MOUNTAINEER MINES LTD.

GEOLOGICAL AND GEOCHEMICAL REPORT

on the

IRENE 1-24 MINERAL CLAIMS

WATSON LAKE MINING DISTRICT

N.T.S.105-G-16

61°46'N 130°15'W

YUKON TERRITORY

by

D. A. Yeager - Geologist

C. K. Ikona - P.Eng.

November, 1977

090281

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

$2400.00

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

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1.0 INTRODUCTION

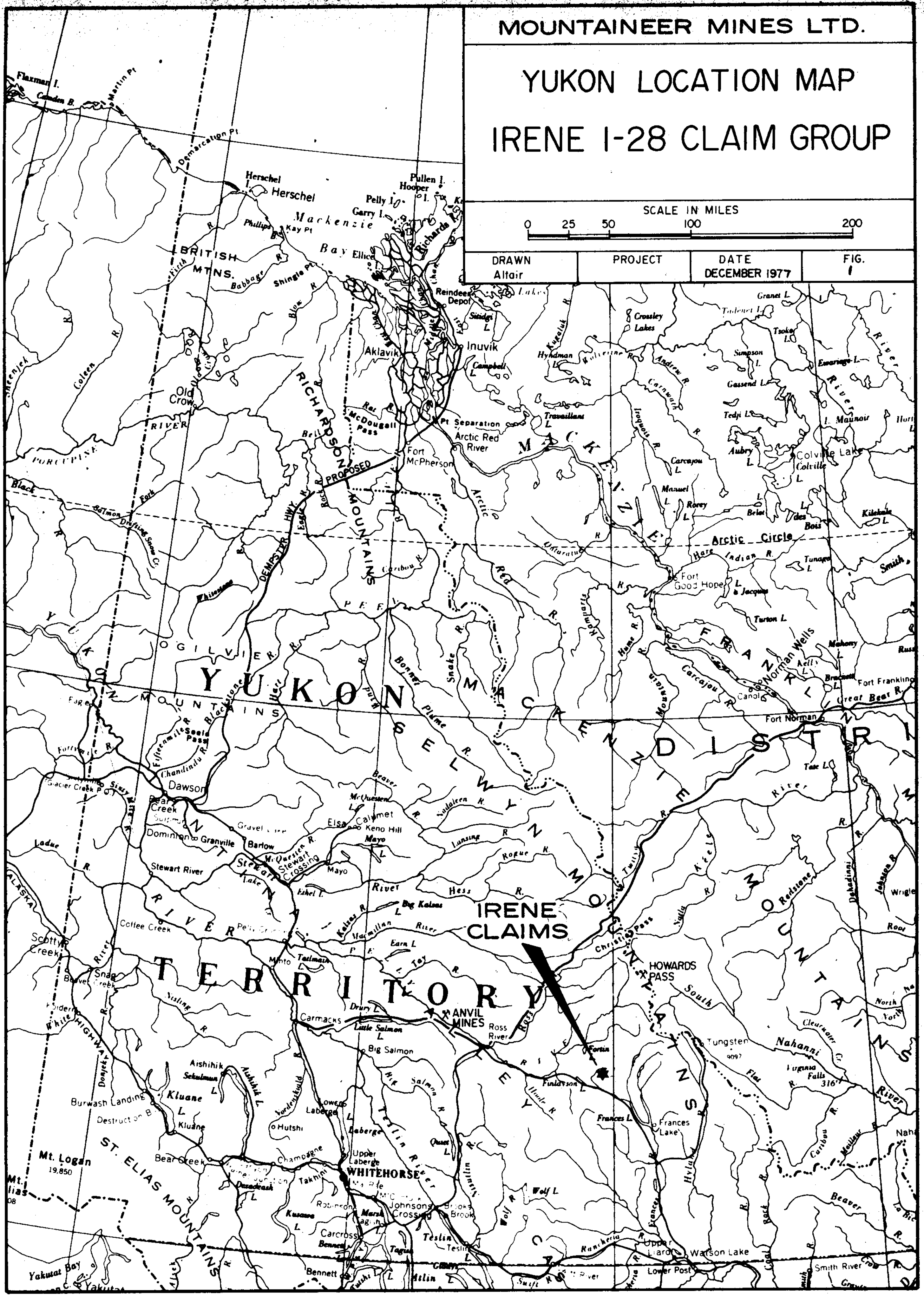
The IRENE 1-24 mineral claims were staked by A. Harman in August, 1972. The initial reconnaissance geochemical sampling conducted by A. Harman outlined several copper and zinc anomalies within the claims area. The claims were optioned to Vestor Explorations Ltd. of Edmonton, Alberta in the spring of 1973 and an evaluation program was conducted during the period July 5-13, 1973. At that time, a company report recommended that skarn type mineralization be further tested with a program of detailed and reconnaissance geochemical sampling. The claims were held in good standing with no additional work being performed until August, 1976 when the property was sold to Mountaineer Mines Ltd.

