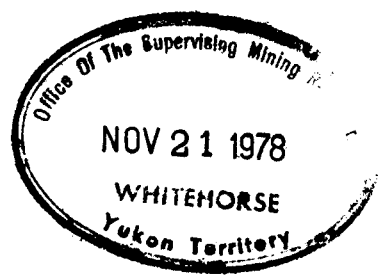


GEOLOGICAL AND GEOCHEMICAL REPORT

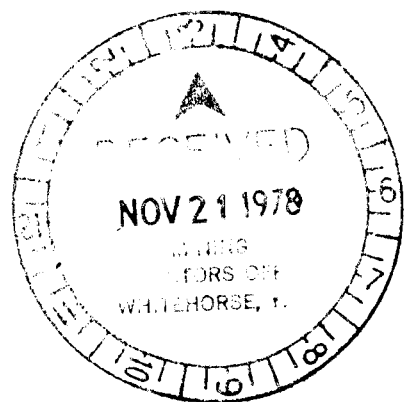
ON THE
IRENE CLAIMS



by

KEN RALFS

LOCATION: N.T.S. 105 G/16
61°46' N. Latitude
130°15' W. Longitude



OPERATOR: SEREM LTD.

OWNER: MOUNTAINEER MINES LTD.

DATES WORK PERFORMED: May 31 to June 10, 1978
June 16 to June 29, 1978
July 6 to July 11, 1978

090395



This report has been examined by the
Geological Exploration Unit and is recom-
mended to the Commissioner to be consid-
ered as representative of the work done

\$10,800.00

[Handwritten signature]

Name

Considered as representative work under
Section 58 of the Yukon Mining Act.

[Handwritten signature]
B. R. BAXTER
Supervising Mining Recorder

[Handwritten signature]

Commissioner of Yukon Territory

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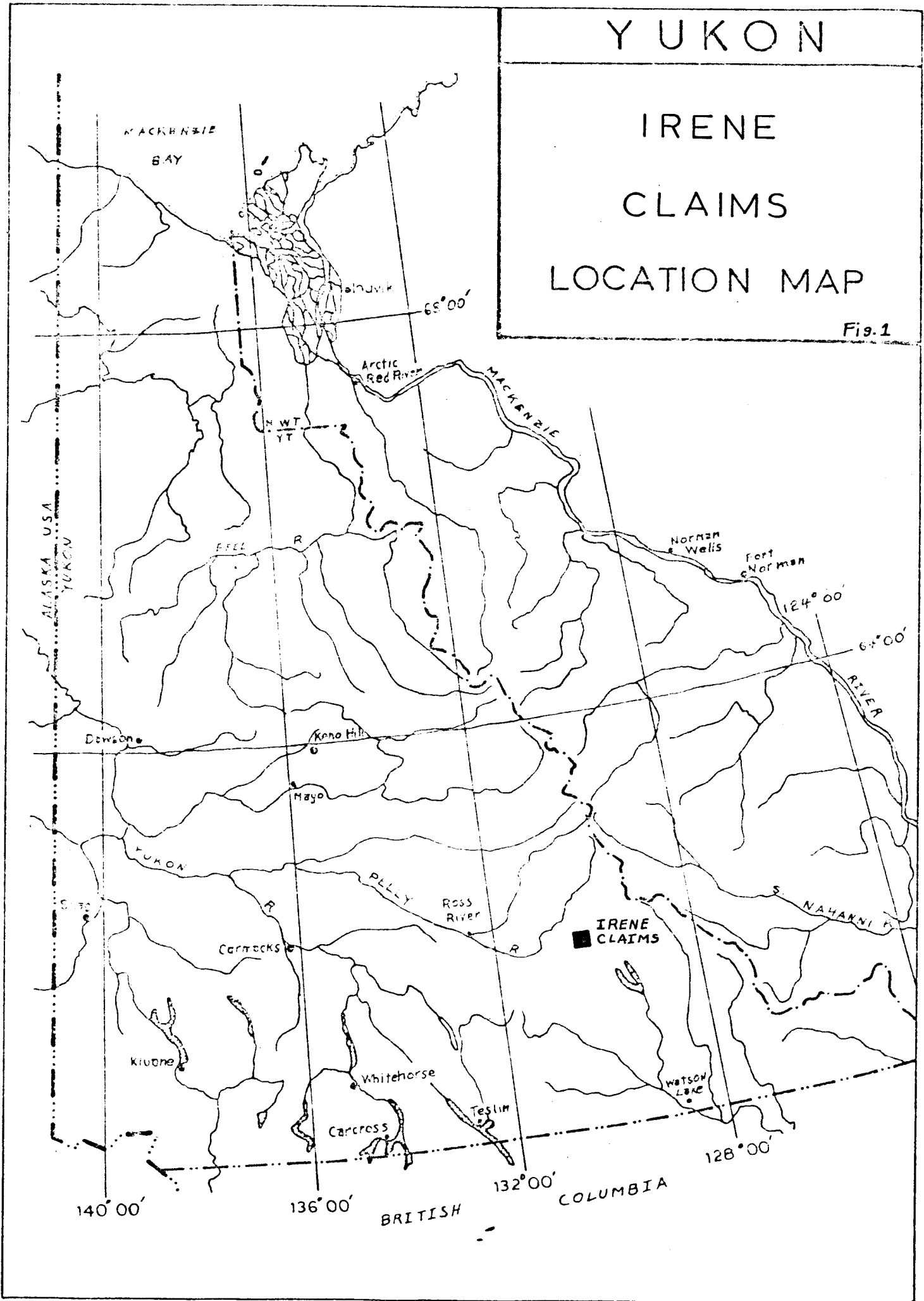
APPENDICES

