur as marbles where they outcrop at the crest of the hill, may have altered to mineralized skarn at a depth of some 50 to 100 m, near the contact. This skarn zone is at least 600 m long based on the magnetic data and could be longer since both ends are badly obscured by talus and vegetation. The magnetic survey suggests that it is offset by weak crossfaults.

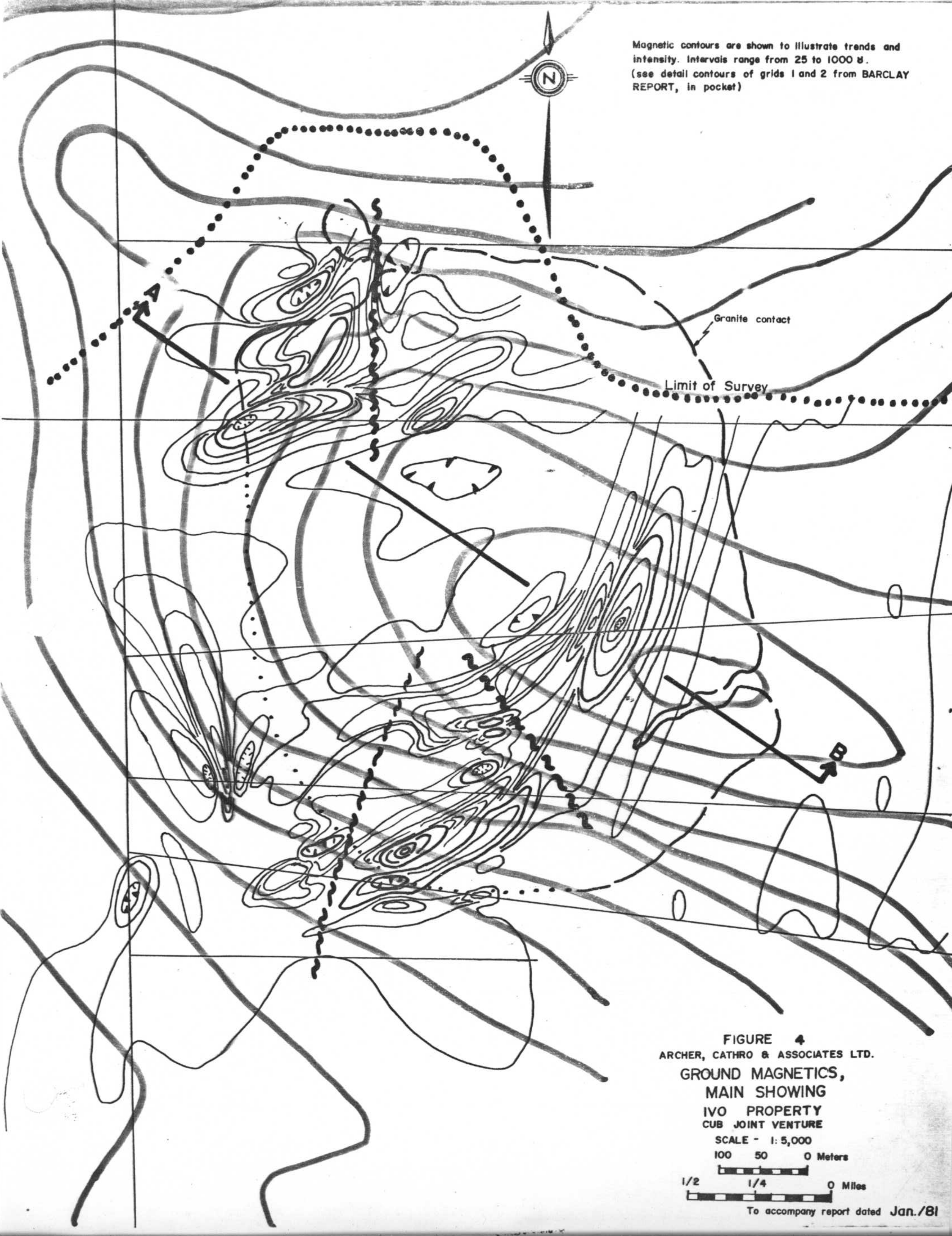


FIGURE 4
ARCHER, CATHRO & ASSOCIATES LTD.
GROUND MAGNETICS, MAIN SHOWING
IVO PROPERTY
CUB JOINT VENTURE

To accompany report dated Jan./81

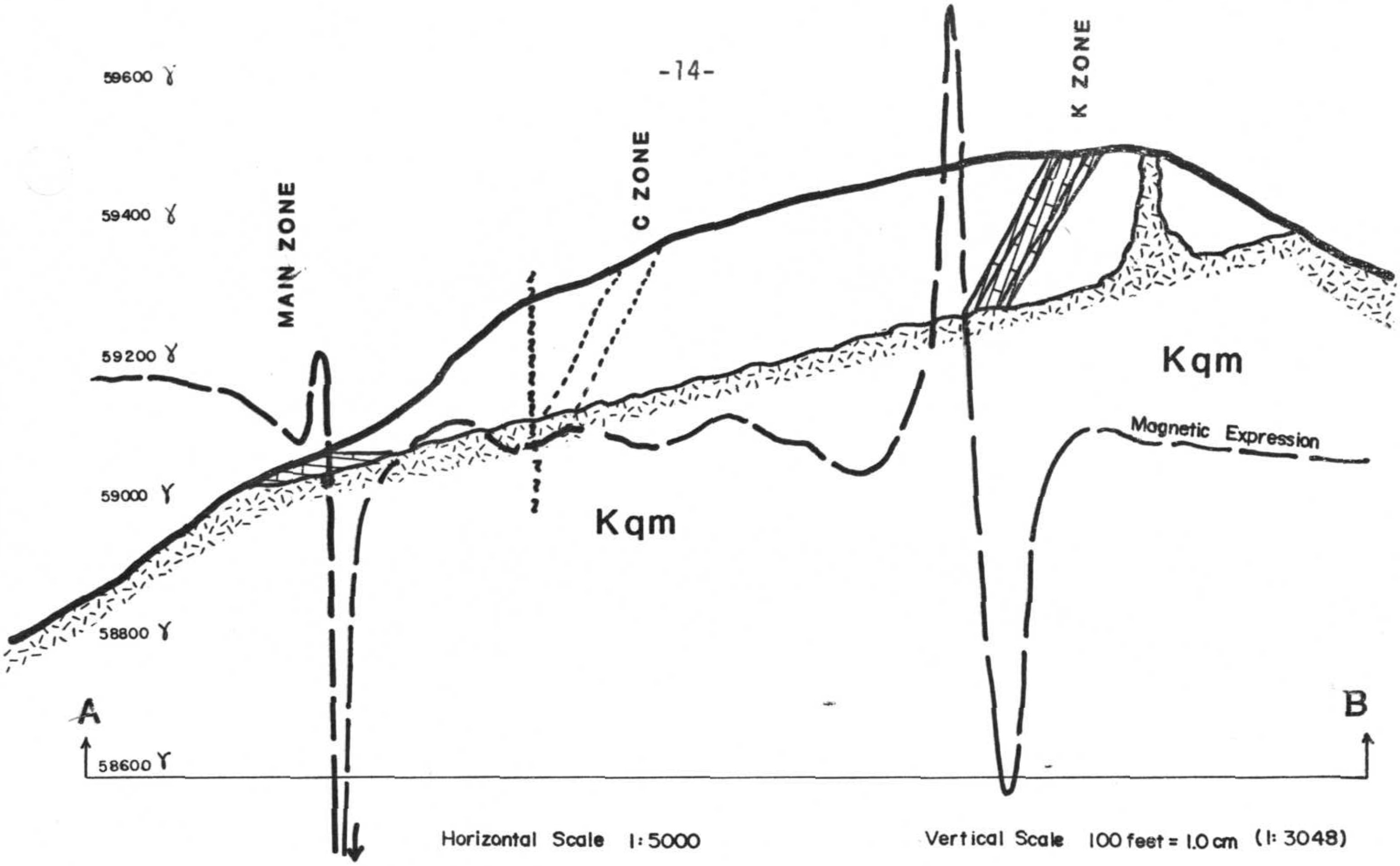


Figure 5 - Section through A-B

Geochemical and geophysical surveys have not been performed over the northeast extension since this area was previously considered to have low potential. The magnetic expression of the anomaly loses intensity to the southwest but both tungsten panning and tungsten and molybdenum geochemistry exhibit well defined anomalies, including values of up to 1700 grains scheelite. These values are only exceeded on the Ivo property in panning concentrates from directly below the Main and Tuanipel Showings. Figure 6 on the following page shows the extent of scheelite and Mo anomalies adjacent to the Main Showing, and possibly associated with the K zone. Reference to the larger base maps (Figure 8 and 10, in pocket)