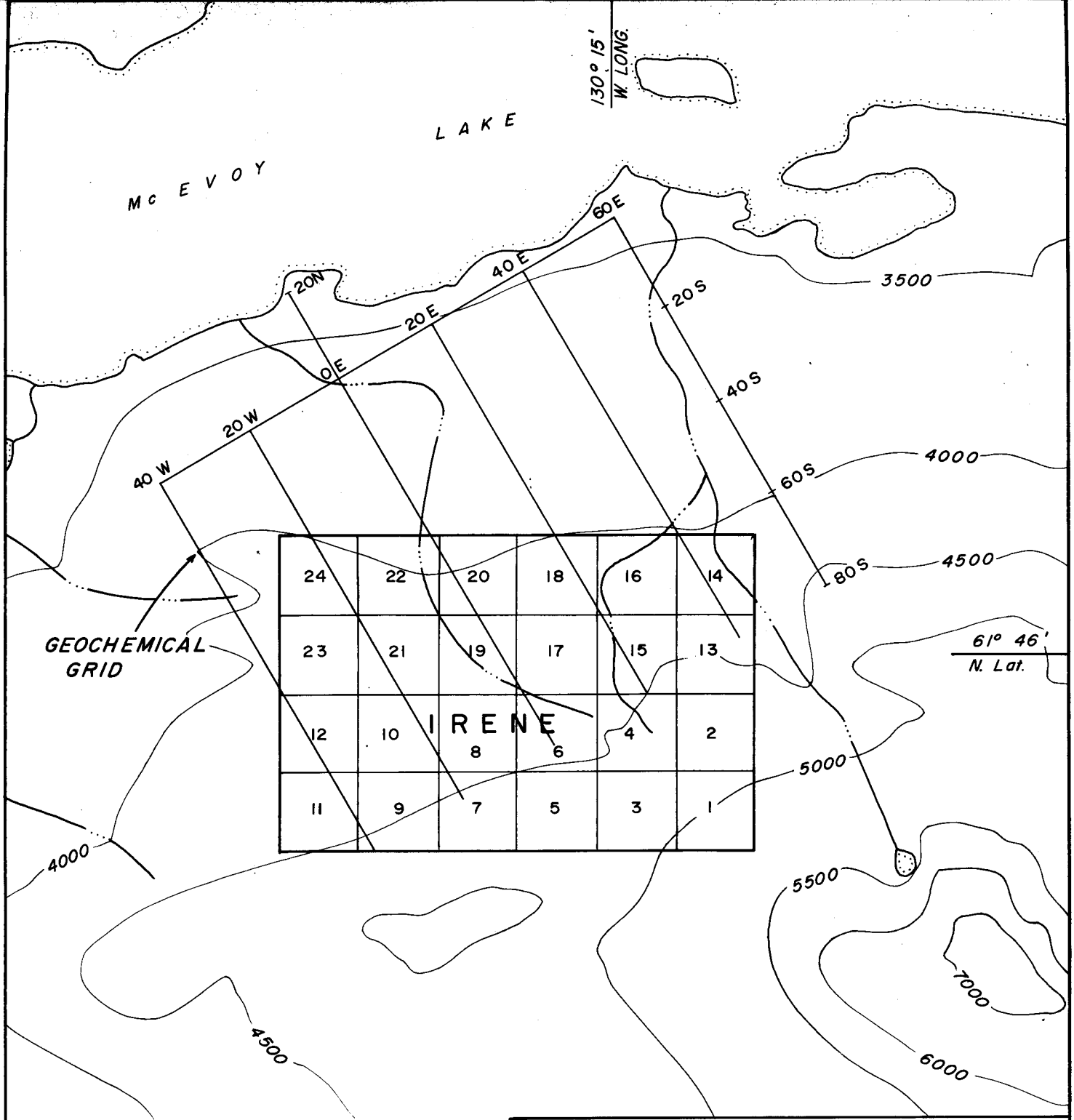
Mountaineer Mines Ltd. conducted a preliminary investigation during the period September 14-18, 1976 in which a small, detailed soil grid outlined a lead-zinc anomaly near the northern claim boundary. In addition, preliminary geologic mapping was done in the eastern part of the property. It was subsequently recommended that a reconnaissance soil sampling program be carried out.