- ~~1 List of Personnel~~
- ~~2 Statement of Expenditures with attached Invoices~~
- ~~3 Statement of Author's Qualifications~~

YUKON

IRENE CLAIMS LOCATION MAP

Fig. 1





1. SUMMARY

Detailed property mapping and soil geochemistry outlined areas of lead-zinc-silver mineralization on the Irene claims. This mineralization occurs as disseminations and small patches irregularly distributed in narrow quartz-carbonate-barite veinlets and veins. Potential for economic tonnage or grade is considered negligible.

Road River black shales of Devonian age crop out on the Irene claims. The shale facies is considered too shallow water and water circulation too open for syn-sedimentary deposition of zinc-lead.

2. INTRODUCTION

During June and July 1978 a combined linecutting, geological and geochemical program was undertaken on the Irene claims, McEvoy Lake area, by Serem Ltd. under an option agreement with Mountaineer Mines Ltd., controllers of the property.

The program was initiated to evaluate and extend previous work by Pamicon Developments Ltd. as described in the assessment report by C. Ikona dated November, 1977.

The program consisted of installing 14.3 miles of grid line, collection of 404 soil samples and 14 channel samples of 5 foot lengths, and mapping at a scale of 1" = 500'.

3. LIST OF CLAIMS

<u>CLAIM NAME</u>	<u>GRANT NUMBER</u>	<u>EXPIRY DATE</u>	<u>OWNER</u>
Irene 1-24	Y83995-Y84018	Feb. 26, 79	Mountaineer Mi
Irene 25-32	YA28391-YA28398	April 17, 79	J. Rolls
Irene 33-40	YA28399-YA28406	April 17, 79	M. Rolls
Irene 41-48	YA28407-YA28414	April 17, 79	P. Tegart
Irene 49-56	YA28415-YA28422	April 17, 79	K. Ralfs
Irene 57-64	YA28423-YA28430	April 17, 79	P. Pecka

<u>CLAIM NAME</u>	<u>GRANT NUMBER</u>	<u>EXPIRY DATE</u>	<u>OWNER</u>
Irene 65-72	YA28431-YA28438	April 17,79	O. Yeager
Irene 73-80	YA28439-YA28446	April 17,79	D. Yeager
Irene 81-88	YA28447-YA28454	April 17,79	L. Luciuk
Irene 89-96	YA28455-YA28462	April 17,79	G. Peter
Irene 97-104	YA28463-YA28470	April 17,79	E. Pecka
Irene 105-108	YA28471-YA28474	April 17,79	B. Christie

Work performed by Serem Ltd. on the Irene 1 - 108 claims during 1978 was on behalf of Mountaineer Mines Limited pursuant to an option agreement between the above two companies.

4. LOCATION AND ACCESS

The Irene 1 - 108 claims are located on N.T.S. sheet 105-G-16, approximately 1.5 miles south of McEvoy Lake in the southeastern Yukon Territory (Figure 1). Approximate coordinates 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 westnorthwest, 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 southwest. Both helicopter and fixed wing aircraft as well as full expediting services are available in Ross River.

5. 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.

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

6. GRID INSTALLATION

Line-cutting, totalling 75,600 feet (14.318 miles), consisting of 34,000 feet of baseline and 41,600 feet of crosslines was constructed by Petra Gem Exploration of Canada Limited between May 31 and June 7, 1978 inclusive. Baselines were cleared with powersaws and lath pickets erected at stations every 100 feet. Crosslines were cleared with axes and lath pickets erected at stations varying from 50 to 200 feet in separation. Crosslines were spaced from 200 to 400 feet apart.

