

TITLE: GEOLOGY & GEOCHEMISTRY OF THE JAR CLAIMS

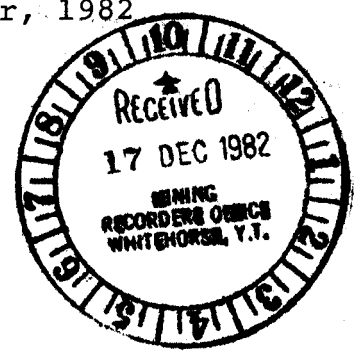
AUTHOR: N. Hulstein

DATE: December, 1982

COMMODITIES: Barite, Pb-Zn-Ag

LOCATION: Name of Claim Group - JAR Claims
Mining District - Whitehorse, Y.T.
Co-ordinates - Latitude 62°45'N
- Longitude 134°15'W
Claim Sheet No's: - 105L/9 & 16

DATE WORK WAS DONE: August - September, 1982



Getty Canadian Metals, Ltd.
Vancouver office

091405

This report has been examined by
the Geological Evaluation Board
under Section 53(4) of the Quartz
Mining Act and is therefore
represented on work in the amount
of \$ 20,200

R. Watson
Regional Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.

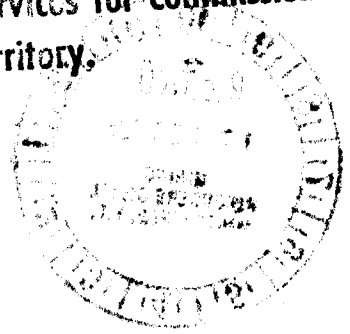


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List of JAR claims on which work was carried out during
1982;

Holder of Claims Getty Canadian Metals, Limited.