From October 4 - 8, 1977, a reconnaissance soil sampling and geologic mapping program was done by Pamicon Developments Ltd.

2.0 LIST OF CLAIMS

CLAIM NAME	GRANT NO.	EXPIRY DATE
IRENE 1-24	Y83995-Y84018 incl.	Feburary 26, 1978


MOUNTAINEER MINES LTD.
YUKON LOCATION MAP
IRENE 1-28 CLAIM GROUP
SCALE IN MILES
0 25 50 100 200
DRAWN
Altair
PROJECT
DATE
DECEMBER 1977
FIG.
1
IRENE CLAIMS
YUKON TERRITORY
MACKENZIE DISTRICT
HOWARDS PASS
ANVIL MINES
Ross River
Carmacks
WHITEHORSE
Dawson
Mayo
Elsa
Keno Hill
Inuvik
Aklavik
Fort McPherson
Fort Good Hope
Norman Wells
Fort Norman
Watson Lake
Frances Lake
Tungsten
Christie Pass
Fortin
Finlayson L.
Teslin
Atlin
Carcross
Haines Junction
Burwash Landing
Mt. Logan
19,850
ST. ELIAS MOUNTAINS
OGILVIE MOUNTAINS
SELWYN MOUNTAINS
MACKENZIE MOUNTAINS
RICHARDSON MOUNTAINS
BRITISH MTNS.
DEMPSTER HWY
PROPOSED
Arctic Circle
Mackenzie Bay
Herschel
Old Crow
Stewart Crossing
Minto
Big Salmon
Johnsons Crossing
Upper Liard
Lower Post
Smith River
Yakutat Bay



MOUNTAINEER MINES LTD.

IRENE 1-24 MINERAL CLAIMS

NTS 105-G-16

CLAIM MAP

YUKON TERRITORY

0 1500 3000 FEET 4500 6000

0 500 1000 1500 2000 2500 METERS

PAMICON DEVELOPMENTS LIMITED

DRAWN:	PROJECT:	DATE:	FIGURE:
Altair	Mc Evoy	Nov. 1977	2

Claim posts examined by the author appear to conform with the Yukon Quartz Mining Act regulations.

3.0 LOCATION AND ACCESS

The IRENE 1-24 claims are located on N.T.S. sheet 105-G-16, approximately 1.5 miles south of McEvoy Lake in the southeastern Yukon Territory. Approximate co-ordinates of the claim group are 61°46' N. latitude and 130°15' W. longitude.

Access to the property is by fixed wing aircraft from the community of Ross River, situated 72 miles to the west-northwest, to McEvoy Lake; then by foot to the property. Alternatively, the property may be reached by helicopter from Finlayson Lake on the Robert Campbell Highway, situated 12 miles to the south-west. Both helicopter and fixed wing aircraft as well as full expediting services are available in Ross River.

4.0 TOPOGRAPHY AND VEGETATION

The property lies on the north facing slope of the McEvoy Lake valley between elevations 3,700 feet and 5,500 feet A.S.L. Topography ranges from gentle to steep. The property is cut by three north trending creek canyons.

Treeline is at the 4,500 foot elevation level where dwarf birch, poplar, and stunted black spruce give way to scattered scrub balsam, lichen, and grasses typical of an arctic-alpine environment.

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Outcrop is sparse within the claims area, probably less than 15%, and is found mainly in creek cuts and at higher elevations.

5.0 REGIONAL GEOLOGY

The geology of the entire area has been mapped by the Geological Survey of Canada at 1 inch to 4 miles and is presented in Map 8-1960, Geology of Finlayson Lake, Yukon Territory, by J.A. Roddick and J.A. Wheeler (1960).