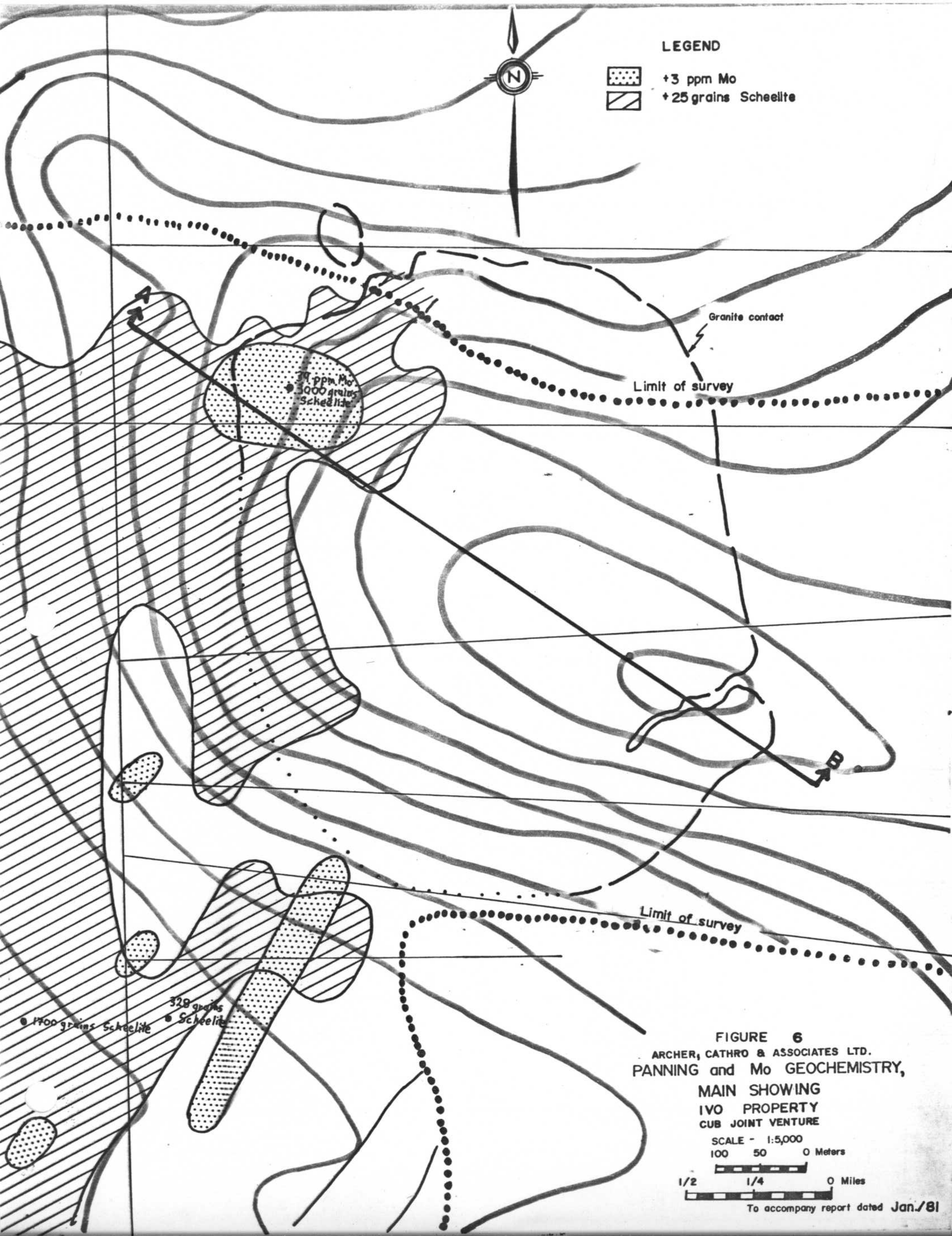


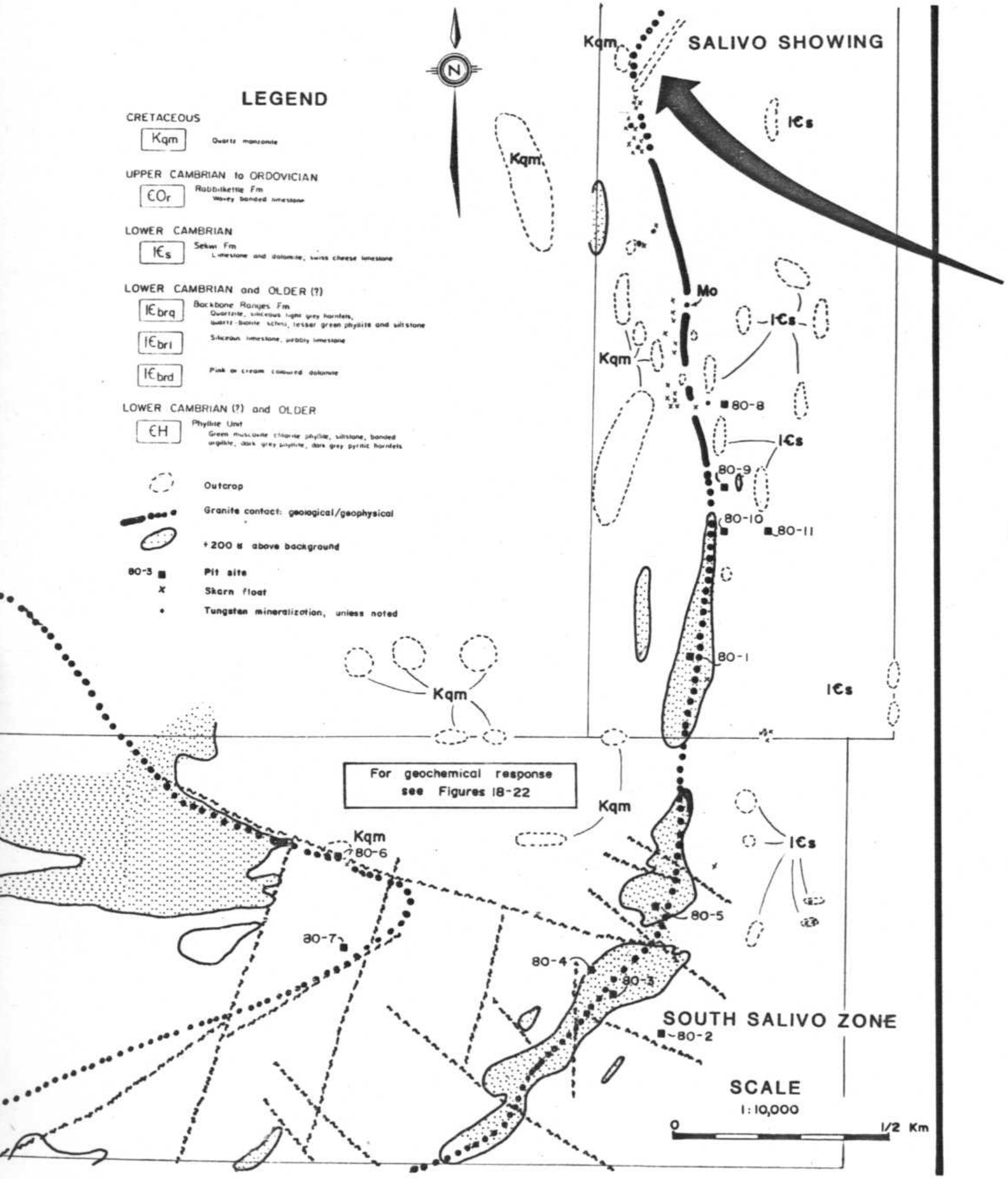
FIGURE 6
ARCHER, CATHRO & ASSOCIATES LTD.
PANNING and Mo GEOCHEMISTRY, MAIN SHOWING
IVO PROPERTY
CUB JOINT VENTURE

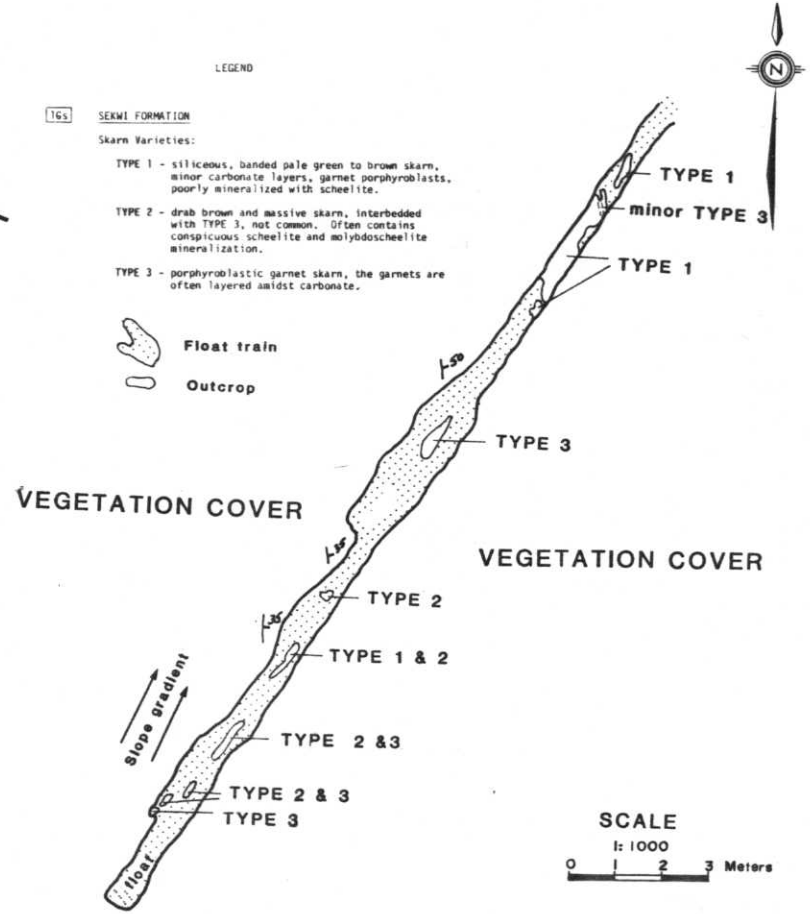
To accompany report dated Jan./81

shows the extent of these surveys to the south and west. An area of minor mineralization and skarn referred to as "C" Zone was found in the central part of the Main pendant, about halfway between the Main zone and the K zone. The postulated surface trace of this zone would coincide with the magnetic anomaly on the granite contact at 156N59W.

The magnetic survey has given higher priority to the K zone and possibly to the "C" zone. More detailed geochemical and geophysical surveys and prospecting are needed to substantiate this interpretation and to determine if a drill target is present.

The Salivo Showing was the only new discovery on the Ivo property in 1980. The Salivo Showing itself is an exposure of mineralized outcrop and float occurring at the northern (weakest) end of an intense magnetic anomaly that follows the contact at the southeast corner of the stock. Figure 7 shows the location of the Salivo Showing with respect to the South Salivo magnetic anomaly, as defined by the 59400 contour (about 200 above local background) as well as the interpreted position of the intrusive contact. Outcrop distribution shows the lack of exposure near the contact, especially toward the south where relief is more subdued and glacial overburden and granitic scree is thicker. The Salivo mineralization occurs in a mudslide (shown in detail as an inset on Figure 7), which exposes about 10 m true thickness of skarn. At the top of the mudslide, which is the base of the section nearer the contact, drab, brown, massive skarn containing scheelite and molybdo-scheelite is interbedded with a more common dark grey porphyroblastic garnet skarn. Farther down the washout (up section), a siliceous banded pale green and pink garnet diopside skarn is present. The best mineralization occurs in the brown skarn float, with specimens grading up to 3.0% WO_3 and 200 ppm Mo. The few rare outcrops in this area are only poorly mineralized (.04% WO_3) and the source of the mineralization is not exposed. Assays of average specimens of mineralized float from the upper





SALIVO SHOWING

FIGURE 7

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GEOLOGY AND MAGNETIC ANOMALIES

SALIVO ZONE

To accompany report dated Jan./81

part of the washout graded 1.43% WO_3 and 50 ppm Mo, while a collection of mineralized specimens of pale green skarn from the lower part of the washout assayed .20% WO_3 and 10 ppm Mo. The Salivo mineralization contains only trace amounts of chalcopyrite, and occasional minor fine-grained molybdenite. No other sulphide minerals were seen. Although the contact is not exposed, granitic float is common and the contact is likely close to the top of the washout. Coarse scheelite was also seen on fracture faces within granitic float.

There is no evidence of skarn north of the Salivo Showing because of vegetation cover. To the south, traces of skarn float with weak scheelite mineralization were found for a length of over 800 m and specimens of skarn with coarse molybdenite were found at about 122N 10W. Outcrop is absent in the anomalous area south of 118N, and the overburden consists predominantly of overgrown granite talus trains that obscure local float. Eleven pits approximately 1 m deep were dug along the contact or over magnetic anomalies but none were successful in penetrating the cover of granite cobbles. Pit 80-3 (see Figure 7) contained a small amount of weakly mineralized (.03% WO_3), altered intrusive rock and pit 80-2 contained a small amount of massive magnetite, but none of the other pits encountered mineralization or skarn.

The South Salivo magnetic anomaly is a strong and continuous feature that extends for a length of over 3 km. The zone has been defined by a reconnaissance magnetic survey with readings at 25 m intervals on lines 200 m apart. The core of the anomaly was resurveyed at 100 m line spacing on lines oriented at 315°. The position and trend of the anomaly is best defined by the 59400γ contour and includes peaks of over 62000γ, as shown by the contoured map of grids 3, 4 and 11 (in pocket).

This anomaly is probably caused by pyrrhotite and/or magnetite, which are commonly associated with scheelite-bearing skarns. The coincidence of a weak EM anomaly along the axis of the magnetic anomaly indicates that the sulphides are developed along the margin of the stock. The downhill spread of scheelite-bearing soil from this zone (see Figure 8, in pocket) indicates that at least part of this zone is mineralized with tungsten. The soil panning anomaly reaches 1000 grains per pan, which is the highest panning value on the Ivo property apart from samples taken from below the Main pendant and the Tuanipel Showing. Coincident tungsten and molybdenum geochemical soil anomalies are also present (see Figures 9 and 10, in pocket). The molybdenum anomaly is surprising since molybdenum response is very low elsewhere on the property, even over the Salivo Showing itself where powellite (or molybdoscheelite) mineralization is present.

The length and strength of this magnetic anomaly together with coincident EM and geochemical anomalies give this South Salivo zone highest priority. A detailed magnetic survey is needed to interpret structure, especially the dip of the zone and the offset along cross faults. Since skarn deposits often vary erratically along strike and the size of an orebody can be relatively small (say 400 m long), sufficient drilling is required to test the entire length of this anomalous zone at close spacing.

PANNING AND GEOCHEMISTRY

Grid soil sampling is now complete over some 80% of the interpreted granite contact. About 530 samples were collected in 1980, mostly at a spacing of 100 by 200 m and locally on a 100 by 50 m grid on the South Salivo zone.

Figure 8 (Panning) and Figure 9, 10 and 11 (W, Mo and Cu Geochemistry), all in pocket, are compilations of all the sampling on the Ivo property to date, including the pre-1977 UCEX work as well as the initial CUB JV examinations in 1978 and the detailed CUB JV work along the north margin of the Ivo Stock in 1979. In 1980, ground surveys covered grids 5, 3, 4, 7 and 8, as defined in Appendix One. and included a small amount of fill-in work around the Main and North Showings. In addition, samples from 1979 grid surveys were reanalyzed for Mo.

The panning and tungsten geochemical surveys are now extensive enough to show that there is no effective difference in results on the Ivo property, and that the slower and less productive panning survey can be eliminated or reserved for detail in anomalous areas. Threshold is about 50 grains scheelite and 25 ppm W respectively and both surveys outline the known showings.

The anomalies in Tuanipel Creek and at the northeast corner of the property are not explained by known mineralization and more prospecting, reconnaissance geophysics (to the east and north of existing surveys) and perhaps further soil geochemistry will be needed to better evaluate these areas. The anomalies west and south of the Main zone may be related to undetected mineralization and need for further work there has already been discussed. The anomalies around the Trevor Showing would seem to indicate that mineralization is limited in extent.

Only a few weak anomalies presently remain unexplained. On Grid 4, values up to 90 grains of scheelite at 100N22W could indicate a skarn zone if the granite contact swings irregularly to the north up Crisake Creek. An anomaly on Grid 3 farther west at 106-112N to 30-40W may be related to the same swing of the granite contact. An isolated anomaly with values up to 70 grains scheelite in upper Fortit Creek (grid 12 on the extreme west extent of sampling) may be related to the position of the western contact of the Ivo Stock which geophysical interpretation shows to be very flat lying and extending farther west than previously expected.

Copper values form irregular anomalies of generally low interest, although there are local highs near the Trevor, Main and Tuanipel Showings. Most of the copper anomalies lie along the western margin of the property and may be related to phyllites. There does not seem to be any direct relationship of copper geochemistry to tungsten mineralization.

GEOPHYSICS

The report by W.A. Barclay Exploration Services Ltd. is included with this report as Appendix One. It includes all data in profile and contour form and needs no further comment except to point out the following.

1. Main Showing (p. 9) The report agrees with the interpretation in this report especially of the Main Showing itself. Barclay suggested that the anomalies over the "K" zone are caused by a source close to surface, in which case the granite contact may be closer to surface than suggested by this geological interpretation.
2. Grid 12 and 13 (p. 11) Skarn may be present along upper Fortit Creek and along the central east side of grid 12.
3. Grid 3, 4, 11, 7, 8, A (p. 13) The intrusive contact could extend north of grids 3 and 4 up Crisake Creek. The South Salivo anomaly indicates a possible skarn source with possible widths of 20 to 40 m dipping 45 degrees or less to the southeast, crossfaulted at least four times. There is a coincident EM anomaly also indicating a shallow dip (p. 14).
4. Grids 6 and 9 (p. 16) A geophysical trend up Tuanipel Creek, which has a similar character to the Salivo Showing, extends off the surveyed grids to the northeast down Tuanipel Creek. This trend could indicate an intrusive/skarn contact, dipping at a shallow angle to the east. The Tuanipel Showing is an isolated anomaly within a roof pendant.

5. <u>Grid 10</u> (p. 18) The granite contact swings north of the east end of grid 10 in an irregular fashion. The Tuanipel Showing lies within a roof pendant that extends only as far north as Chicken Creek, as stated above.

The Barclay report also contains a number of recommendations for further work.