7. 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 G.S.C. map 8-1960, Geology of Finlayson Lake, Yukon Territory, by J.A. Roddick and J.A. Wheeler (1960), and G.S.C. Open File 486 compiled by D.J. Tempelman-Kluit, 1977.

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 Devonian hinge line where shales of the Road River Formation give way outboard to deeper water chert-shale assemblages in the basin core, and carbonate facies inboard.

The McEvoy Lake area is underlain by a sequence of middle to upper Cambrian phyllites, argillites, dolomites, quartzites and minor greenstone, Ordovician to Devonian black shales, limestone and dolomite and Devonian-Mississippian black clastic rocks 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.

8. PROPERTY GEOLOGY

A table of geologic formations is included as Figure 2. The geologic map, Figure 4, is in the map pocket at end of report. Both figures contain a description of rock types encountered on the Irene claims.

Rock units strike northwesterly and dip moderately to the northeast, although at outcrop scale the shale lithologies are intensely deformed and usually display isoclinal folding. The northern part of the claim group near McEvoy Lake consisting of chert pebble conglomerates and clastic siliceous sediments of Devonian-Mississippian age based on the chert pebble conglomerate, is a relatively high energy non-euxinic marine environment not characteristic of syn-sedimentary depositional basins conducive to sulphide formation. Toward the south and down section is a lower energy, shallow marine environment composed essentially of interbedded argillaceous dolomite, thin bedded limestone and black shale. Shallow, near shore deposition is indicated by both the carbonate beds and limestone nodules within the shales. The minor amounts of organic carbon indicate only a slightly restricted depositional environment. Although this area represents a shale-out facies it is considered too shallow to represent a good exploration target for syn-sedimentary shale hosted mineralization. On the basis of the two holed crinoids the lower part of the section is considered to be mainly Lower Middle and Lower Devonian, and could possibly range to Silurian.

FIGURE 2

TABLE OF GEOLOGIC FORMATIONS

Chert Pebble Conglomerate (Devono-Mississippian)

- blocky, grey weathering, poorly sorted, chert pebble conglomerate. Correlative with unit 6.

Mudstone, Shale, Silty Shale, Sandstone - Interbedded

- black weathering, slightly pyritiferous, black, cherty non-calcareous mudstone.
- grey weathering, fine grained, black, siliceous, feldspathic shale and silty shale containing chert grains. Good thin to slabby parting.
- grey, rusty weathering, fine to medium grained lithic sandstone with cherty grains usually 2.5 to 5 millimeters, pyrite and pyrrhotite locally up to 5% - weakly magnetic.

Quartzite

- buff to rusty weathering, pyritic, white to light grey quartzite interbedded with units 4 and 6.

Argillaceous Basinal Dolomite (Devonian)

- blocky, white to light grey weathering. White dolomite with light grey laminations of medium to dark grey argillaceous material, locally includes: 4-a, grey weathering, grey argillaceous limestone with well sorted two holed crinoid stem debris - 1 - 2 mm diameter; 4-b, buff weathering, very calcareous, light green skarn limestone, originally 4 and 4-a; 4-c, massive, very light grey weathering, light grey to white quartzite; 4-d, black weathering, soft, very calcareous, fine grained black limestone, breaks into irregular chunks, interbedded with units 3 and 4.

Shale - Limestone, Interbedded

- dark grey, moderately rusty weathering, fine grained, siliceous black shale containing quartz and light grey quartzite lenses. Slightly graphitic. 1 - 2 cm partings.
- grey, locally gypsiferous weathering, very calcareous, grey limestone beds ranging from several cm to 1 meter thick. Numerous grey limestone nodules about 0.3 meters thick and several meters long.
- pyritiferous chert nodules
- black weathering, soft, very calcareous, fine grained black limestone, same as 4-d.

Dolomite - Limestone

- buff weathering, thick bedded, recrystallized, medium grained white dolomite, and grey weathering thin to thick bedded grey limestone. Dolomite and limestone interbedded over 10 meter transition zone.

Hornfelsic Shale

- blocky, rusty weathering, siliceous grey hornfelsic shale.

9. MINERALIZATION

Sulphide minerals observed on the Irene claims are: galena, sphalerite, tetrahedrite, chalcopyrite, pyrite and pyrrhotite.

The host rocks are units 4-a, 4-b, and to a lesser extent unit 4.