The IRENE group lies in an area underlain by a thick succession of clastic and carbonate sediments deposited along the southern margin of the Selwyn sedimentary basin. Its position in the basin is near the Lower Ordovician hinge line where calcareous shales of the Road River Formation give way to deeper water chert-shale assemblages in the basin core.

The McEvoy Lake area is underlain by a sequence of middle to upper Cambrian phyllites, argillites, dolomites, quartzites and minor greenstone which have been intruded by the McEvoy granodiorite stock of Cretaceous age immediately to the south and east of the property. The sediments lie on the northeast limb of a broad northwest/southeast trending anticline which appears to be slightly domed over the northwest nose of the McEvoy stock. An irregular band of hornfels has developed where the sediments are in contact with the granodiorite intrusive.

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6.0 GEOLOGY

Reconnaissance mapping of the IRENE claims was carried out at a scale of 1 inch to 1,000 feet and is presented in Figure 3 of this report.

The rocks encountered on the property have been divided into six map units. No indication is given of relative stratigraphic position as outcrop is too sparse to compile a detailed section. Unit 1 is composed of thin bedded black shales. In places the shales are rusty weathering and occasionally contain visible pyrite. At one location, near 40S 20E, a slatey cleavage had developed in the rock and was measured as striking north/south and dipping 43 degrees east.

Unit 2 consists of interbedded black shale and dark grey limestone.

Unit 3 is made up of buff weathering limestones and buff to grey weathering interbedded limestone and dolomite. Bedding thicknesses vary from several inches to several feet. Recrystallization and calcite flooding are common and limonite nodules were noted in a limestone bed east of OE 80 S.

Unit 4 contains dark green to black shales and mudstones interbedded with sandstones and siltstones. Bedding thicknesses vary from less than an inch to several inches. The unit was quite commonly silicified and quartz veined. In one location, near 42 S OE, the outcrop was completely flooded by large quartz veins in which remnant fragments of bleached, silicified, light green siltstone were suspended. Abundant pyrite was noted in a dark green interbedded mudstone/

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siltstone near 49S OE. Unit 4a appears to lie within Unit 4 and consists of medium to dark grey dolomites, occasionally interbedded with dark grey shales.

Unit 5 includes a wide variety of coarse grained, grey weathering clastic sediments. Rock types ranged from well to poorly sorted, fine to coarse grained sandstones; to fine grained pebble conglomerates. Bedding thicknesses varied from several inches to several feet. Clasts were mainly arkosic in composition, however some beds with predominantly shale and chert fragments were noted.

Unit 6 is the McEvoy granodiorite stock.

The amount of overburden makes any structural interpretation difficult other than to say that the wide range of bedding attitudes indicates fairly intensive folding.

The only mineralized outcrop seen was in a creek cut near 20E 60 S, where a buff weathering limestone contained traces of sphalerite and secondary zinc minerals. The unit could not be traced along strike as it was only exposed in the creek.

7.0 GEOCHEMISTRY

During the reconnaissance sampling program, a total of 130 soil samples were collected from flagged stations taken at 400 foot intervals on lines spaced 2,000 feet apart. The grid covers an area of 8,000 feet by 10,000 feet (see Figure 2 for grid location).

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Samples were taken from the B soil horizon, which lay at an average depth of 1 foot in the area. The samples were placed in numbered kraft envelopes and partially dried prior to shipment to Chemex Labs Ltd. in North Vancouver, B.C. Upon receipt at Chemex, the samples were completely dried, sieved to -80 mesh, and analysed for lead and zinc using standard atomic absorption procedures. The Chemex Certificate of Analysis is contained in Appendix V of this report.

The values for zinc and lead in soil have been plotted on Figures 4 and 5 respectively at a scale of 1 inch to 1,000 feet.

Zinc values range from 10 ppm to 3,150 ppm and contour intervals have been chosen arbitrarily at 200, 400, 600 and 1,000 ppm. Although no statistical treatment of data has been undertaken, above 400 ppm is considered anomalous for the survey. Lead values range from 1 ppm to 400 ppm and contour intervals have been chosen arbitrarily at 20, 30 and 50 ppm. Values above 30 ppm are considered anomalous for the survey.