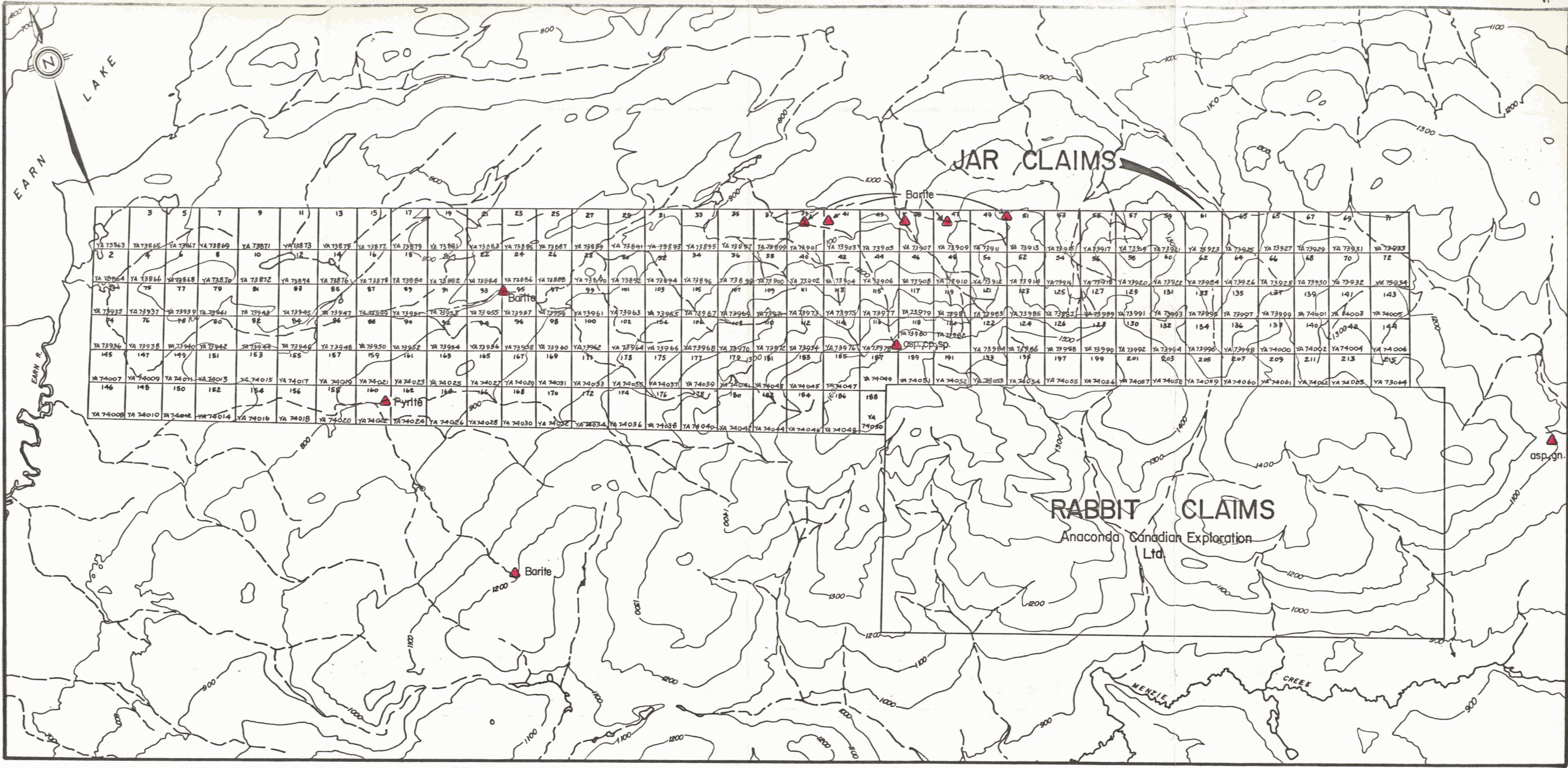
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2	YA73864	October 1, 1981	October 1, 1983
3	YA73865	October 1, 1981	October 1, 1983
4	YA73866	October 1, 1981	October 1, 1983
5	YA73867	October 1, 1981	October 1, 1983
6	YA73868	October 1, 1981	October 1, 1983
7	YA73869	October 1, 1981	October 1, 1983
8	YA73870	October 1, 1981	October 1, 1983
9	YA73871	October 1, 1981	October 1, 1983
10	YA73872	October 1, 1981	October 1, 1983
11	YA73873	October 1, 1981	October 1, 1983
12	YA73874	October 1, 1981	October 1, 1983
13	YA73875	October 1, 1981	October 1, 1983
14	YA73876	October 1, 1981	October 1, 1983
15	YA73877	October 1, 1981	October 1, 1983
16	YA73878	October 1, 1981	October 1, 1983
17	YA73879	October 1, 1981	October 1, 1983
18	YA73880	October 1, 1981	October 1, 1983
19	YA73881	October 1, 1981	October 1, 1983
20	YA73882	October 1, 1981	October 1, 1983
21	YA73883	October 1, 1981	October 1, 1983
22	YA73884	October 1, 1981	October 1, 1983
23	YA73885	October 1, 1981	October 1, 1983
24	YA73886	October 1, 1981	October 1, 1983
25	YA73887	October 1, 1981	October 1, 1983
26	YA73888	October 1, 1981	October 1, 1983
27	YA73889	October 1, 1981	October 1, 1983
28	YA73890	October 1, 1981	October 1, 1983
29	YA73891	October 1, 1981	October 1, 1983
30	YA73892	October 1, 1981	October 1, 1983
31	YA73893	October 1, 1981	October 1, 1983
32	YA73894	October 1, 1981	October 1, 1983
33	YA73895	October 1, 1981	October 1, 1983
34	YA73896	October 1, 1981	October 1, 1983
35	YA73897	October 1, 1981	October 1, 1983
36	YA73898	October 1, 1981	October 1, 1983
37	YA73899	October 1, 1981	October 1, 1983
38	YA73900	October 1, 1981	October 1, 1983
39	YA73901	October 1, 1981	October 1, 1983
40	YA73902	October 1, 1981	October 1, 1983
41	YA73903	October 1, 1981	October 1, 1983
42	YA73904	October 1, 1981	October 1, 1983
43	YA73905	October 1, 1981	October 1, 1983
44	YA73906	October 1, 1981	October 1, 1983
45	YA73907	October 1, 1981	October 1, 1983
46	YA73908	October 1, 1981	October 1, 1983
47	YA73909	October 1, 1981	October 1, 1983
48	YA73910	October 1, 1981	October 1, 1983
49	YA73911	October 1, 1981	October 1, 1983
50	YA73912	October 1, 1981	October 1, 1983