The mineralization occurs in numerous very narrow irregular veins and veinlets of quartz-carbonate-barite gangue. Two common vein sets observed were N 30° E with moderate dip to northwest and N 20°W with 60° dip to southwest. These veins are more resistant than the host rocks, forming ridges or "spines" on outcrops. The veins have a millimetric, discontinuous envelope of white tremolite. The widest vein observed was one foot thick with a pervasive and continuous three foot wide skarn envelope. The sulphides occur usually as scattered blebs and rarely as irregular patches up to fist size within both the veins and envelopes. The amount of mineralization being very minor and the nature of occurrence does not encourage further examination.

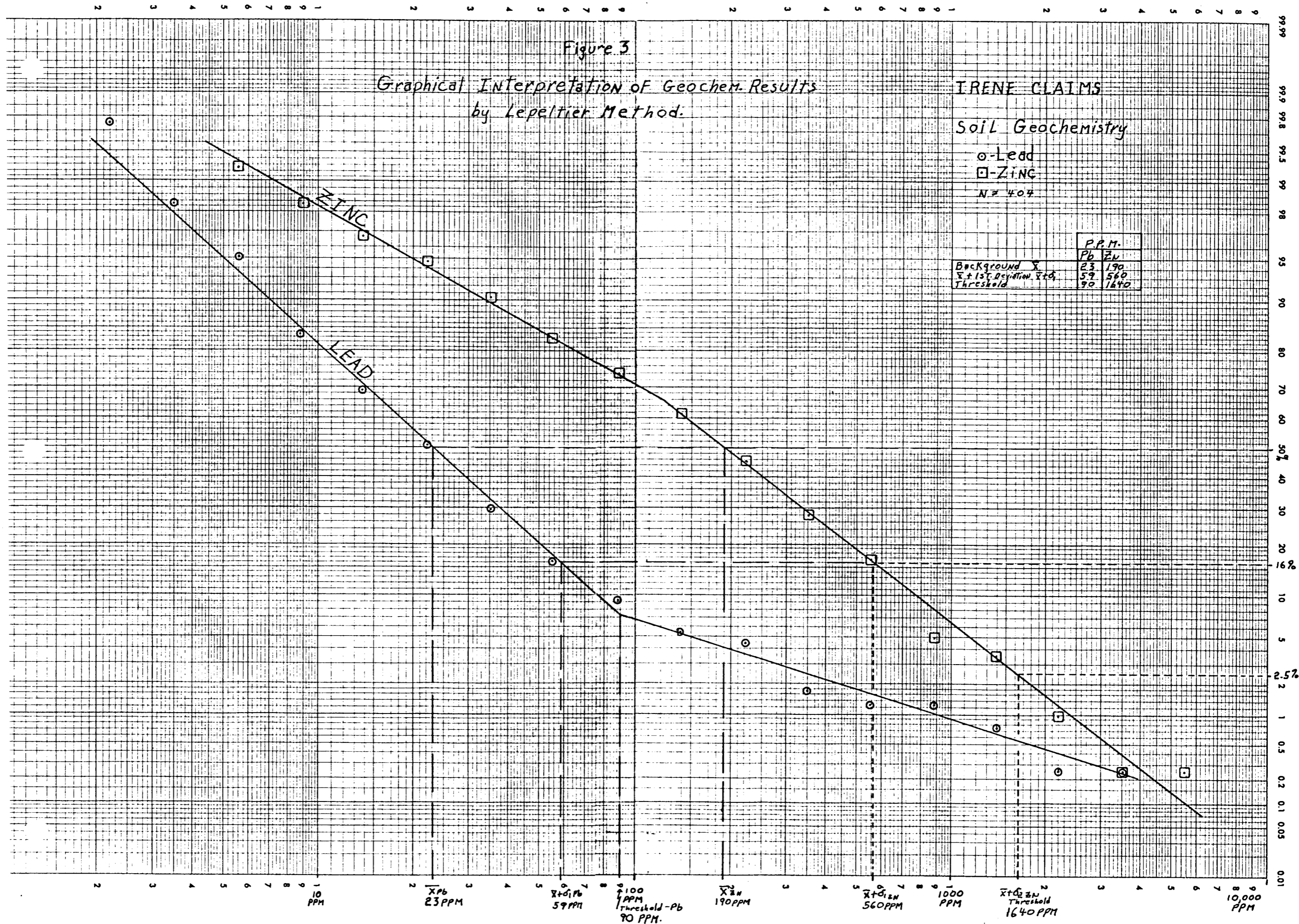
10. GEOCHEMICAL SURVEY

10.1. Procedures

Soil samples were collected at intervals ranging from 50 to 200 feet, employing mattocks. Most samples were from the "B" horizon at a depth of 8 to 16 inches, however some difficulty was encountered with permafrost and thicker overburden necessitating the using of mattocks and shovels. Samples were placed in Kraft paper bags, dried and shipped to Vangeochem Laboratories in North Vancouver, B.C. for analysis.