CONCLUSIONS

The 1980 program has outlined a new and attractive target, the Salivo zone, which extends along the margin of the stock from a weak mineral occurrence associated with weak magnetic response for a length of some 4 km southward through the intense South Salivo magnetic anomaly. Coincident electromagnetic conductors, tungsten panning and W and Mo geochemical soil anomalies make this zone particularly attractive. The continuation of the granite contact from the South Salivo zone to the west (and north?) may be irregular and complex and also have potential for mineralization.

Geophysical surveys have confirmed the position of the granitic contact for up to 60% of its unexposed length. Figure 12, in pocket, is a compilation of geophysical interpretation with the highlights of the geochemical and panning surveys and mapped positions of the granitic contact. From this evaluation, it appears that there is a good potential for buried mineralization to the north and east of the existing grids (on Tuanipel and Chicken Creeks) with better potential to the east toward the more carbonate facies of the intruded sediments. Similarly, there is good potential for buried skarn mineralization to the south and west of the Main pendant. There is also a possibility of mineralized skarn on upper Fortit Creek and Janet Creek.

The Ivo property has excellent potential for tungsten mineralization because its geological setting is similar to major tungsten deposits such as Cantung and Mactung that occur along the eastern margin of Selwyn Basin to the north. The tungsten-bearing Ivo Stock is intruding lower Cambrian sediments at the facies change from a carbonate platform on the east to a shale basin on the west. Erosion has only begun to unroof the upper portions of the intrusive, suggesting a high probability that flat-lying contact configurations exist that would be particularly favourable. The Salivo Zone in particular has the characteristics of such a tungsten deposit.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES LIMITED

R.J. Cathro, B.Sc., P.Eng.

C.A. Main, B.Sc.

APPENDIX ONE

W.A. BARCLAY
EXPLORATION
SERVICES LTD.

415 - 2070 CAMILLA ROAD, MISSISSAUGA, ONTARIO. L5A 2J7 TEL. (416) 277-1143

Geophysical Report

CUB JOINT VENTURE

IVO and SPORK Claim groups

NTS 95 E 3 & 95 D 14

For

ARCHER, CATHRO & ASSOCIATES LTD.

October 1980

<u>List of Contents</u>

List of Figures

Those maps at a scale of 1:2500 have been Xerox reduced X .65.

All maps are bound separately.

OPERATIONS

N. Rebalski

Introduction

A geophysical survey of two CUB Joint Venture properties - the IVO and the SPORK claim groups - in the Upper Coal River area of the Yukon Territory was initiated on July 3, 1980 and continued until August 27, 1980. Both magnetic and electromagnetic methods were utilized.

The crew consisted of the writer and several assistants from the Archer, Cathro exploration group (usually B. Barrie and R. Johnston). Work was undertaken from four separate camps. A total of 164.5 km magnetics, and 161.1 km of VLF-EM, were completed during the survey.

Preliminary interpretation of the data was attempted in the field by the writer and S. Main (crew chief) to establish a correlation between the geophysical and geological surveys. Also, the geophysical results were reviewed once early in the season by W. Barclay, who was also present at the initiation of the work.

Instrumentation

The magnetometer used was the portable Geometrics G816/826A nuclear precession magnetometer in conjunction with the G826 base station recording unit. Several mechanical problems were dealt with in the course of the survey. We initially used a Hewlett-Packard HP7155B chart recorder to record the base station signal, but it soon developed an erratic chart drive and was replaced by a new Rustrak recorder that worked well for the remainder of the survey (August 6-27).

We encountered the usual difficulties with worn sensor cables, more so than usual because of the constant presence of topofil which tended to slice through the cable shielding. At one point, we were forced to use the backpack sensor arrangement until replacement cables for the staff-mounted sensor set-up arrived in camp.

The signal from the portable magnetometer became erratic towards the end of the program. The fault appeared to originate in a loosely mounted circuit board whose fittings had cracked; but it worked properly in a movement-free situation and was switched with the G826 base station magnetometer unit.

The VLF-EM survey was conducted with two Geonics EM-16 units. Station NLK (Seattle, Washington; 18.6 kHz.) was used as a transmit signal for east-west traverses (Rx. facing east) while two stations, NAA (Cutler, Maine; 17.8 kHz.) and NSS (Annapolis, Maryland; 21.4 kHz.) were used for north-south lines (Rx. facing north). The NLK signal was the strongest of the three, providing a null width of 1% for both in-phase and quadrature readings. The strength of NAA and NSS varied but was always weak and generally provided a null width of 6% in the in-phase and 10% for the quadrature.

Field Procedure

The SPORK claim group, situated in a swampy valley with little visible geology, was surveyed from a 1.8 km baseline bearing 335 degrees, with traverses 200 m apart extending 400 m either side of the baseline. It was located to investigate the possible presence of a granite-limestone contact in the valley, as suggested by outcrop exposures on the valley's flanks. Sampling interval was 25 m with detailing at 12.5 m stations where appropriate.

The IVO claim group is much larger and entailed 13 separate grids, several grid extentions, and a few areas of detailed investigations. Some traverses over an exposed zone of scheelite skarn mineralization initially served to establish a geophysical co..relation with this kind of setting.

In general, the IVO survey was conducted on traverses 200 m apart at a 25 m sampling interval, with detailing of locally anomalous features at 12.5 metres. Orientation of the grids was either north-south or east-west to cover the presumed lithological contact. Detail traverses 100 m apart were completed on the Main Showing (Grid 1), on Grid 4, and on Grid A (within Grid 4), whose traverses were oriented at 135 degrees to cover an evolving geophysical and geochemical anomaly.

Because geophysical crews were deployed from four separate camps, it became necessary to re-establish a value for base station magnetic corrections at each camp. This was accomplished by re-reading a section of traverse from each new location and then determining a correction value that would best adjust the data to agree with previously recorded values. Base station values at each camp were as follows:

Crisco Lake	59,200 gammas
Chicken Creek	59,120 gammas
Salivo Creek	59,050 gammas
Chunder Creek	59,085 gammas

Note that when the backpack sensor was used from July 21-23, it was necessary to add 12 gammas to all magnetic values obtained in the field.

The survey was organized so that two operators, using the EM-16 and flagging in traverses simultaneously, preceded the magnetometer operator. Most of the baselines had been cut and chained previously. Cross traverses were flagged every 25 metres on a compass bearing. Picket to picket distances were generally measured along slope. Accurate location maps for each grid have been prepared to show the true location of traverses with respect to grid baselines.

The VLF-EM and magnetic data were plotted in profile form on idealized grid base maps at a horizontal scale of 1:2500. Where warranted, some of the magnetic data has also been presented in contoured form.

September 10, 1980 N. Rebalski

REVIEW OF DATA

W. Barclay

Introduction

Comprehensive magnetometer and VLF-EM surveys undertaken this season on the CUB Joint Venture's IVO and SPORK claim groups have described a number of anomalous features pertinent to a search for tungsten skarn mineralization. As a further benefit, the field results often have confirmed, or added to, existing knowledge of the intrusive-sedimentary contact setting under scrutiny.

The operational details are described fully in the preceding pages by the technician responsible for data acquisition. Following are a few general comments on the applicability of geophysics to this particular program, a review of the most intriguing results, and recommendations for subsequent efforts.

Data Presentation

No attempt has been made to formally draft the survey data at the time of this writing. The map sheets which accompany this report are Xerox reductions (x .65) of the original field plot sheets, in many instances spliced for handling convenience. Only profiled forms of the magnetic and em. data normally are present.

Contoured magnetics are included from two areas of emerging importance on the IVO property: the Main Showing and the southeast flank. Occasionally it has been necessary to re-plot data profiles to combine results elsewhere.

An overlay indicating the main features interpreted in the data review - at a scale of 1:10,000 - is enclosed with this report, primarily for orientation purposes.

These and additional features are indicated with greater accuracy on individual grid map sheets.

Accurate traverse location maps, prepared by N. Rebalski, are available with the original data.

General Comments

The relevance of geophysics, as it has been applied here, is accepted mainly on the premise that detectable pyrrhotite and/or magnetite often may occur in association with scheelite-bearing skarns situated within an intrusive-limestone-phyllite environment. Its usefulness extends to the normal capability of magnetics to distinguish abutting rock units of contrasting ferro-magnesian composition, and to VLF-EM's ability to define weak conductivities such as may occur at lithological contacts and along fault or fracture zones. The approach is an indirect one.

An idealized source model would be expected to yield a fairly localized magnetic anomaly of modest to strong intensity, sometimes - though not always - accompanied by electromagnetic corelation. Sulphide concentrations may range from disseminated to massive, and may often be discontinous and pod-like.

Not all possibilities for mineralization are encompassed by this simplified scenario. Scheelite can occur within calc-silicate skarns devoid of sulphides. In this situation, geophysically derived contact definitions may yet guide the exploration search; and it is important to recognize that an absence of local magnetic anomalies near a contact setting does not preclude ore potential.

VLF-EM response is subject to occasional topographic distortion, often misleadingly anomalous. Moreover, its heightened sensitivity (through the use of higher frequencies than are available in conventional em. systems) often facilitates the introduction of superfluous anomalies unrelated to mineralized settings.

Two recognized physical phenomena yield VLF-EM anomalies: inductive coupling and current channelling.

Where inductive coupling occurs, the primary signal induces a secondary electromagnetic field in a local conductor, producing a localized aberation in the primary field. This is then measured at the receiver using appropriate nulling procedures. Significant anomalies occur only when the conductivity-thickness product of a source exceeds about 1 mho.

In the case of current channelling, local structures of lower resistivity than surrounding rock (such as unmineralized shear zones and fracture systems) channel the propogation of the primary transmitted field. Anomalies are generated whose amplitudes can be pronounced and can vary significantly according to the orientation of such a structure relative to the transmitter location.

A healthy caution consequently must guide any review of VLF-EM data. Thus magnetics serves as the main tool in the present search.

This survey was undertaken along traverses normally spaced 200 metres apart (and sometimes 400 metres): a coarse, reconnaissance scale necessary if most of the intrusive stock's contact was to be covered this season. That a mineralized zone could be missed at such a scale is patently obvious, given the discontinuous and often unpredictable nature of skarn development. Detailed surveying at a closer line spacing was applied only where initially encountered anomalies seemed important by virtue of their stratigraphic setting or of associated geochemical anomalies.

Discussion of Results

IVO CLAIM GROUP

Grids 1 & 2:

Grid 1 encompasses the Main Showing and the Trevor Showing.

The Main Showing comprises a well-mapped sulphide skarn at an intrusive-phyllite contact overlain by a limestone 'cap'. As such, it provided a logical setting for initial tests of magnetic and em. response.

The first instrument pass on line 160N yielded a magnetic anomaly centred at 58+50W of about 1500 gammas intensity, largely negative. Data indicate that the source lies near surface, and dips to the east at a modest inclination. Its amplitude intimates the presence of magnetite, but pyrrhotite may also be a component. Some considerable width to the zone is suggested, although its oblique strike with respect to the traverse would enlarge the apparent width indicated by the profile.

A weak response 100 metres to the southwest likely reflects a less magnetic extention (after possible faulting) of this anomaly. To the northeast, the zone is traced as far as the 900 gamma anomaly at line 161N/57+62W. The weak magnetic effects which are observed at about 57+00W on line 161+50N describe a further continuation of the favourable horizon, if not of the strongly magnetic component itself. (High grade scheelite reportedly occurs here). Clearly the system does not appear at line 162N.

A weakly indicated conductor axis corelates with the strong magnetics. A flanking axis 25 metres west may pertain to the intrusive contact, or to a local structural event.

When viewed from a larger perspective, this anomalous zone of magnetics is seen to be part of an irregular series of localized anomalies which roughly encircle the sedimentary cap. These features occur at or near either the intrusive contact or the higher, interpreted phyllite-limestone contact on the east side of the dome.

Two particularly evident anomalies within this context occur at line 57W/155+30N (7500 gammas, dip north) and at line 158N/54+50W (1300 gammas, dip west). Both originate from near surface material likely including magnetite. They are not necessarily more important to skarn possibilities than more modest anomalies (likely reflecting pyrrhotite) such as at line 158N/59+25W and at line 156N/58+87W.

The Main Showing is surrounded by expanses of flat magnetic relief (approximately 59,100 gammas background level) which evidently characterizes - and assists in defining the limits of - the intrusive stock. The setting is obviously limited in area, and some of the local magnetic anomalies could derive from ferruginous components of the phyllite unit rather than from sulphide skarn. Some potential is nevertheless perceived here.

Near the Trevor Showing, several anomalies of 100-500 gammas intensity are detected in a random arrangement between lines 138N and 144N, from 51W to 56W. The setting may resemble that at the Main Showing; skarn float reportedly was encountered frequently by the geophysics crew. The 200 metre traverse interval employed here is too wide to permit reliable extrapolations of data between individual features or along the intrusive contact. The same can be said of features at line 144N/ 63W and at about 68W on lines 140N and 142N. A somewhat tentative indication of the intrusive contact is offered on the compilation map.

Grid 5

Apart from two brief incursions to line 138N of the anomaly systems described in the preceding paragraph, nothing of local interest occurs in the magnetic data from this grid. The uniformly flat background must reflect uninterupted intrusive and/or dolomite. If both are present, there appears to be no means of differentiating one from the other magnetically here. Disconcertingly, data recovered from two westward extentions to the grid (lines 130N and 126N) eschewed contact indications even when over reported phyllites.

Such a lack of anticipated response is puzzling, and makes any projection of the stock's extent in this region uncertain. Based on the data alone, one wants to conclude that Grid 5 is comprised almost exclusively of intrusive. If this perception reflects geological realities as they are presently understood, then there is reason to suspect that the stock may extend west and south beyond the surveyed area.

Two noted VLF-EM axes striking north-south exhibit weak conductivities. They probably delineate structures conducive to current channelling rather than sulphide horizons. At present, they appear to have little bearing on the search for skarn.