8.0 DISCUSSION

Two major zinc anomalies exist. The first runs diagonally through the centre of the claims from southwest to northeast and has peak values of 670 ppm, 855 ppm, and 930 ppm. The anomaly is 6,000 feet long and is open to the

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southwest. The second anomaly runs parallel to the first through the northwest part of the claims and has peak values of 600 ppm, 625 ppm, 675 ppm, 685 ppm, 695 ppm, and 3,150 ppm. The anomaly is 4,000 feet long and open to the southwest with a possible extension to the northeast. Both these zinc anomalies are coincident with lead anomalies. The lead anomaly running diagonally through the centre of the claims has peak values of 34 ppm, 36 ppm, 40 ppm, 44 ppm, and 370 ppm. The lead anomaly running through the northwest part of the property has peak values of 32 ppm, 34 ppm, 52 ppm, and 410 ppm. Both lead anomalies are also open to the southwest.

A third zinc anomaly with peak values of 490 ppm and 650 ppm lies just outside the western boundary of the claims in the 40W 36S area. There are no coincident lead values with the third anomaly. A number of other anomalies (2 zinc, 5 lead) exist as single station highs.

The two large coincident zinc/lead anomalies are apparently associated with two of the carbonate bearing units found on the property; the central anomaly with the buff weathering limestones and dolomites of Unit 3, and the north-western anomaly with the interbedded shales, mudstones and dolomites of Unit 4. Both these units were seen to contain sulphide minerals (trace sphalerite in Unit 3 and abundant pyrite in Unit 4). Although this mineralization was sub-economic, the size and intensity of the lead-zinc anomalies associated with these units suggest them to be very attractive exploration targets.

9.0 CONCLUSIONS

Interest in the Frances Lake/McEvoy Lake/Pelly Lakes region is increasing as it is becoming evident that geologic environments exist in the area which are similar to those of a number of important lead/zinc deposits and prospects in the southeastern Yukon Territory. The IRENE claims appear to lie within one such geologic environment.

Two significant lead/zinc soil anomalies have been outlined on the claim group. The anomalies, 6,000 feet and 4,000 feet in length, are both open ended in one direction and trend off the existing grid and claim boundaries. As neither the presently outlined anomalies nor the favourable open ground to the southwest have been more than superficially tested, it is felt that the property and the surrounding area offer an excellent exploration target.

10.0 RECOMMENDATIONS

1. Although the present grid has outlined several anomalous areas, it is felt that additional reconnaissance work is required. The existing grid should be filled in to arrive at line spacing of 1,000 feet as the present 2,000 foot spacing could easily be missing important targets. The grid should be expanded to the west and southwest at 1,000 foot spacing to delineate the anomalies which trend off the grid in those

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directions. If results from this work are encouraging, additional ground should be immediately acquired.

2. Combined geologic mapping and intensive ground prospecting should be carried out along the favourable units by a person or persons familiar with the occurrence of sulphides in sediments.

3. Geochemical sampling should be carried out at 200 foot by 400 foot spacing over the presently outlined anomalous areas in order to further investigate their size and intensity.

4. After delineation of the geochemical anomalies, an electro-magnetic survey should be conducted over the areas of interest using the geochemical grid for control.

5. On completion of this program it should be evident whether or not a diamond drill target exists on the property. Preparations should be made for a drilling program contingent upon favourable results from the above mentioned work.

Respectfully submitted,

David A. Yeager

D. A. Yeager - Geologist

C. K. Ikona - P.Eng.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX: 043-52597

CHEMEX LABS LTD.

••ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 42420
INVOICE NO. 22367 ~~22425~~
RECEIVED Oct. 21/77
ANALYSED Oct. 26/77

TO: Mountaineer Mines
907 - 675 W. Hastings St.
Vancouver, B.C.

ATTN: Tim Brock

SAMPLE NO. :		PPM Lead	PPM Zinc
0N	0E	38	240
0E	4S	10	285
	8	6	330
	12	4	114
	16	8	26
	20	12	178
	24	30	375
	28	12	118
	32	12	154
	36	12	570
	40	410	3150
	44	34	285
	48	28	450
	52	6	205
	56	12	245
	60	4	300
	64	40	930
	68	34	210
	72	44	360
	76	14	290
0E	80S	14	220
20E	0N	12	105
20E	4S	1	10
	8	Not Sufficient Sample	
	12	4	35
	16	6	280
	20	12	45
	24	10	85
	28	10	215
	32	8	70
	36	12	95
	40	2	35
	44	12	20
	48	4	90
	52	12	400
	56	4	45
	60	36	670
	64	20	515
	68	14	335
20E	72S	8	160
STD.		38	125

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: A.P. Chuck

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

TO: Mountaineer Mines
907 - 675 W. Hastings St.
Vancouver, B.C.