The samples were analysed using standard Atomic Absorption techniques for lead and zinc.

The results of the 404 samples collected were plotted graphically in Figure 3 and plotted and contoured on Figures 5 and 6.



10.2. Discussion of Geochemical Results

There is a strong coincidence of the lead and zinc anomalies with values in ppm ranging to 4,000 and 5,700 respectively. The geochemical anomalies show a strong coincidence with the dolomite and limestones of map unit 4. Subsequent ground examination clearly reveals that the coincident geochemical anomalies of lead and zinc are in a close spatial relation to and a direct result of sulphide mineralization within the host dolomite and limestone of unit 4.

11. ASSAYS

Locations and assay results by chemical and Atomic Absorption techniques are plotted on the geology map. Eight specimens were assayed as character samples only and are not necessarily representative. Sample No. 183 which assayed 8.88% zinc was from a small patch of skarn mineralization having no aerial extent. Samples 163 through 176 inclusive are adjacent 5 foot chip samples collected perpendicular to bedding from black shales which responded with a weak positive reaction to Zn-Zap. The low assay results obtained from these chip samples indicate that the positive Zn-Zap reaction is not due to mineralization but most likely to a slightly geochemically anomalous shale and/or slight zinc enrichment on weathered surface. No mineralization was observed in these black shales aside from pyrite.

12. CONCLUSIONS

In a regional geologic context the Irene claims are favourably located with respect to their location on the Selwyn Basin margin. Detailed property mapping has outlined two main depositional environments. 1.) A Devonian-Mississippian coarse to fine clastic area of relatively rapid deposition under high energy conditions. 2.) a Lower-Middle to Lower (?) Devonian shale-out facies with shallow, slightly restricted

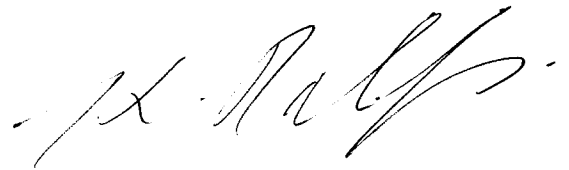
water conditions. These environments are considered unsuitable for economic, syn-sedimentary accumulation of shale hosted sulphides.

Lead, zinc, silver, copper mineralization within limestone and dolomite has no economic potential.

Lead, zinc soil geochemistry successfully indicates mineralization within the limestones.

13. RECOMMENDATIONS

The Irene claims are of no further interest.