<u>CLAIM</u>	<u>GRANT NO.</u>	<u>RECORDING DATE</u>	<u>DUE DATE</u>
JAR 51	YA73913	October 1, 1981	October 1, 1983
52	YA73914	October 1, 1981	October 1, 1983
53	YA73915	October 1, 1981	October 1, 1983
54	YA73916	October 1, 1981	October 1, 1983
55	YA73917	October 1, 1981	October 1, 1983
56	YA73918	October 1, 1981	October 1, 1983
57	YA73919	October 1, 1981	October 1, 1983
58	YA73920	October 1, 1981	October 1, 1983
59	YA73921	October 1, 1981	October 1, 1983
60	YA73922	October 1, 1981	October 1, 1983
61	YA73923	October 1, 1981	October 1, 1983
62	YA73924	October 1, 1981	October 1, 1983
63	YA73925	October 1, 1981	October 1, 1983
64	YA73926	October 1, 1981	October 1, 1983
65	YA73927	October 1, 1981	October 1, 1983
66	YA73928	October 1, 1981	October 1, 1983
67	YA73929	October 1, 1981	October 1, 1983
68	YA73930	October 1, 1981	October 1, 1983
69	YA73931	October 1, 1981	October 1, 1983
70	YA73932	October 1, 1981	October 1, 1983
71	YA73933	October 1, 1981	October 1, 1983
72	YA73934	October 1, 1981	October 1, 1983
73	YA73935	October 1, 1981	October 1, 1983
74	YA73936	October 1, 1981	October 1, 1983
75	YA73937	October 1, 1981	October 1, 1983
76	YA73938	October 1, 1981	October 1, 1983
77	YA73939	October 1, 1981	October 1, 1983
78	YA73940	October 1, 1981	October 1, 1983
79	YA73941	October 1, 1981	October 1, 1983
80	YA73942	October 1, 1981	October 1, 1983
81	YA73943	October 1, 1981	October 1, 1983
82	YA73944	October 1, 1981	October 1, 1983
83	YA73945	October 1, 1981	October 1, 1983
84	YA73946	October 1, 1981	October 1, 1983
85	YA73947	October 1, 1981	October 1, 1983
86	YA73948	October 1, 1981	October 1, 1983
87	YA73949	October 1, 1981	October 1, 1983
88	YA73950	October 1, 1981	October 1, 1983
89	YA73951	October 1, 1981	October 1, 1983
90	YA73952	October 1, 1981	October 1, 1983
91	YA73953	October 1, 1981	October 1, 1983
92	YA73954	October 1, 1981	October 1, 1983
93	YA73955	October 1, 1981	October 1, 1983
94	YA73956	October 1, 1981	October 1, 1983
95	YA73957	October 1, 1981	October 1, 1983
96	YA73958	October 1, 1981	October 1, 1983
97	YA73959	October 1, 1981	October 1, 1983
98	YA73960	October 1, 1981	October 1, 1983
99	YA73961	October 1, 1981	October 1, 1983
100	YA73962	October 1, 1981	October 1, 1983