Grids 12 & 13

Grids 12 and 13 cover the northwest section of the stock such that Grid 13 adjoins the western side of Grid 2.

The uneventful magnetic relief which has been noted over interpreted intrusive on much of Grids 1 & 2 here is seen continuing to the west on Grid 13. Each traverse has provided a local magnetic expression of modest intensity (100-450 gammas) which likely originates in a pyrrhotitic source. It seems reasonable, given the reported phyllite exposures to the west, that the magnetics are situated at or near a contact setting. Its course can be extrapolated coarsely (because of the 400 metre traverse interval here) from line 140N/75+25W to line 156N/77+75W. That skarn may be present along this presumed contact is a real possibility that invites further scrutiny.

By line 160N on Grid 12, the environment has become much more complex. Highly variable magnetic relief is observed in an area of frequently reported phyllite outcrop. Individual peaks assuredly originate from sources at surface.

Somewhere between 156N and 160N - and likely closer to the latter - the contact evident on Grid 13 veers drastically to the east. Thence it is delineated northwards along the east side of Grid 12, generally at about 72+50W, atleast as far as line 176N.

Locally intense magnetics accompany this contact between lines 160N and 166N, unlike the character of the modest anomalies observed in the same setting on Grid 13. The response exhibits considerable widths, is largely negative in amplitude, and attains a maximum intensity of 1500 gammas at line 164N/73+60W. The source is clearly heterogeneous; on line 166N both near-surface and buried origins are indicated. Though less intense to the north, this broad horizon continues to flank the contact as far as line 174N.

The em. data confirm that a broad sequence of zoned conductive material corelates with the magnetic events consistently along strike. A significant quadrature response, generated on most traverses, intimates that inductive coupling phenomena prevail - probably from sulphides. The width of the system reaches as much as 150 metres.

The anomalous horizon could be explained by parallel concentrations of magnetic sulphides within a phyllite sequence flanking the contact. The possibility that the response originates within skarn development seems, on balance, less likely although not entirely precluded.

The series of parallel magnetic anomalies which extends along the west side of the grid between lines 164N and 172N define related near-surface features separated by 150 to 175 metres. Direct VLF-EM corelation is consistent along both axes, with good conductivities suggested at line 164N/79+25W and line 166N/79+30W. A distinct, shallowly dipping unit of weakly magnetic composition, with local concentrations of pyrrhotite at its edges, would account for the response. Down-dip extent may be limited. Its situation within abundantly exposed phyllites is discouraging, but the response itself is not. Any evidence of limestone in the area might greatly enhance its significance.

Grids 3, 4, 11, 7, 8, and Detail Grid 'A'

These contiguous grids cover the southeast flank of the intrusive stock as it was understood at the onset of this survey.

Particularly over the region of Grids 3, 4, and 11, the magnetic results describe a geological setting more complex than thus far seen elsewhere on the property (see contoured data). Quiet magnetic relief, such as normally might reflect intrusive or possibly dolomite, is observed in the south of Grid 11, the northwest corner of Grid 3, and briefly in the north-central area of Grid 4. In the locale centering Grids 3 and 4, the active magnetics evident there must signify one of two possibilities. Either sedimentary units prevail (in which case, the intrusive contact extends north of present grid coverage between lines 34W and 18W), or an intrusive is present which has been subjected to a degree of magmatic segregation not reflected on previously discussed grids. If the first bears some validity, then survey coverage ought to be extended northwards; even the latter possibility may still have some bearing on the emerging importance of this area.

A major em. and magnetic system, which appears to conform with a contact setting, dominates the results obtained over these grids. A zone of strong magnetics is delineated from line 118N/9+50W on Grid 7 through to line 14W on Grid 4 between 102+75N and 104+25N. Intensities range between 1000 gammas and 2000 gammas above background, implying an at least partial magnetite component. The system varies in width from 20 to 40 metres, and dips away from the presumed stock at 45 dgrees or less.

As a result of detailed surveying at a 100 metre line spacing, it has become apparent that concentrations of magnetic source material are discontinuous along this horizon. At least four cross-faults are evident. Whether these preceded or followed sulphide deposition is unclear. But the perceived interuptions in continuity do speak favourably for the prospects of this setting as a skarn development.

The VLF-EM data here define a conductive zone which corelates closely with the general trend of this intensely magnetic axis. On some traverses, however, the conductor location is displaced from the peaks of magnetic anomalies. Further, it is sensed that the em. response originates from depths greater than those suggested by magnetics. Good conductivities are indicated along the axis by generally strong quadrature response; and the relatively shallow dip is confirmed.

All of this implies further complexity. The em. axis may be delineating the contact itself (or possibly a strike-fault). Whichever the case may be, conductivities suggest a sulphide presence extending to depth while the magnetics enhance localized mobilizations of magnetic sulphides lying closer to surface.

A contact exists, roughly bearing east-west, from line 6W/107+25N to line 8W/106+75N and presumably thence to the zone described above. To ascribe this to a limestone (or dolomite)-intrusive abutment is speculative at this stage. But its importance to the mineralized setting may be real in the long run.

This pronounced em. and magnetic system is contained within a larger sequence of geophysically defined events. To the west, the favourable setting can be traced as far as line 28W/100+50N in the magnetic data.

Local anomalies are less intense, and occur over a broader area. Complex faulting and/or folding are indicated in the contoured presentation particularly, and it is suggested that the arrangement of stratigraphic sequences (and their structural controls) is far from a simple matter here. Ferruginous sediments within a phyllite sequence could account for these features, but so could localized skarn occurrences. Additional detailing seems warranted.

To the north, the em.-magnetic corelation which characterizes much of this system extends as far as line 118N. Only the conductor can be traced further. Two parallel axes of inflexions are observed in the in-phase profiles, and it is the more westerly of these which seems to agree consistently with the magnetic definition of the contact. The response over both suggests an absence of good inductive coupling source material. Cross-faulting is evident between lines 116N and 120N.

Either of these two em. axes - despite the absence of local magnetic anomalies - could define a contact setting favourable to calc-silicate skarn. The 300-400 gamma magnetic relief which flanks the interpreted contact from line 120N to the north seems unrelated to the setting described on detail Grid 'A'. More likely, it reflects magmatic differentiation in the intrusive or sedimentary sequences similar to those postulated in the north-central region of Grids 3 and 4.

In the south part of Grid 3, a series of magnetic features extends between lines 34W and 44W. On each traverse, a local anomaly of modest intensity occurs at a magnetically defined contact. The system is probably part of a larger package of magnetically active sediments; individual anomalies near the contact merit further scrutiny.

Grids 6 & 9

These two grids were situated to cover the east flank of the stock's northeast corner. Grid 9 encompasses the Tuanipal Showing.

In contrast to the generally quiet tenor of the magnetics over this region, VLF-EM results have defined a number of major features. Some of these apparently reflect structural events which have affected the setting.

A geological contact has been traced in the magnetics from line 146N/39+75W as far north as line 158N/35+60W. The gently varying relief immediately west of the contact recalls similar response on Grids 7 & 8. East of the contact, the magnetics are uniformly flat without locally anomalous expression.

The em. axis which flanks this feature is comprised of two components, the more westerly of which coincides reasonably well with the magnetic definition of the contact. Conductivities are weak generally, although modest quadrature response is associated with the east component between lines 152N and 158N. The system is coincident with the course of a local creek. The response seems to originate mainly through current channelling, such as would occur along a major fault or fracture system. Non-magnetic sulphides may be present locally.

This conductor is displaced by about 150 metres between lines 158N and 160N; a cross-fault oriented more or less east-west would account for this. From here, the em. axis continues north as far as line 168N centred at 32W, where it is truncated and again displaced to the east, off present grid coverage. Several other conductors parallel the axis elsewhere.

Logically, the intrusive also has been displaced eastwards between 158N and 160N. On Grid 9, two contact delineations are revealed. One can be traced more or less north from line 162N/31+25W to line 168N/30+00W, the other from line 162N/29+00W to line 164N/27+25W and thence east of the grid. The possibility that a sequence of phyllites and limestone overlies the intrusive within these limits ought to be considered. There is evidence here, and at the east end of Grid 10, to suggest that the stock may extend well beyond the northeast corner of survey coverage.

A local magnetic anomaly occurs at line 166N/30+00W at the first of these interpreted contacts. This is the kind of response which is often typical of pyrrhotite-rich skarn limited in down-dip extent. The source probably dips east at a shallow angle, and lies at or near bedrock surface. A second feature on line 166N centred at 25+50W similarly recommends itself. Further surveys at a detail scale seem warranted.

The Tuanipal Showing, situated between line 172N and line 174N at about 35+75W, unfortunately was not sampled at all, let alone at an appropriately close line spacing. A 400 gamma magnetic anomaly lies 100 metres south at the nearest traverse (line 172N/35+80W); it could be related to the pyrrhotite-rich showing. The differentiated calc-silicate and pyrrhotitic zones observed by the writer at this occurrence recall sources observed elsewhere which typically generate extremely localized magnetic response, often exhibiting much discontinuity along a given horizon. Such a setting can only be sampled properly at a 25 or 50 metre line interval. In the present data, weak anomalies from line 170N/36+75W to line 174N/33+00W could signify the extent of a predominantly calc-silicate development.

Grid 10

The generally east-west orientation of the intrusive contact in this area has been confirmed, and its course accurately traced, by magnetics once again. Certainly its definition from line 44W/186+25N west to line 62W/188+30N, and thence north, is unequivocal. The flat background values obtained over the stock contrast dramatically with the highly variable magnetic relief observed north of the contact in a region where outcrop exposures of phyllites predominate. Here, much of the anomalous response originates in near-surface material; intensities of individual peaks range to a maximum of about 1300 gammas. Any of these localized features could assume enhanced importance given reasonable proximity to intercalated limestone. Otherwise, the setting seems unpromising.

East of line 44W, the contact swings north off the grid. It is temporarily recovered at line 38W/185+75N, with an associated anomaly of about 850 gammas (near surface), and traced to line 36W/186+25N. The uneventful relief further east suggests that the intrusive may extend over and beyond much of the remainder of the grid.

The isolated anomalies which were encountered on the northernmost three traverses of Grid 9 are now seen to lie within a sedimentary unit likely overlying the granite. Ferruginous sediments within the phyllite sequence could account for these anomalies - and that at line 38W/185+75N - but their proximity to the Tuanipal Showing and possible limestone precludes off-hand dismissal.

The VLF-EM results define a number of conductors, at least two of which are situated within interpreted intrusive. Another extends across stratigraphic boundaries from line 62W to line 42W, and possibly further east, on the north side of the grid. Despite large in-phase amplitudes, inherent conductivities are generally unimpressive. Even within the erratically magnetic phyllites noted earlier between 44W and 62W, direct corelation between em. and magnetic anomalies is conspicuously lacking. It is suspected, then, that these conductors pertain to fracture systems or fault zones along which minor concentrations of non-magnetic sulphides conceivably may occur.

SPORK CLAIM GROUP

Grids 1 & 2

Any attempt to differentiate stratigraphic units on these grids, through examination of the presently available em. and magnetic data, would be hazardous. The magnetic response, which in over-all character is unlike anything observed on the nearby IVO property, is often inconsistent from line to line. A complex series of faulting events entailing major displacements might account for this. There is a suspicion retained, moreover, that the grid may be mis-oriented relative to local geology.

That said, a rather ambiguous pattern in the data is perceived. A wide magnetic low, with localized irregularities, is traced from line 16N at about 2+50E to the west side of line 8N, where it converges with an even more pronounced low flanking the west side of the grids across lines 14N through 10N. The system appears to be truncated between 8N and 6N, and further extrapolation to the south seems uncertain. If there is an area where uneventful magnetics contrast with more variable relief, it occurs within relatively constricted limits to the east of this low: across the central part of the grids from line 4N just west of the baseline to the east side of line 12N.

The magnetics over this region are irregular in orientation, heterogeneous, and arise variously from sources both buried and near surface. A local 500 gamma peak at line 14N/0+50W may link up with a similar peak at line 16N/ 0+25E, or alternatively strike towards the 300 gamma anomaly at line 16N/2+00W. Its relevance to skarn potential cannot be determined from the data alone. No direct VLF-EM corelation accompanies either possibility of strike continuity. In fact, the em. data here offer little that is presently meaningful.

This area seems thus far to be part of a whole new ball park in which the rules of the game have been altered. Much more information from an expanded geophysical application - both in areal extent and through closer line spacing - is required if any data assessment is expected to clarify matters here.

Conclusions

This survey has covered a large extent of intrusive contact at a reconnaissance scale, and successfully drawn attention to a number of local features offering skarn potential. Both geophysical methods employed have contributed substantially to an understanding of the geological setting under investigation in this CUB Joint Venture.

Following are some specific concluding remarks and recommendations.

1. A series of magnetic anomalies consistent with the Main Showing suggest that additional skarn occurrences may flank the sedimentary 'cap' there, beyond presently

exposed mineralization. Further detailing and possible drilling are dependent on the apparent lateral limitations of the setting. If pursued, additional surveying should include the northeast corner of the 'cap', where anomalous features remain open.

2. In the area of the Trevor Showing, several noted magnetic anomalies require detailed testing at a 50 metre traverse interval to better establish local continuities.

3. The interpreted intrusive contact on Grid 13 should be examined at an initial line spacing of 100 metres using both VLF-EM and magnetic techniques. Much of the area of Grid 12 - with the possible exception of the noted magnetic horizon on the west side of the grid - seems presently uninteresting.

4. Survey coverage should be extended, initially at a 200 metre reconnaissance scale, west and south of Grid 5 in order to close the gap between Grids 13 and 3. The extent of the intrusive in this region appears uncertain; it may be desirable to pursue coverage as far west as 80W and as far south as 102N.