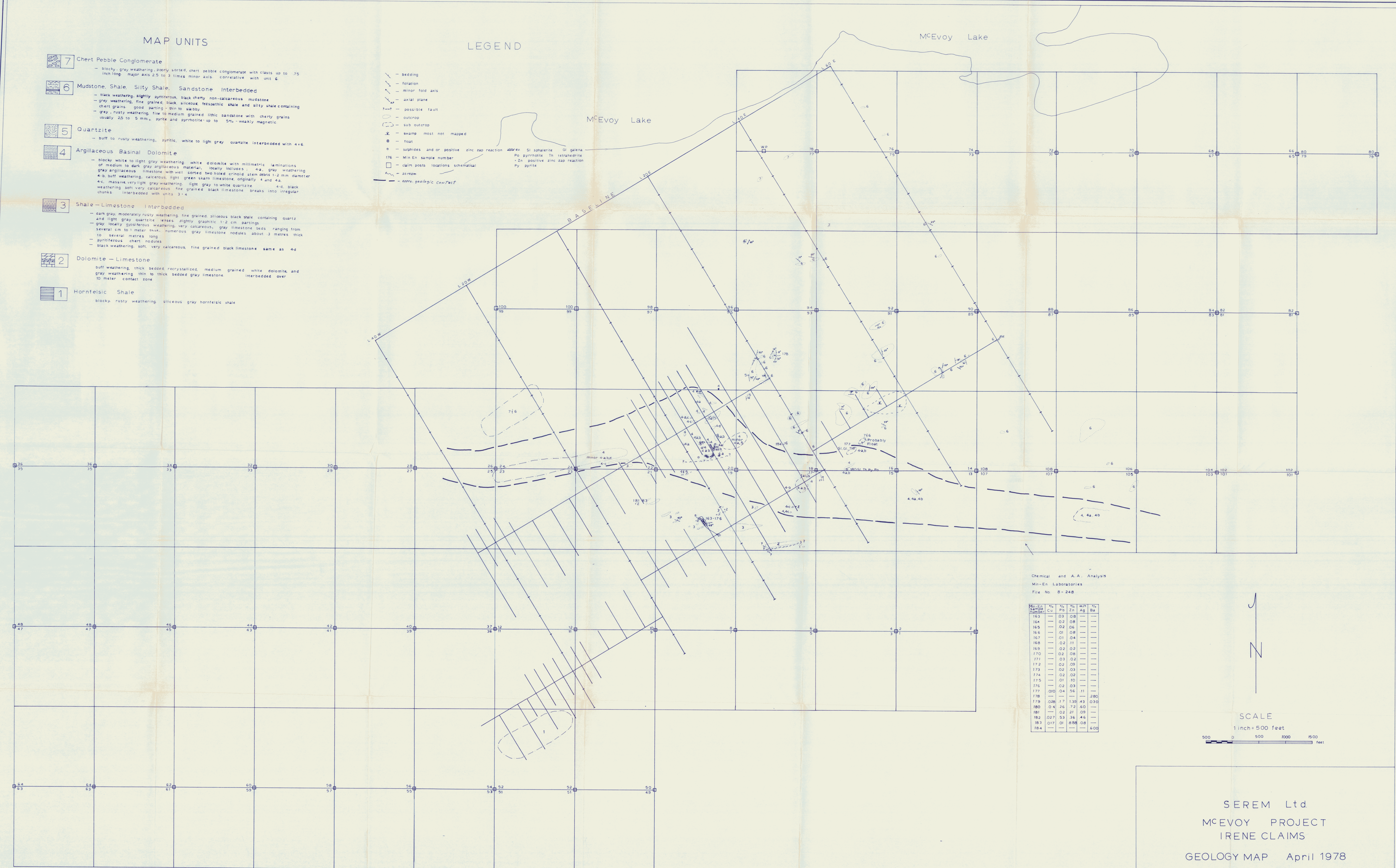
A handwritten signature in cursive script, appearing to read "H. R. G.", located in the lower right quadrant of the page.

MAP UNITS

- 7 Chert Pebble Conglomerate
- blocky, gray weathering, poorly sorted, chert pebble conglomerate with clasts up to .75 inch long - major axis 2.5 to 3 times minor axis - correlative with unit 6
- 6 Mudstone, Shale, Silty Shale, Sandstone Interbedded
- black weathering, slightly pyritic, black cherty, non-calcareous mudstone
- gray weathering, fine grained, black siliceous, felspathic shale and silty shale containing chert grains - good parting - thin to shabby
- grey, rusty weathering, fine to medium grained, lithic sandstone with cherty grains usually 25 to 5 mm, pyrite and pyrrhotite up to .5%, weakly magnetic
- 5 Quartzite
- buff to rusty weathering, pyritic, white to light grey quartzite, interbedded with 4+6
- 4 Argillaceous Basinal Dolomite
- blocky white to light gray weathering, white dolomite with millimetric laminations of medium to dark gray argillaceous material, locally includes 4a, gray weathering gray argillaceous limestone with well sorted two loded conoidal stem about 1.2 mm diameter
4-b, buff weathering, calcareous, light green skarn limestone, originally 4 and 4a
4-c, massive very light gray weathering, light gray to white quartzite
4-d, black weathering, soft very calcareous, fine grained black limestone breaks into irregular chunks - interbedded with units 3, 4
- 3 Shale - Limestone Interbedded
- dark gray, moderately rusty weathering, fine grained, siliceous black shale containing quartz and light gray quartzite lenses, slightly granitic 1-2 cm partings
- gray locally gypsiferous weathering, very calcareous, gray limestone beds ranging from several cm to 1 meter thick, numerous gray limestone nodules about 3 metres thick
- pyritic chert nodules
- black weathering, soft very calcareous, fine grained black limestone same as 4d
- 2 Dolomite - Limestone
- buff weathering, thick bedded, recrystallized, medium grained white dolomite, and gray weathering thin to thick bedded gray limestone - interbedded over 10 meter contact zone
- 1 Hornfelsic Shale
- blocky, rusty weathering, siliceous gray hornfelsic shale