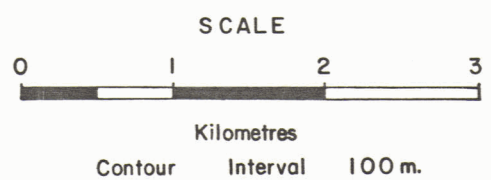
<u>CLAIM</u>	<u>GRANT NO.</u>	<u>RECORDING DATE</u>	<u>DUE DATE</u>
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103	YA73965	October 1, 1981	October 1, 1983
104	YA73966	October 1, 1981	October 1, 1983
105	YA73967	October 1, 1981	October 1, 1983
106	YA73968	October 1, 1981	October 1, 1983
107	YA73969	October 1, 1981	October 1, 1983
108	YA73970	October 1, 1981	October 1, 1983
109	YA73971	October 1, 1981	October 1, 1983
110	YA73972	October 1, 1981	October 1, 1983
111	YA73973	October 1, 1981	October 1, 1983
112	YA73974	October 1, 1981	October 1, 1983
113	YA73975	October 1, 1981	October 1, 1983
114	YA73976	October 1, 1981	October 1, 1983
115	YA73977	October 1, 1981	October 1, 1983
116	YA73978	October 1, 1981	October 1, 1983
117	YA73979	October 1, 1981	October 1, 1983
118	YA73980	October 1, 1981	October 1, 1983
119	YA73981	October 1, 1981	October 1, 1983
120	YA73982	October 1, 1981	October 1, 1983
121	YA73983	October 1, 1981	October 1, 1983
122	YA73984	October 1, 1981	October 1, 1983
123	YA73985	October 1, 1981	October 1, 1983
124	YA73986	October 1, 1981	October 1, 1983
125	YA73987	October 1, 1981	October 1, 1983
126	YA73988	October 1, 1981	October 1, 1983
127	YA73989	October 1, 1981	October 1, 1983
128	YA73990	October 1, 1981	October 1, 1983
129	YA73991	October 1, 1981	October 1, 1983
130	YA73992	October 1, 1981	October 1, 1983
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132	YA73994	October 1, 1981	October 1, 1983
133	YA73995	October 1, 1981	October 1, 1983
134	YA73996	October 1, 1981	October 1, 1983
135	YA73997	October 1, 1981	October 1, 1983
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137	YA73999	October 1, 1981	October 1, 1983
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139	YA74001	October 1, 1981	October 1, 1983
140	YA74002	October 1, 1981	October 1, 1983
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144	YA74006	October 1, 1981	October 1, 1983
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147	YA74009	October 1, 1981	October 1, 1983
148	YA74010	October 1, 1981	October 1, 1983
149	YA74011	October 1, 1981	October 1, 1983
150	YA74012	October 1, 1981	October 1, 1983

<u>CLAIM</u>	<u>GRANT NO.</u>	<u>RECORDING DATE</u>	<u>DUE DATE</u>
JAR 151	YA74013	October 1, 1981	October 1, 1983
152	YA74014	October 1, 1981	October 1, 1983
153	YA74015	October 1, 1981	October 1, 1983
154	YA74016	October 1, 1981	October 1, 1983
155	YA74017	October 1, 1981	October 1, 1983
156	YA74018	October 1, 1981	October 1, 1983
157	YA74019	October 1, 1981	October 1, 1983
158	YA74020	October 1, 1981	October 1, 1983
159	YA74021	October 1, 1981	October 1, 1983
160	YA74022	October 1, 1981	October 1, 1983
161	YA74023	October 1, 1981	October 1, 1983
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166	YA74028	October 1, 1981	October 1, 1983
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189	YA74051	October 1, 1981	October 1, 1983
191	YA74052	October 1, 1981	October 1, 1983
193	YA74053	October 1, 1981	October 1, 1983
195	YA74054	October 1, 1981	October 1, 1983
197	YA74055	October 1, 1981	October 1, 1983
199	YA74056	October 1, 1981	October 1, 1983
201	YA74057	October 1, 1981	October 1, 1983

<u>CLAIM</u>	<u>GRANT NO.</u>	<u>RECORDING DATE</u>	<u>DUE DATE</u>
JAR 203	YA74058	October 1, 1981	October 1, 1983
205	YA74059	October 1, 1981	October 1, 1983
207	YA74060	October 1, 1981	October 1, 1983
209	YA74061	October 1, 1981	October 1, 1983
211	YA74062	October 1, 1981	October 1, 1983
213	YA74063	October 1, 1981	October 1, 1983
215	YA74064	October 1, 1981	October 1, 1983




▲ MINERALIZATION
 type indicated; asp.- arsenopyrite
 cp. - chalcopyrite
 gn. - galena
 sp. - sphalerite



ANVIL RANGE RECONNAISSANCE

JAR CLAIMS
 claim location

DRAWN BY:	DATE:
CHECK'D BY:	DRAW'G No:
N.T.S.: 105 L 9 & 16	
SCALE: 1:50,000	

 Getty Canadian Metals, Ltd.

SUMMARY AND CONCLUSIONS

This report describes the results of a mapping, prospecting and stream sediment, bedrock chip, float chip and soil geochemistry surveys carried out August-September, 1982, on the JAR claims.