ATTN: Tim Brock

CERTIFICATE NO. 42421
INVOICE NO. ~~22425~~ 22367
RECEIVED Oct. 21/77
ANALYSED Oct. 26/77

SAMPLE NO. :	PPM Lead	PPM Zinc
20E 76S	18	75
20E 80S	14	115
40E 0N	28	270
40E 4S	4	30
8	10	30
12	22	145
16	24	135
20	8	40
24*	26	615
32	16	115
36	20	245
40	10	90
44	10	95
48	10	55
52	22	50
56	28	290
60	14	135
64	8	80
68	10	210
72	14	215
76	16	155
40E 80S	22	265
60E 0N	4	155
60E 4S	4	30
8	4	45
12	8	80
16	12	65
20	36	105
24	18	125
28	20	95
32	6	280
36	16	195
40	6	60
44	30	225
48	22	215
52	14	165
56	10	85
60	10	40
60E 64S	6	75
40E 28S*	26	80
STD.	40	135

CERTIFIED BY: [signature]

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 42422

INVOICE NO. 22367 ~~22425~~

RECEIVED Oct. 21/77

ANALYSED Oct. 26/77

TO: Mountaineer Mines Ltd.
907 - 675 W. Hastings St.
Vancouver, B.C.

ATTN:

SAMPLE NO. :	PPM Lead	PPM Zinc
60E 68S	14	50
72	14	135
76	20	160
60E 80S	22	120
10W 0S	16	175
20W 0S	16	220
20W 4S	16	265
8	14	200
12	12	75
16	16	140
20	16	100
24	12	60
28	8	50
32	10	145
36	12	340
40	18	105
44	8	90
48	32	695
52	16	400
56	42	275
60	22	140
64	34	445
68	14	270
72	12	305
76	10	315
20W 80S	6	195
30W0S	12	125
30W 80S	2	90
40W 0S	24	280
40W 4S	4	10
8	20	255
12	10	450
16	22	280
20	10	140
24	56	225
28	8	30
32	12	490
36	22	650
40	4	80
40W 43S	52	685
STD.	39	135

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: .....

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
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TELEPHONE: 985-0648
AREA CODE: 604
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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 42423

INVOICE NO. 22367 / 22425

RECEIVED Oct. 21/77

ANALYSED Oct. 26/77

TO: Mountaineer Mines
907- 675 W. Hastings St.
Vancouver, B.C.

ATTN:

SAMPLE NO. :	PPM Lead	PPM Zinc
40W 44S	32	625
48	18	675
52	12	370
56	22	600
60	8	210
64	12	125
68	6	95
72	370	855
76	20	345
40W 80S	8	420

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: A. J. Sharpe

40W 20W 0 20E 40E 60E

0 B.L.

20 S

40 S

60 S

80 S

CLAIM OUTLINE

LEGEND

6	McEvoy granodiorite stock
5	Grey weathering sandstones — conglomerates
4	Dark green to black shales, mudstones with interbedded sandstones, siltstones. 4a : Grey dolomites, some shales.
3	Buff weathering limestones, dolomites
2	Interbedded shales and limestones
1	Black , thin bedded shales

12° Bedding attitude

Horizontal beds

43° Slatey cleavage

Minor fold axis (horizontal)

Outcrop limits

? Inferred geologic contact.

MOUNTAINEER MINES LTD.