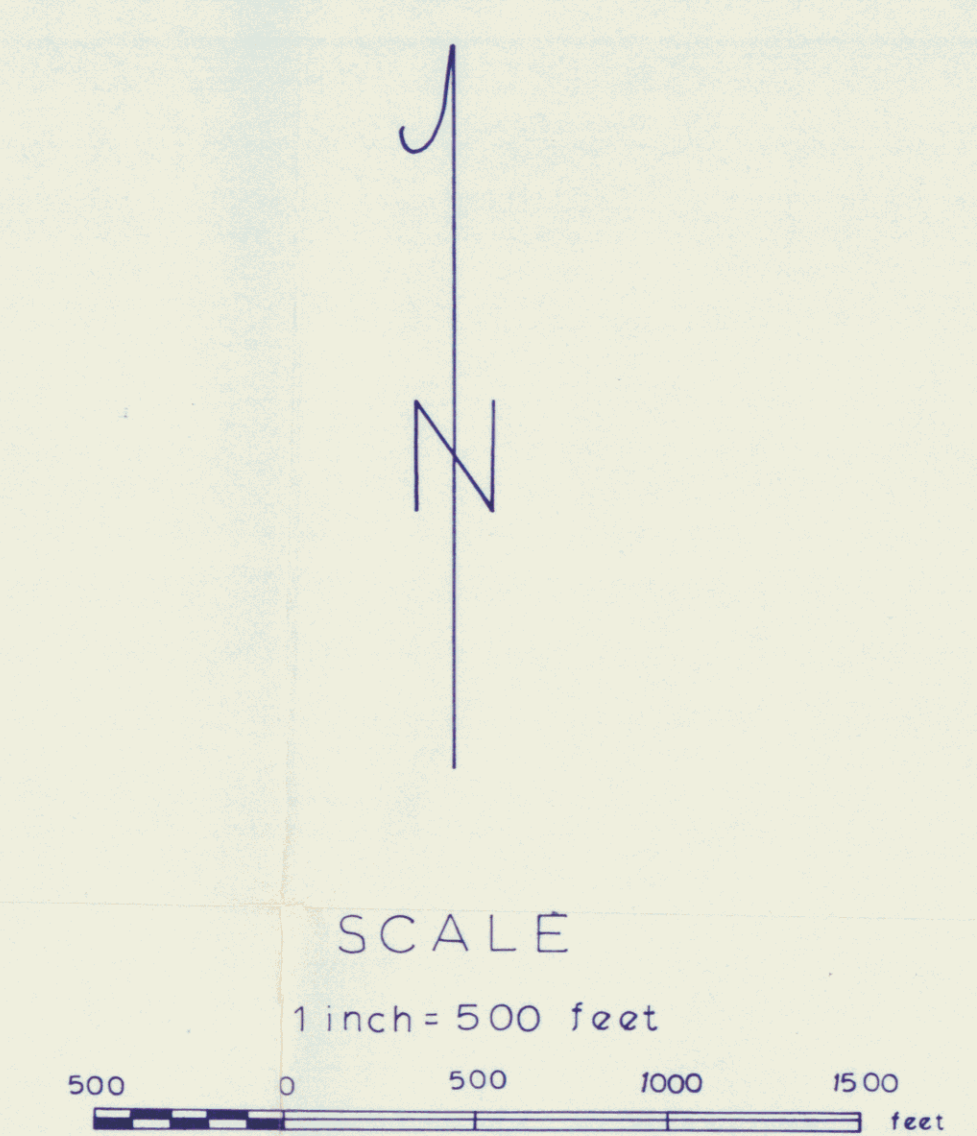
LEGEND

- bedding
- foliation
- minor fold axis
- axial plane
- possible fault
- outcrop
- sub outcrop
- swamp - most not mapped
- float
- sulphides and or positive zinc zap reaction abbrev: S1 sphalerite, G1 galena, P1 pyrrhotite, T1 tetrahedrite
- 176 - Min-En sample number
- claim posts locations schematic
- stream
- - - - - approx. geologic contact