The JAR claims were staked in September 1981 after reconnaissance mapping and prospecting located a 20 m thick barite horizon in Devonian-Mississippian sediments. This barite occurrence had a strike length of at least 1 km, and contained up to 41.1% barium. Coincident barium stream sediment anomalies were found 1.5 km down stream from this occurrence (up to 16,948 ppm). Two km above the barite horizon lead, zinc, silver and molybdenum anomalies were found in an area draining Devonian-Mississippian black chert and shales. These black shales contain up to 1100 ppm lead and 25.0 ppm silver. In this area disseminated arsenopyrite, sphalerite and chalcopyrite were found in grey chert.

The JAR claims are underlain by Devonian-Mississippian age Kalzas formation, and Earn Group sediments. Consisting of fossiliferous crystalline limestone and black chert, barite, black shale, siltstone, limestone and quartzite respectively. On the south central claim boundary the Earn Group has been intruded by a Cretaceous muscovite-biotite granite-granodiorite plug.

During the 1982 field season mapping and prospecting of the

barite horizon traced it out $4\frac{1}{2}$ km to the west and 1 km to the east. A pyrite horizon was found stratigraphically above the barite horizon, in a unit of black shale; this contains up to 1425 ppm zinc and 19.5 ppm silver.

A total of 159 stream sediment samples were collected from the JAR claims and analyzed for; Pb,Zn,Ag,Ba,Mo,Cu,W,Au,Ni,As,Mn,Mg and Fe. Fourty one bedrock chip samples were collected and analyzed for Pb,Zn,Ag,Ba,Cu and Au. Twenty soil samples and 30 stream sediment samples were collected from over the barite horizon, as part of a geochemical orientation survey.

The stream sediment geochemical results showed that the previous area of geochemical anomalies can be traced out 2 km to the east, with additional Zn,Ag and Cu anomalies. Also it can be seen that along with the barite horizon there exists a coincident Ni anomaly in stream sediments draining this horizon.

Late in the season a $2\frac{1}{2}$ km baseline was cut stratigraphically above the barite horizon, running parallel to it, in the area of anomalous stream sediment samples i.e. anomalous Pb,Zn,Ag and Mo from the previous year.

On the southwest boundary of the JAR claims there exists a curvelinear aeromagnetic anomaly (200 gammas positive), which seems to wrap around the Cretaceous intrusion. The

cause for this anomaly was found to be pyrrhotite in black chert, caused by contact metamorphism.

RECOMMENDATIONS

Further exploration is warranted on the JAR claims.

It is recommended that:

- (1) There should be further mapping, prospecting and stream sediment sampling on the western third of the claim block (around the pyrite horizon).
- (2) A soil geochemical survey be conducted over the anomalous area, indicated by stream sediment sampling.
- (3) The streams in the area of the pyrite horizon through to the area of barite fracture filling be mapped to determine the attitude and extent of the favourable stratigraphy in this area.

INTRODUCTION

The JAR claims are currently held by Getty Canadian Metals, Limited.

The claims are underlain by Devonian-Mississippian Kalzas formation and Earn Group sediments.