5. The anomalous horizon flanking the southeast corner of the stock is favourably situated and offers an attractive exploration target. Drill testing is warranted. Additional potential exists, along the interpreted contact setting extending north through Grids 7 & 8, and two described zones of magnetic anomalies to the west. Detailed surveying by em. and magnetics, initially at a 100 metre traverse interval, should be undertaken to examine each possibility.

6. If the present gap between Grids 8 & 6 is to be closed, then reconnaissance traverses between 13W

and 45W should extend north of BL 140N and, near Grid 8, south as far as 132N.

7. The intrusive stock extends east of Grids 9 and 10, and survey coverage should be expanded appropriately.

8. Two magnetic anomalies on line 166N at 30+00W and 25+50W appear to be favourably situated at a contact in which sedimentary sequences overlie intrusive. They should be detailed at a 50 metre line spacing, as should any extentions to them which may emerge in forthcoming data.

9. An area surrounding the Tuanipal Showing merits proper testing. It should be surveyed with VLF-EM and magnetics, between 169N and 175N, at a 50 metre line separation. Traverses at 25 metres may be warranted locally. At least three north-south lines, centred over the Showing, should be included in this effort.

10. The magnetic anomaly at line 38W/185+75N should be bracketed by further tests at a 50 metre separation.

11. The magnetic anomalies north of the interpreted intrusive contact on Grid 10 west of 43W seem presently uninteresting. To the east of here, the contact locally swings north of the survey grid, and expanded coverage may be warranted.

12. If possible, the area surrounding the SPORK grids should be surveyed by em. and magnetics. The existing grid should be surveyed at a 100 metre line interval. Present data are pregnant with ambiguity, and would be well served by being placed within a geological context through either outcropping evidence or laterally expanded geophysical coverage.

Of a less specific nature, the following comments are offered.

As efforts within a favourable setting become more concentrated, an understanding of fault controls becomes increasingly important. VLF-EM can usefully delineate these faults, particularly when traverses are oriented perpendicular to their anticipated strike. Such testing, where appropriate, should be undertaken.

Similarly, the contribution which a contoured presentation of magnetic data can make increases. Much of the contouring undertaken in the field this season has been coarsely rendered, either by reasons of haste or inexperience: witness the data from the Main Showing and the southeast corner of the property, as re-contoured by T. J. Miles & Associates against the original attempts. The former elucidates subtleties as well as major events. Greater attention ought to be given to this form of data presentation as the program evolves, and it should be attempted by someone cognizant that good, successful contouring borders on an art form.

The field procedures followed in the course of this survey have been effective from a production standpoint, given the topographic realities of this region. The data obtained are notably free of system and operational noise.

Respectfully submitted

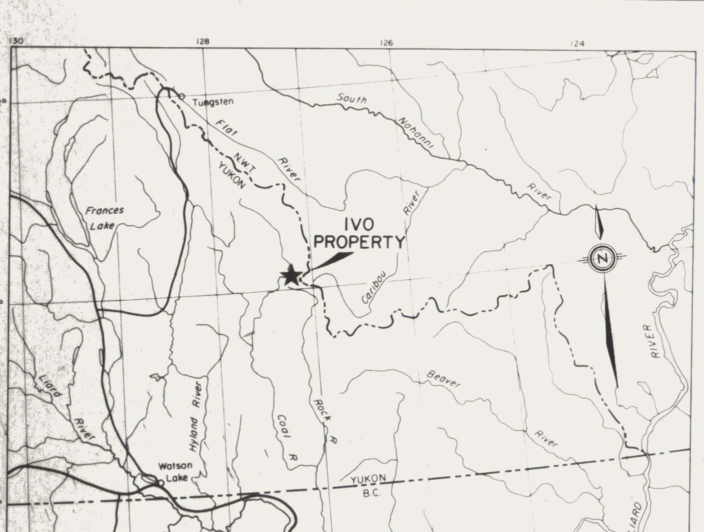
W. A. Barclay

23 October 1980


UNMAPPED
JANET CREEK
CHICKEN HILL
CARIBOU CREEK
NORTH SHOWING (FLOAT)
CHICKEN CREEK
CHUNDER CREEK
TUANIPEL SHOWING
BRAD CREEK
TUANIPEL CREEK
MAIN SHOWING
IVO'S FLOAT
TREVOR CREEK
78 SHOWING
TREVOR SHOWING
IVO'S KNOB
Salivo Showing
SALIVO CREEK
ROCK RIVER
UPPER ROCK RIVER
N.W.T.
YUKON
LOCATION MAP
IVO PROPERTY
LEGEND
CRETACEOUS
Kqm Quartz monzonite
UPPER CAMBRIAN to ORDOVICIAN
€Or Rabbitkettle Fm
Wavey banded limestone
LOWER CAMBRIAN
l€s Sekwi Fm
Limestone and dolomite; swiss cheese limestone
LOWER CAMBRIAN and OLDER (?)
l€brq Backbone Ranges Fm
Quartzite, siliceous light grey hornfels, quartz-biotite schist, lesser green phyllite and siltstone
l€brl Siliceous limestone, pebbly limestone
l€brd Pink or cream coloured dolomite
LOWER CAMBRIAN (?) and OLDER
€H Phyllite Unit
Green muscovite-chlorite phyllite, siltstone, banded argillite, dark grey phyllite, dark grey pyritic hornfels
bedding
foliation
fault
geological contact - mapped, assumed
anticline, syncline
limit of outcrop
claim boundary
Association of Professional Engineers of the Yukon Territory
R. J. CATHRO
GEOLOGICAL
ENGINEER
Jan/81
FIGURE 1
ARCHER, CATHRO & ASSOCIATES LTD
GEOLOGY
IVO PROPERTY
CUB JOINT VENTURE
SCALE – 1:10,000
300 200 100 0 100 200 300 400 500 600 700 Metres
To accompany report dated Jan./81


JANET CREEK
CHICKEN HILL
CARIBOU CREEK
CHUNDER CREEK
CHICKEN CREEK
N.W.T.
YUKON
See Tuanipel Detail
BRAD CREEK
TUANIPEL CREEK
FIGURES 12-15
See Main Detail
TREVOR CREEK
FORTIT
IVO'S KNOB
ROCK RIVER
FIGURE 17
UPPER ROCK RIVER
CALLISTO CREEK
MAIN SHOWING DETAIL (Values shown as grains scheelite)
Limit of skarn float
Trench
TUANIPEL SHOWING DETAIL (Values shown as grains scheelite)
Tuanipel showing
IVO PROPERTY
LOCATION MAP
SCALE — 1:2,000,000
LEGEND
Soil pan sample location, grains scheelite
Stream pan sample location (UCEX, CUB), grains scheelite
+500 grains scheelite
250-499 grains scheelite
100-249 grains scheelite
50-99 grains scheelite
25-49 grains scheelite
-25 grains scheelite
Claim boundary
Association of Professional Engineers of the Yukon Territory
R. J. CATHRO
GEOLOGICAL ENGINEER
Jan/81
FIGURE 8
ARCHER, CATHRO & ASSOCIATES LTD
TUNGSTEN
SOIL PANNING
IVO PROPERTY
CUB JOINT VENTURE
SCALE — 1:10,000
Metres
1/2 Miles


JANET CREEK
CHICKEN HILL
CARIBOU
CREEK
CHUNDER
CREEK
CHICKEN
CREEK
N.W.T.
YUKON
See Tuanipel Detail
BRAD
CREEK
TUANIPEL
CREEK
FIGURES 12-15
See Main Detail
TREVOR
CREEK
IVO'S KNOB
FIGURE 17
ROCK
RIVER
UPPER ROCK RIVER
MAIN SHOWING DETAIL
Limit of skarn float
Trench
TUANIPEL SHOWING DETAIL
Tuanipel showing
27+00N
LOCATION MAP
IVO PROPERTY
LEGEND
Soil sample location, ppm WO_3
Silt pan sample location (UCEX, CUB), ppm WO_3
+250 ppm WO_3
100-249 ppm WO_3
50-99 ppm WO_3
25-49 ppm WO_3
10-25 ppm WO_3
-10 ppm WO_3
Claim boundary
Association of Professional Engineers of the Yukon Territory
R. J. CATHRO
GEOLOGICAL ENGINEER
FIGURE 8
ARCHER, CATHRO & ASSOCIATES LTD
TUNGSTEN GEOCHEMISTRY
IVO PROPERTY
CUB JOINT VENTURE
SCALE – 1:10,000
300 200 100 0 100 200 300 400 500 600 700 Metres
To accompany report dated Jan./81



LOCATION MAP

SCALE – 1:2,000,000

LEGEND

- Soil sample location
- X Silt sample location
- +11 ppm Mo
- 6-10 ppm Mo
- 3-5 ppm Mo
- -3 ppm Mo
- Claim boundary

FIGURE 10

ARCHER, CATHRO & ASSOCIATES LTD

MOLYBDENUM GEOCHEMISTRY

IVO PROPERTY

CUB JOINT VENTURE

SCALE – 1:10,000

Association of Professional Engineers of the Yukon Territory
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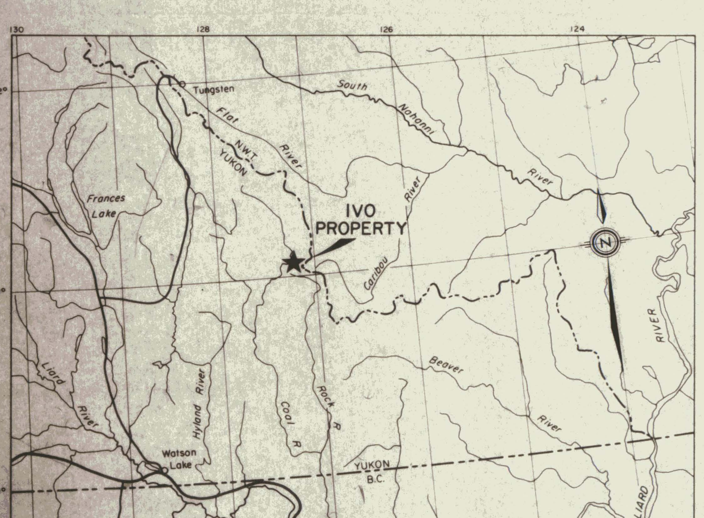
Jan /81



LOCATION MAP

LEGEND

- • Soil sample location
- x Silt sample location
- +60 ppm Cu
- 40-59 ppm Cu
- 20-39 ppm Cu
- -20 ppm Cu
- Claim boundary

FIGURE 11

ARCHER, CATHRO & ASSOCIATES LTD

COPPER GEOCHEMISTRY
IVO PROPERTY

CUB JOINT VENTURE

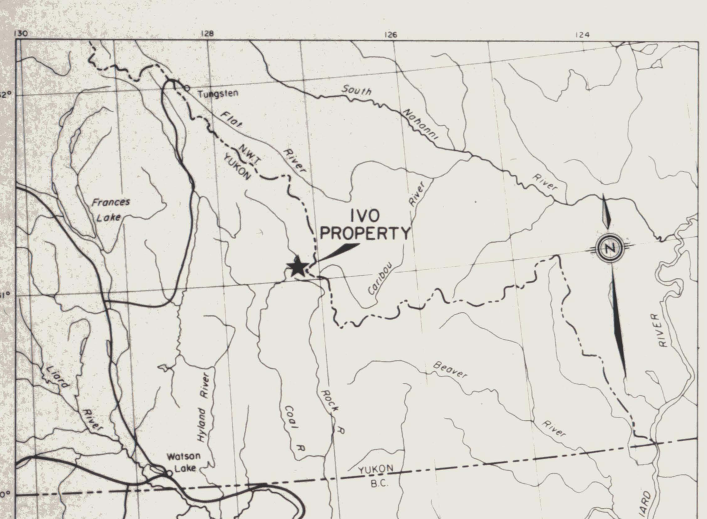
SCALE – 1:10,000

300 200 100 0 100 200 300 400 500 600 700 Metres

1/4 0 1/4 1/2

Association of Professional Engineers of the Yukon Territory R. J. CATHRO GEOLOGICAL ENGINEER Jan/81

To accompany report dated Jan./81



LOCATION MAP

LEGEND

— — —	VLF-EM Conductor axis
- - - - -	Magnetic anomaly axis
• • • • • • •	Intrusive contact - assumed
▬ ▬	Intrusive contact - based on geophysical evidence
▬▬▬	Intrusive contact - based on geological evidence
(stippled)	+ 7 ppm Mo
(hatched)	+ 50 grains scheelite
SK	Skarn occurrence - including geophysical interpreted skarn

Association of Professional Engineers of the Yukon Territory
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GEOLOGICAL
ENGINEER
Jan /81