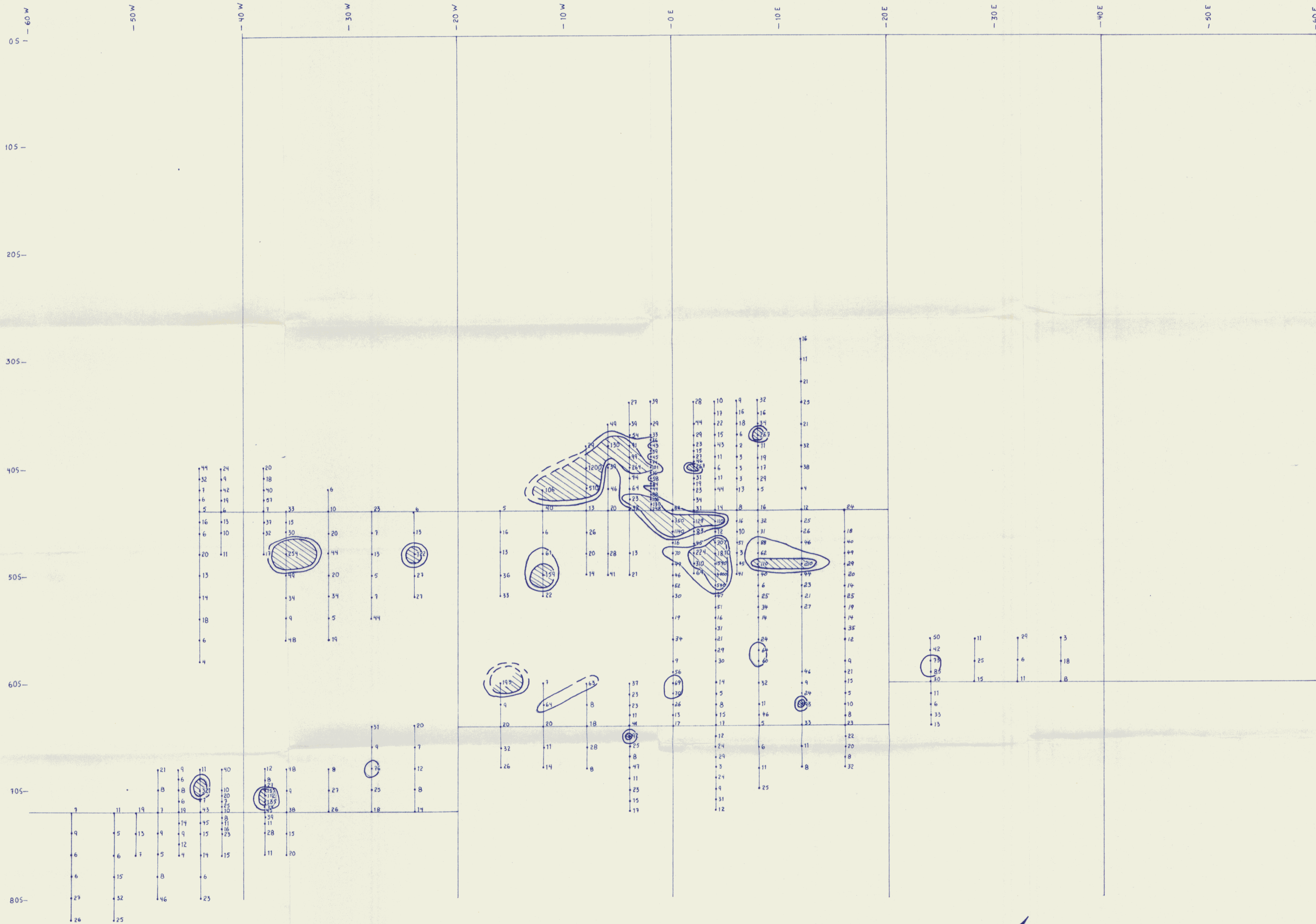


Chemical and A.A. Analysis
Min-En Laboratories
File No. B-248

Min-En Sample Number	% Cu	% Ni	% Pb	% Zn	% Ag	% Ba
163	03	08	—	—	—	—
164	02	08	—	—	—	—
165	02	06	—	—	—	—
166	01	08	—	—	—	—
167	01	04	—	—	—	—
168	02	11	—	—	—	—
169	02	02	—	—	—	—
170	02	08	—	—	—	—
171	03	02	—	—	—	—
172	02	09	—	—	—	—
173	02	03	—	—	—	—
174	02	02	—	—	—	—
175	01	10	—	—	—	—
176	02	03	—	—	—	—
177	010	04	56	11	—	—
178	—	—	—	—	—	280
179	028	17	138	43	030	—
180	04	26	72	60	—	—
181	02	21	08	—	—	—
182	027	53	36	46	—	—
183	017	01	888	08	—	—
184	—	—	—	—	—	600



SEREM Ltd
McEVROY PROJECT
IRENE CLAIMS
GEOLOGY MAP April 1978



S E R E M Ltd.

Irene Claims - Soil Geochemistry

Pb

Scale 1" = 500 ft.

Contours: > 59 ppm > 90 ppm
background 23 ppm