IRENE 1-24 MINERAL CLAIMS

NTS 105-G-16

PRELIMINARY GEOLOGY

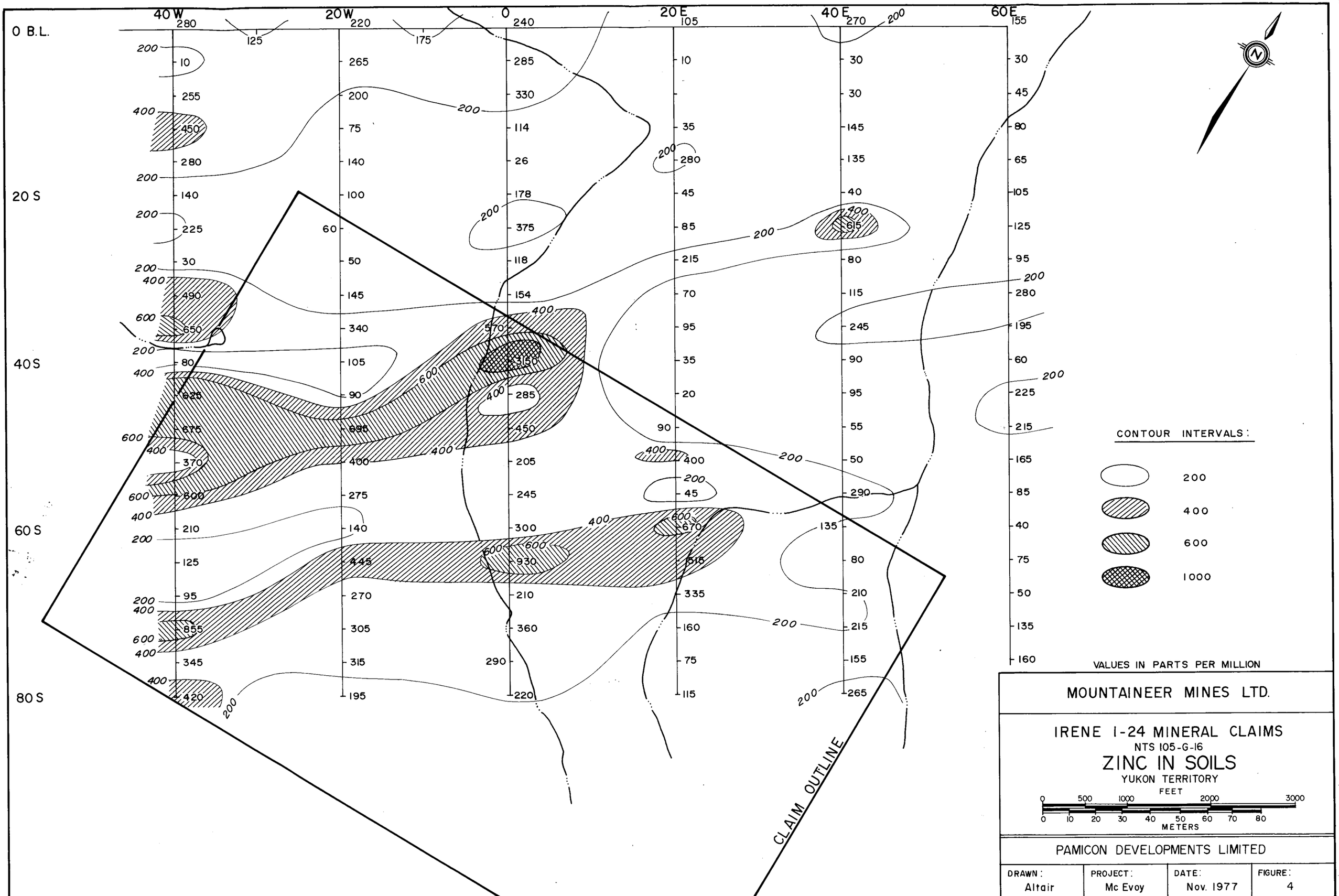
YUKON TERRITORY

FEET 0 500 1000 2000 3000

METERS 0 10 20 30 40 50 60 70 80

PAMICON DEVELOPMENTS LIMITED

DRAWN:	PROJECT:	DATE:	FIGURE:
Altair	Mc Evoy	Nov. 1977	3



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IRENE 1-24 MINERAL CLAIMS

NTS 105-G-16

ZINC IN SOILS

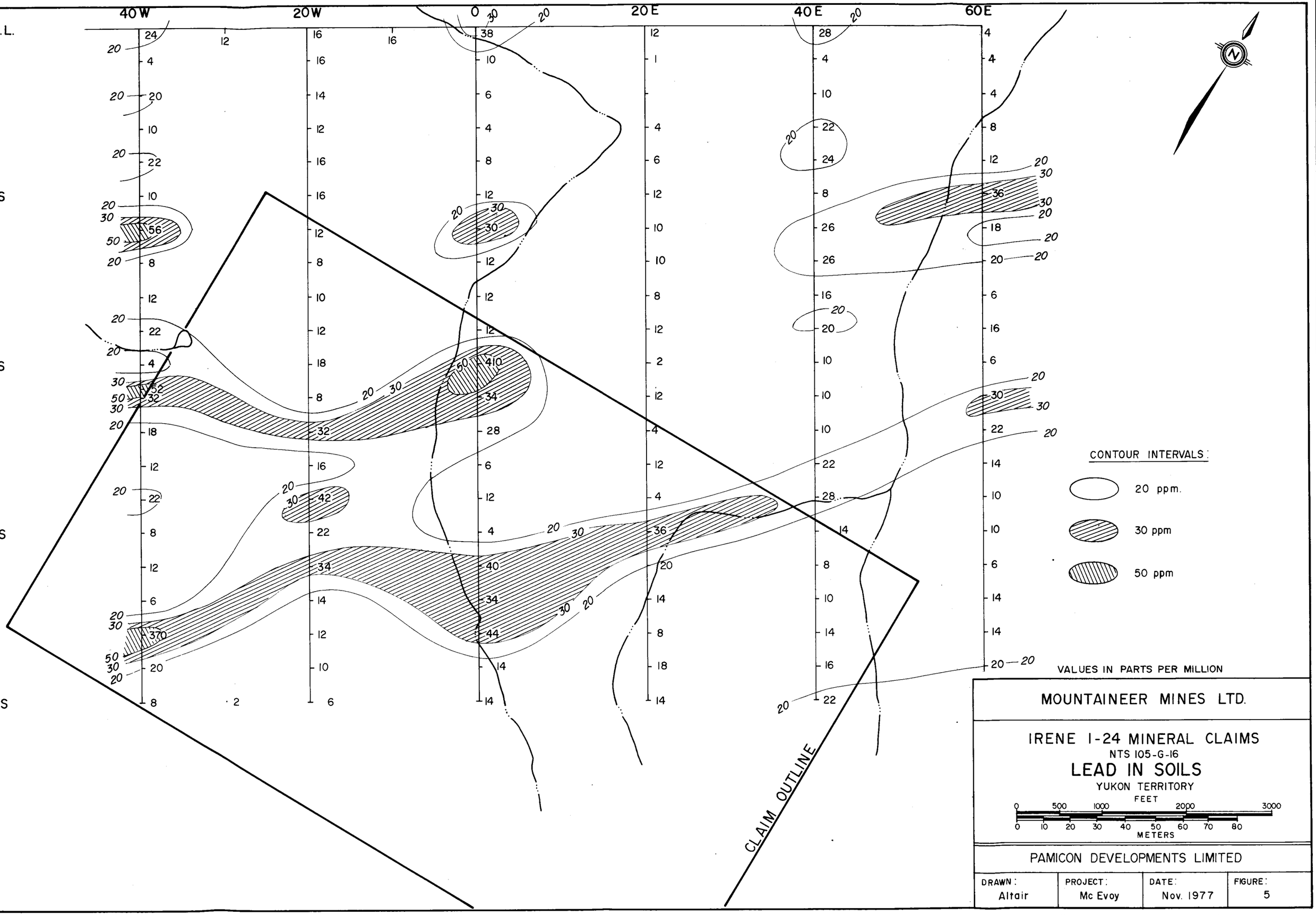
YUKON TERRITORY

FEET 0 500 1000 2000 3000

METERS 0 10 20 30 40 50 60 70 80

PAMICON DEVELOPMENTS LIMITED

DRAWN:	PROJECT:	DATE:	FIGURE:
Altair	Mc Evoy	Nov. 1977	4



VALUES IN PARTS PER MILLION

MOUNTAINEER MINES LTD.

IRENE 1-24 MINERAL CLAIMS

NTS 105-G-16

LEAD IN SOILS

YUKON TERRITORY

FEET 0 500 1000 2000 3000

METERS 0 10 20 30 40 50 60 70 80

PAMICON DEVELOPMENTS LIMITED

DRAWN:	PROJECT:	DATE:	FIGURE:
Altair	Mc Evoy	Nov. 1977	5