FIGURE 12

ARCHER, CATHRO & ASSOCIATES LTD

INTERPRETIVE OVERLAY
GEOLOGY, GEOPHYSICS and GEOCHEMISTRY
IVO PROPERTY

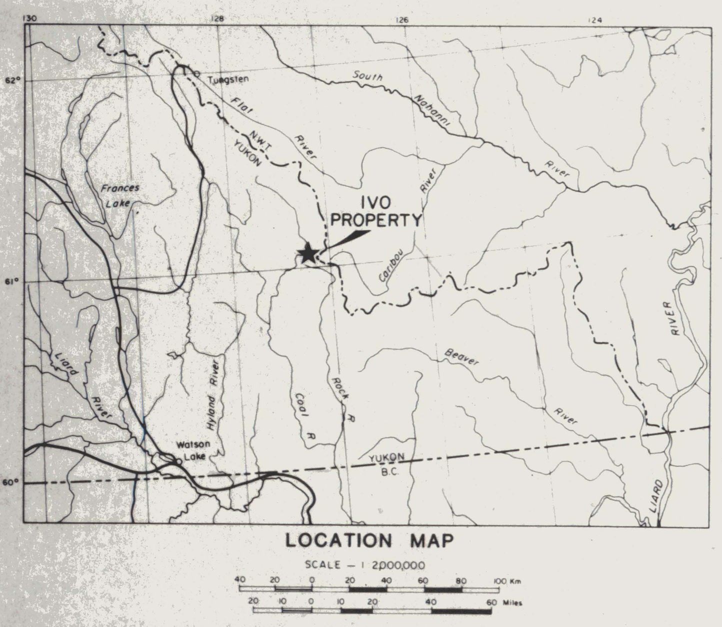
CUB JOINT VENTURE

SCALE – 1:10,000

300 200 100 0 100 200 300 400 500 600 700 Metres

1/4 0 1/4 1/2 Miles

To accompany report dated Jan/81



LOCATION MAP

SCALE – 1:2,200,000

LEGEND:-

Interpreted Contact

VLF-EM Conducter Axis

Interpreted Fault

Interpreted Intrusive Contact

Magnetic Anomaly Axis

Sk Reported Skarn Occurrence

Sk(?) Interpreted Skarn Potential

FIGURE

ARCHER, CATHRO & ASSOCIATES LTD

INTERPRETATIONAL OVERLAY

IVO PROPERTY

CUB JOINT VENTURE

SCALE – 1:10,000

300 200 100 0 100 200 300 400 500 600 700 Metres

1/4 0 1/4 1/2

To accompany
Geophysical Report
October 1980

W. A. BARCLAY EXPLORATION SERVICES LTD.

To accompany report dated

GRID°7 EXTENSION, IVU CLAIMS
HORIZ SCALE 1cm: 25m
VERT SCALE 1cm: 100γ
OPERATOR N
FOR
ARCHER, CATHRO AND ASSOC. LTD.
BY
W.A. BARCLAY
EXPLORATION
SERVICES LTD
AUGUST 1980
N
L160N
L158N
L156N
SCALE
1:2500
GRID°6, IVU CLAIMS
HORIZ. SCALE 1cm: 25m
INSTRUMENT
PORTABLE MAGNETOMETER
VERT. SCALE 1cm: 100γ
OPERATOR: N
FOR
BY
JULY 1980
TURNING CREEK:


SCALE
1:2500
VLF-EM SURVEY
OF
GRID #9 IVO CLAIMS
HORZ SCALE 1cm=25m
VERT SCALE 1cm=10%
INPHASE
QUADRATURE
INSTRUMENT: GEONICS VLF-EM16
Tx STATION SEATTLE, WASH. (NLK) 18.6KHz
Rx FACING EAST
OPERATORS: B. BARRIE, R. JOHNSTON
FOR
ARCHER, CATHRO AND ASSOC. LTD.
BY
W.A. BARCLAY
EXPLORATION
SERVICE LTD.
JULY 1980
180+00N
178+00N
176+00N
174+00N
172+00N
170+00N
144+00N
142+00N
140+00N
37+00W
36+00W
35+00W
34+00W
33+00W
32+00W
31+00W
VLF-EM SURVEY
OF
GRID #6 IVO CLAIMS
HORIZ SCALE 1cm 25m
VERT SCALE 1cm=10%
INPHASE
QUADRATURE
INSTRUMENT: GEONICS VLF-EM16
Tx STATION SEATTLE, WASH (NLK) 18.6kHz
Rx FACING EAST
OPERATOR: B. BARRIE
FOR
ARCHER, CATHRO AND ASSOC LTD.
BY
N

MAGNETOMETER SURVEY

OF

GRID #8 IVO CLAIMS (CONT'D)

HORIZ SCALE 1cm : 25m INSTRUMENT: GEOMETRICS G816/826A

VERT SCALE 1cm : 100γ PORTABLE MAGNETOMETER

OPERATOR: N. REBALSKI BASE VALUE = 59,100γ

FOR

ARCHER, CATHRO AND ASSOC. LTD.

BY

W.A. BARCLAY
EXPLORATION
SERVICES, LTD.

AUGUST 1980.

MAGNETOMETER SURVEY

OF

GRID #7 + #8, IVO CLAIMS

HORIZ SCALE 1cm = 25m

VERT SCALE 1cm = 100γ

OPERATOR N REBALSKI

INSTRUMENT GEOMETRICS G816/826A
PORTABLE MAGNETOMETER

BASE VALUE : 59,100γ

* DENOTES LINES READ USING BACKPACK SENSOR
INSTEAD OF STAFF

N

SCALE
1:2500

50 25 0 25 50 75 100

FOR

ARCHER, CATHRO AND ASSOC. LTD.

BY

W.A. BARCLAY
EXPLORATION
SERVICE LTD

JULY 1980

180+00N
181+00N
182+00N
183+00N
184+00N
185+00N
186+00N
187+00N
188+00N
MAGNETOMETER SURVEY
OF
GRID #10 IVD CLAIMS
HORIZ. SCALE 1cm = 25m
INSTRUMENT: GEOMETRICS G816/826A PORTABLE MAGNETOMETER
VERT. SCALE 1cm = 100γ
BASE VALUE 59,100γ
OPERATOR N. REBALSKI
FOR
ARCHER, CATHRO AND ASSOC. LTD.
BY
W.A. BARCLAY
EXPLORATION
SERVICE LTD.
JULY 1980
SWAMP
POND
CREEK
SCALE
1:2500

VLF - EM SURVEY
OF
GRID #10: IVO CLAIMS

HORIZ SCALE: 1CM = 25M
VERT SCALE: 1CM = 10%
INPHASE
QUADRATURE

INSTRUMENT: GEONICS VLF-EM 16.
TX STATION CUTLER, MAINE (NAA) 17.8 KHz.
RX FACING NORTH
OPERATOR: D. BARRIE, R. JOHNSTON

SCALE
1: 2500
50 25 0 25 50 75 100

FOR
ARCHER, CATHRO AND ASSOC. LTD.
BY
W.A. BARCLAY
EXPLORATION

MAGNETOMETER SURVEY

OF

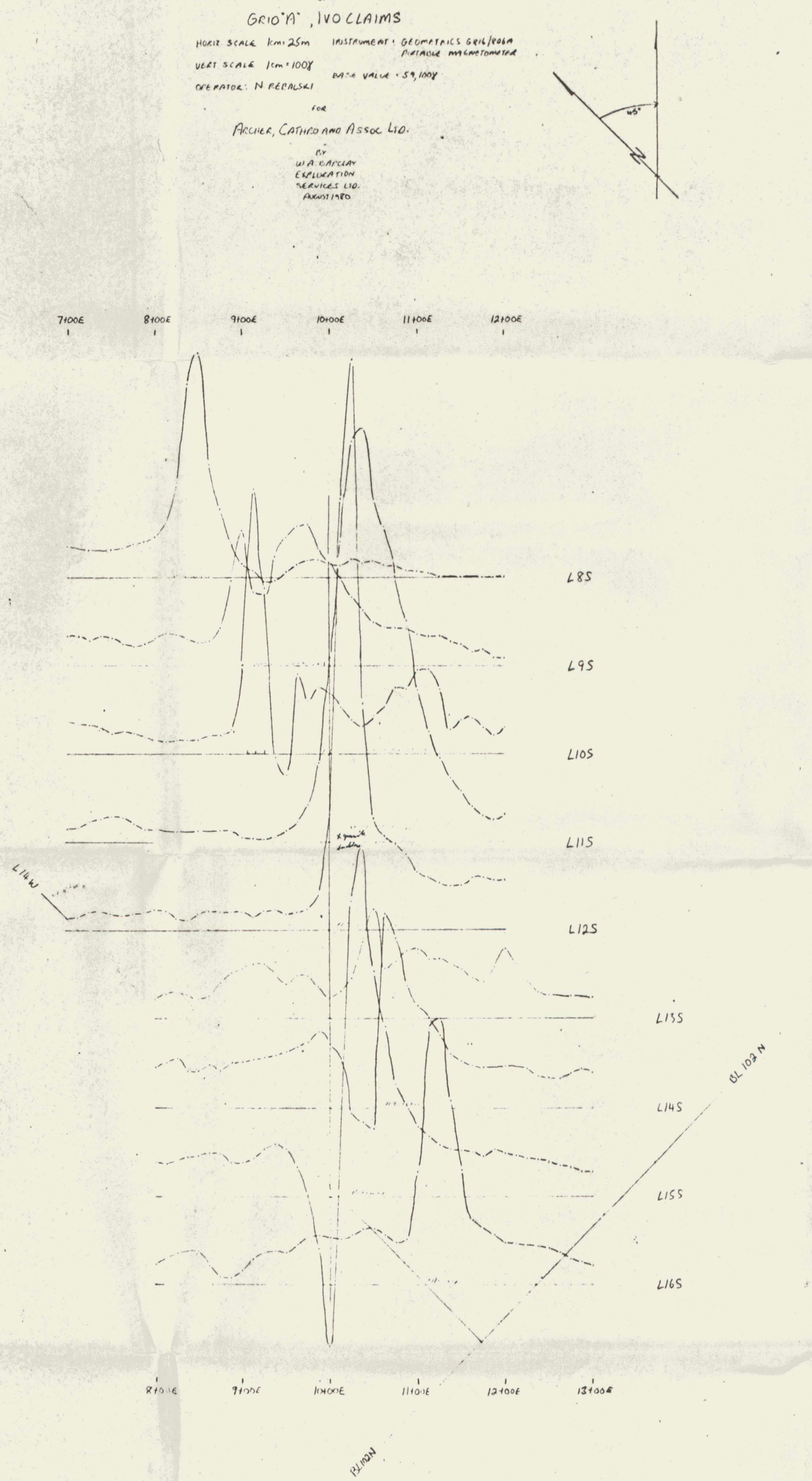
GRID "A", IVO CLAIMS

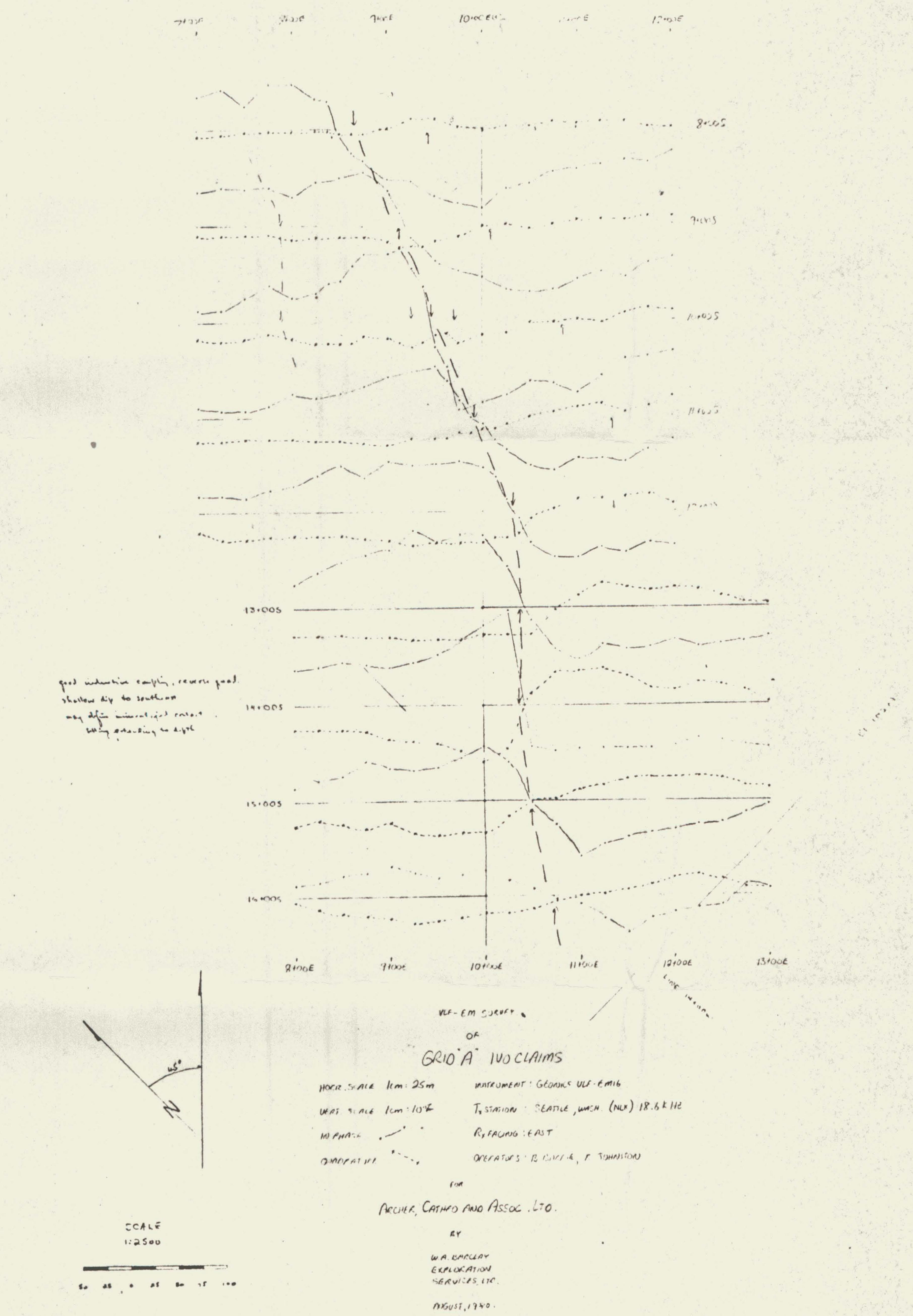
HORIZ. SCALE 1cm: 25m
INSTRUMENT: GEOMETRICS G816/826A PORTABLE MAGNETOMETER
VERT SCALE 1cm = 100γ
BASE VALUE = 59,100γ
OPERATOR: N PERALSKI

FOR

ARCHER, CATHRO AND ASSOC LTD.

BY
W.A. BARCLAY
EXPLORATION
SERVICES LTD.
AUGUST 1980





VLF-EM SURVEY

OF

GRID "A" IVO CLAIMS

HORIZ. SCALE 1cm: 25m
INSTRUMENT: GEONICS VLF-EM16
VERT. SCALE 1cm: 10%
T_x STATION: SEATTLE, WASH. (NLK) 18.6 kHz
IN PHASE
R_x FACING: EAST
QUADRATURE
OPERATORS: B. [illegible], F. JOHNSTON

FOR

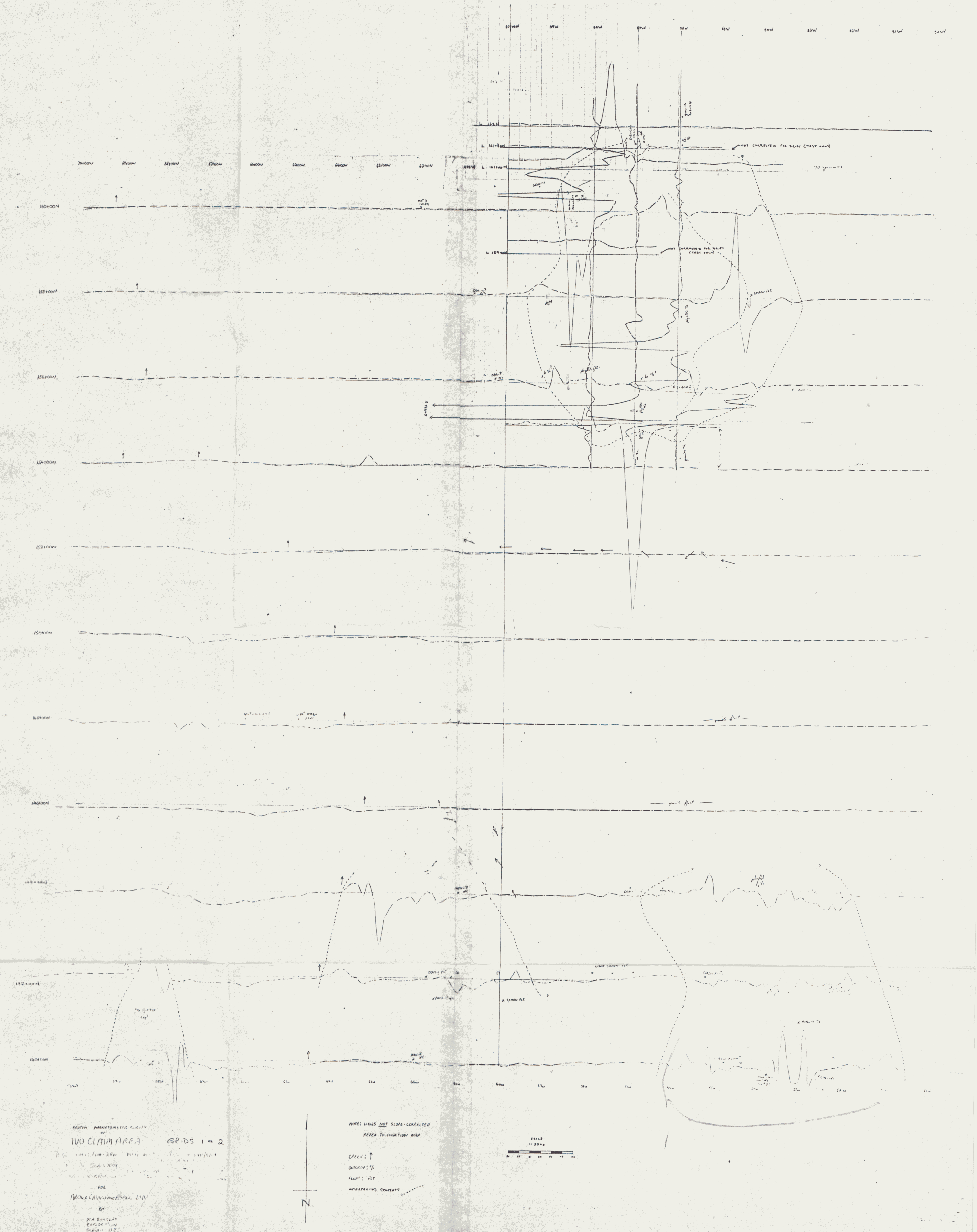
ARCHER, CATHRO AND ASSOC. LTD.

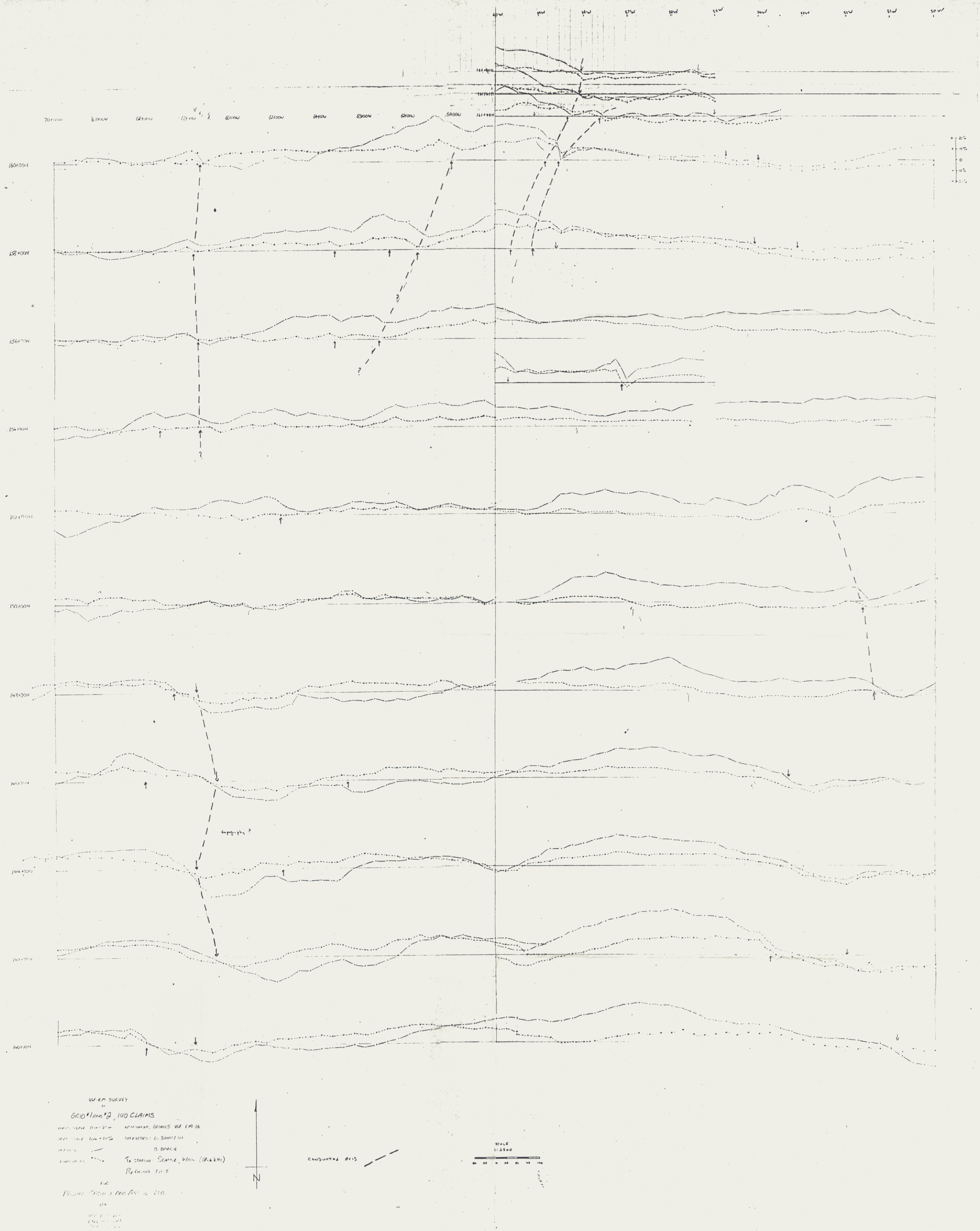
BY

W.A. BARCLAY
EXPLORATION
SERVICES LTD.

AUGUST, 1980.

SCALE
1:2500


PROTON MAGNETOMETER SURVEY
OF
IVO CLAIM AREA GRIDS 1 & 2
FOR
ARCHER CATHRO AND ASSOC. LTD
BY
W.A. BARCLAY
EXPLORATION
SERVICES LTD
JULY 1980
NOTE: LINES NOT SLOPE-CORRECTED
REFER TO LOCATION MAP
CREEK: ↑
OUTCROP: %
FLOAT: FLT
INTERPRETED CONTACT
SCALE
1:2500
NOT CORRECTED FOR DRIFT (TEST ONLY)


VLF-EM SURVEY
OF
GRID #1 AND #2, IUO CLAIMS
HORIZ. SCALE 1cm = 25m
VERT. SCALE 1cm = 10%
INSTRUMENT: GEONICS VLF EM-16
OPERATORS: G. JOHNSTON
B. BARRIE
TX STATION: SEATTLE, WASH (18.6 kHz)
RX FACING EAST
FOR
LTD.
CONDUCTOR AXIS
SCALE
1:2500
topography ?
N


MAGNETOMETER SURVEY
OF
GRIDS 3, 4, N, IVO CLAIMS
HORIZ. SCALE 1cm = 25m
500 γ
100 γ
25 γ
INTERPRETED FAULT
INSTRUMENT: GEOMETRICS G816/826A
PORTABLE MAGNETOMETER
FOR
ARCHER, CATHRO AND ASSOC. LTD.
BY
W.A. BARCLAY
EXPLORATION
SERVICES LTD.
SCALE
CONTOURED BY
T.J. MILES AND
ASSOCIATES
NOTE: LINES ARE PLACED CORRECTLY
W.R.T. BASELINES, BUT BASELINES
MAY NOT BE EXACTLY AS SHOWN

MAGNETOMETER SURVEY

OF

GRID #11 IVO CLAIMS

HORIZ SCALE 1cm = 25m — INSTRUMENT GEOMETRICS G816/826A PORTABLE MAGNETOMETER

VERT SCALE 1cm = 100γ — BASE VALUE = 57,100γ

OPERATOR N. REGALSKI

FOR

ARCHER CATHRO AND ASSOC. LTD

PROTON MAGNETOMETER SURVEY

OF

GRIDS #3 & #4 – IVO CLAIMS

HORIZ SCALE 1cm = 25m — INSTRUMENT GEOMETRICS G816/826A PORTABLE MAGNETOMETER

VERT SCALE 1cm = 100γ — BASE VALUE = 57,100γ

OPERATOR N. REGALSKI

FOR

ARCHER CATHRO AND ASSOC. LTD

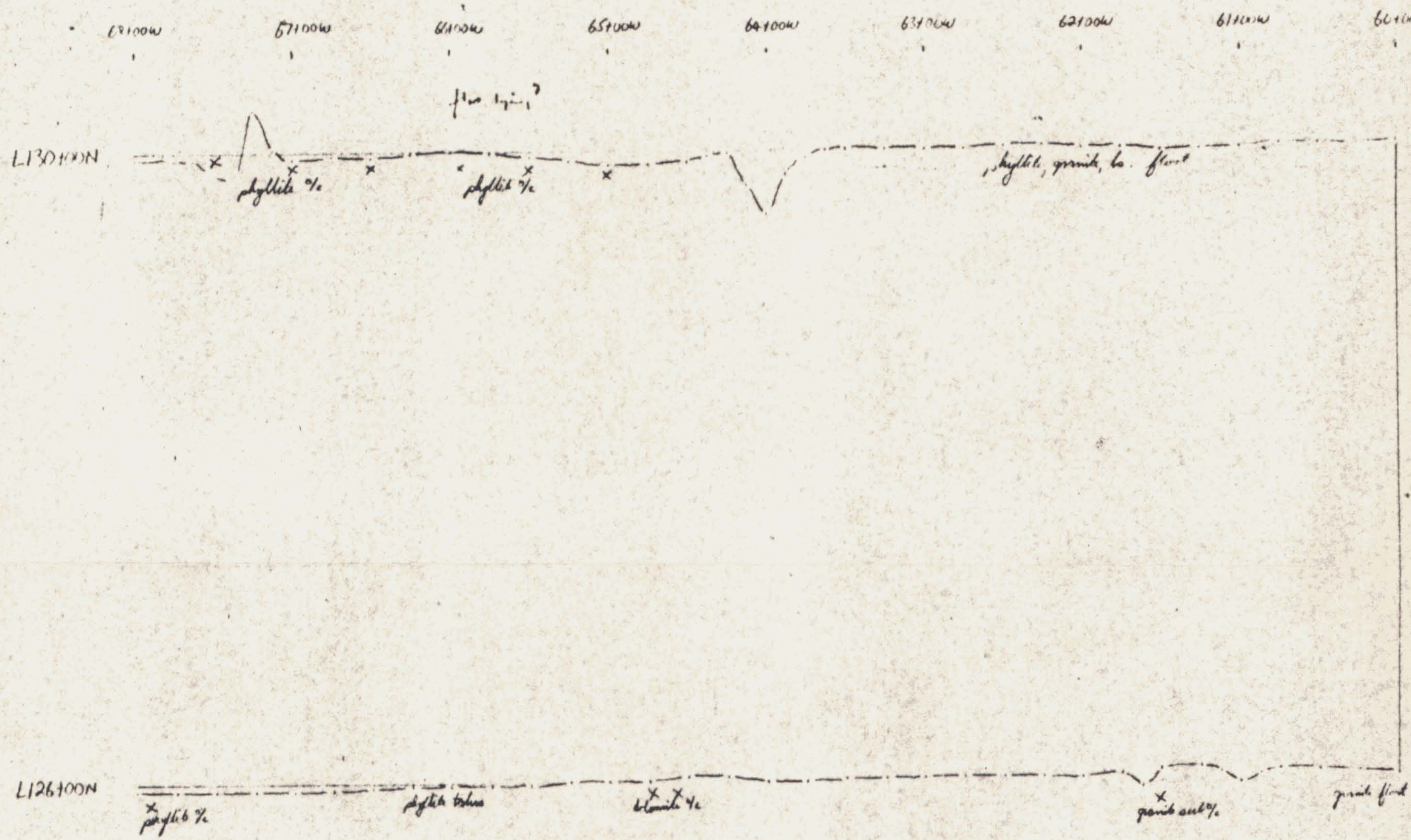
BY

W.A. CULLAY EXPLORATION SERVICE LTD

JULY, 1990

SCALE 1:2500

50 25 0 25 50 75 100



MAGNETOMETER SURVEY

OF

GRID'S EXTENSION, IVO CLAIMS

HORIZ SCALE 1cm : 25m

VERT SCALE 1cm : 100γ

OPERATOR : N REGALSKI

INSTRUMENT : GEOMETRICS G826
PORTABLE MAGNETOMETER

BASE VALUE : 59,000γ

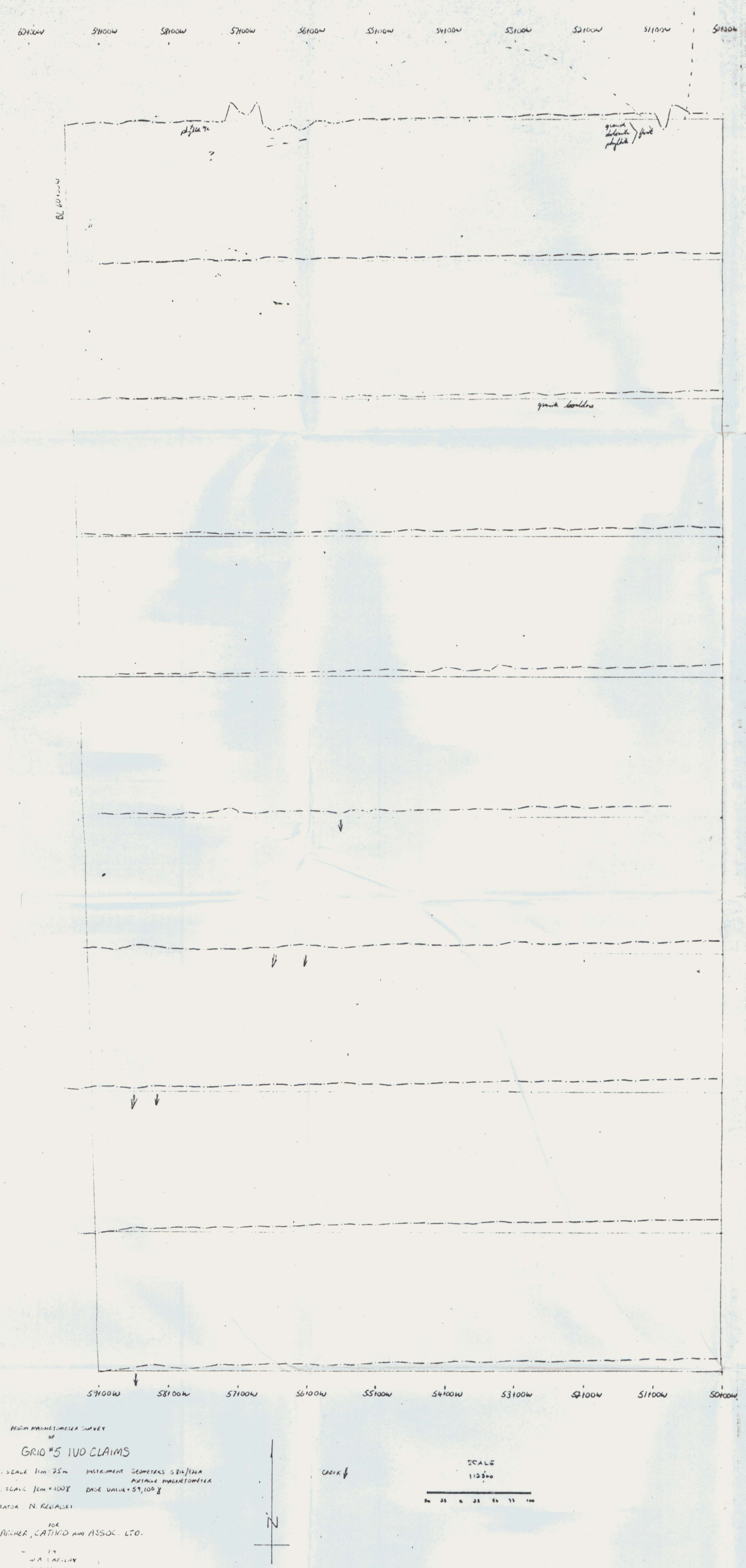
FOR

ARCHER, CATHRO AND ASSOC. LTD.

BY

W.A. BARCLAY
EXPLORATION
SERVICES LTD.

AUGUST 1980



PROTON MAGNETOMETER SURVEY
OF

GRID #5 IVO CLAIMS

HORIZ. SCALE 1cm : 25m — INSTRUMENT GEOMETRICS G816/826A PORTABLE MAGNETOMETER

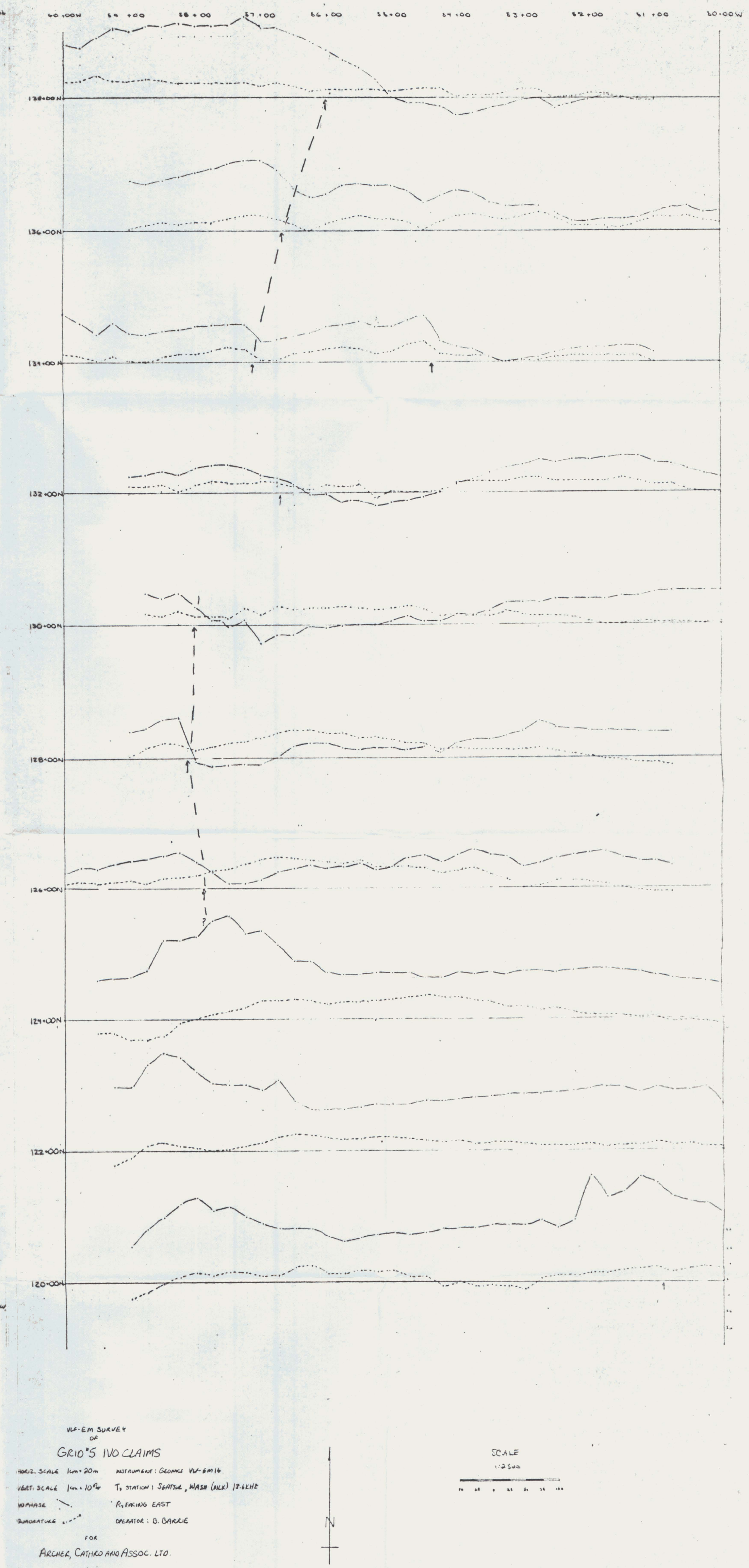
VERT. SCALE 1cm = 100γ — BASE VALUE = 59,100γ

OPERATOR N. REBALSKI

FOR
ARCHER, CATHRO AND ASSOC. LTD.

BY
W.A. BARCLAY EXPLORATION SERVICES LTD

JULY 1980



VLF-EM SURVEY
OF

GRID #5 IVO CLAIMS

HORIZ. SCALE 1cm = 20m — INSTRUMENT: GEONICS VLF-EM16

VERT. SCALE 1cm = 10% — Tx STATION: SEATTLE, WASH (NLK) 18.6KHZ

INPHASE — Rx FACING EAST

QUADRATURE — OPERATOR: B. BARRIE

FOR
ARCHER, CATHRO AND ASSOC. LTD.

BY
W.A. BARCLAY EXPLORATION SERVICE LTD.

JULY 1980

MAGNETOMETER SURVEY

OF

APHS 12 + 13 IVO CLAIMS

HORIZ SCALE 1cm: 25m

VERT SCALE 1cm = 100γ

OPERATOR N. REBALSKI

INSTRUMENT GEOMETRICS G826 PORTABLE MAGNETOMETER

BASE VALUE 59,200γ

SCALE 1:2500

FOR

ARCHER, CATHRO AND ASSOC. LTD

BY

W.A. BARCLAY EXPLORATION SERVICES LTD.

AUGUST 1980


VLF-EM SURVEY
OF
GRIDS 12+13, IVO CLAIMS
HORIZ SCALE 1cm: 25m
INSTRUMENT: GEONICS VLF EM16
VERT SCALE 1cm: 10%
Tx STATION: SEATTLE, WASH (NLK) 18.6 kHz
INPHASE
Rx FACING EAST
QUADRATURE
OPERATORS: B. BARRIE, R. JOHNSTON
FOR
ARCHER, CATHRO + ASSOC. LTD.
SCALE
1:2500
N
L180+00N
L178+00N
L176+00N
L174+00N
L172+00N
L170+00N
L168+00N
L166+00N
L160+00N
76+00W
75+00W
74+00W
73+00W
72+00W
71+00W


48W
26W
6W
FAULT INTERPRETATION
GRIDS 3,4, 11 100 CLAIMS
1:2500
FOR
ARCHER, CATHRO AND ASSOC. LTD.
BY
N A BARCLAY
EXPLORATION
SERVICES LTD
101 N
100N
99N
98N
97N
96N
8W

N
VLF-EM SURVEY
OF
GRID #7 + #8 - IVO CLAIMS
HORIZ. SCALE 1cm = 25m
VERT. SCALE 1cm = 10%
INPHASE
QUADRATURE
INSTRUMENT: GEONICS VLF-EM16
Tx STATION: SEATTLE, WASH. (NLK) 18.6 kHz
Rx FACING EAST
OPERATOR: R. JOHNSTON
FOR
ARCHER, CATHRO AND ASSOC. LTD.
BY
W. A. BARCLAY
EXPLORATION
SERVICE LTD.
JULY 1980
SCALE
1:2500
GRID #8
GRID #7
140+00N
138+00N
136+00N
134+00N
132+00N
130+00N
128N
126N
124N
122N
120N
118N
116N
114N
112N


L 34+00W
L 32+00W
L 30+00W
L 28+00W
L 26+00W
L 24+00W
L 22+00W
L 20+00W
18+00W
16+00W
14+00W
12+00W
10+00W
8+00W
6+00W
L 26+00W
L 24+00W
L 23+00
L 22+00W
L 21+00
L 20+00W
L 18+00W
L 17+00
L 16+00W
L 14+00W
L 12+00W
L 10+00W
L 8+00W
L 6+00W
See grid line location map for true position of traverses
VLF-EM SURVEY
GRIDS #3 & #4 - 100 CLAIMS
NOTE: ACCURACY OF READINGS
INPHASE ±3%
QUADRATURE ±5%
INSTRUMENT: GEONICS VLF-EM16
Tx STATION: ANNAPOLIS, MARYLAND (NSS) 21.4 kHz
Rx FACING NORTH
OPERATOR: R. JOHNSTON
GRID #11
HORIZ. SCALE 1cm = 25m
T. STATION . CUTLER MAINE (NAA) 17.8 kHz
FACING NORTH
SCALE
1:2500
BY
W.A. BARCLAY EXPLORATION SERVICE LTD.
SCALE
1:2500