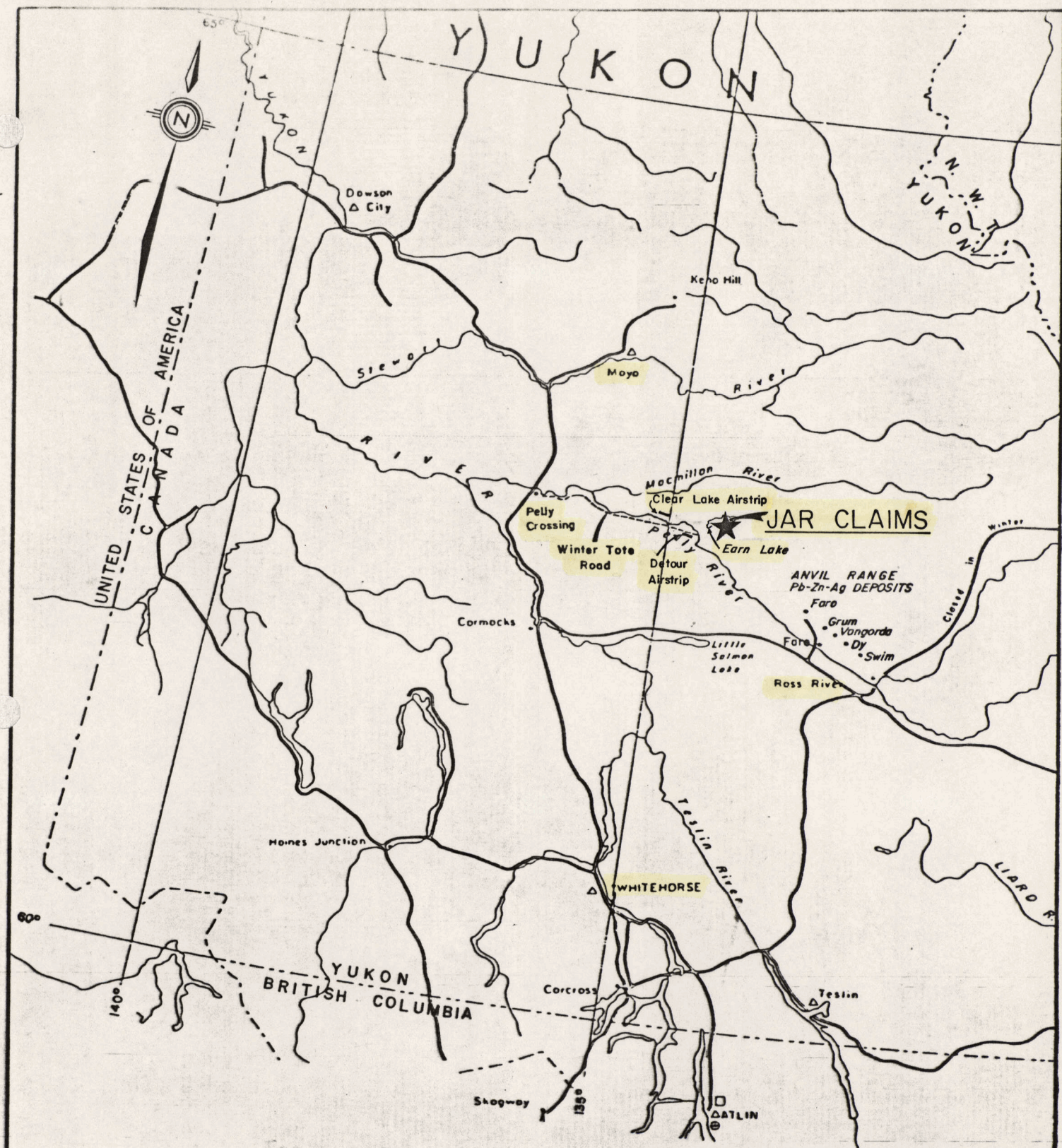
During August-September, 1982, mapping, prospecting, stream sediment, bedrock chip and soil geochemistry surveys were carried out on the JAR claims. This programme was conducted in order to follow-up the 20 m. thick barite horizon, and anomalous Pb, Zn and Ag stream sediments located in 1981.

The work described herein was conducted by and under the direct supervision of N. Hulstein. The writer laid out the programme and evaluated the results based on the data presented herein.

LOCATION AND ACCESS

The JAR claims are located at latitude 62°45'N and longitude 134°15'W on claim map sheets 105L 9 and 16, south of Earn Lake, central Yukon Territory (see Figure 2).

The area is accessible by fixed wing aircraft or helicopter from Whitehorse, Mayo or Ross River. Fixed wing aircraft



ANVIL RANGE RECONNAISSANCE PROGRAM

LOCATION MAP

DRAWN BY: L. CONNOR	DATE: MAY, 1982
CHECK'D BY: C. PAYNE	DRAW'G No: 2
N.T.S.	SCALE: 1" to 50 miles.



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may land either on Earn Lake (north of the JAR claims) or on Clear Lake or Detour gravel airstrips. A winter tote road from Pelly Crossing (110km), passes by the south end of Earn Lake and can be used for access to the area.

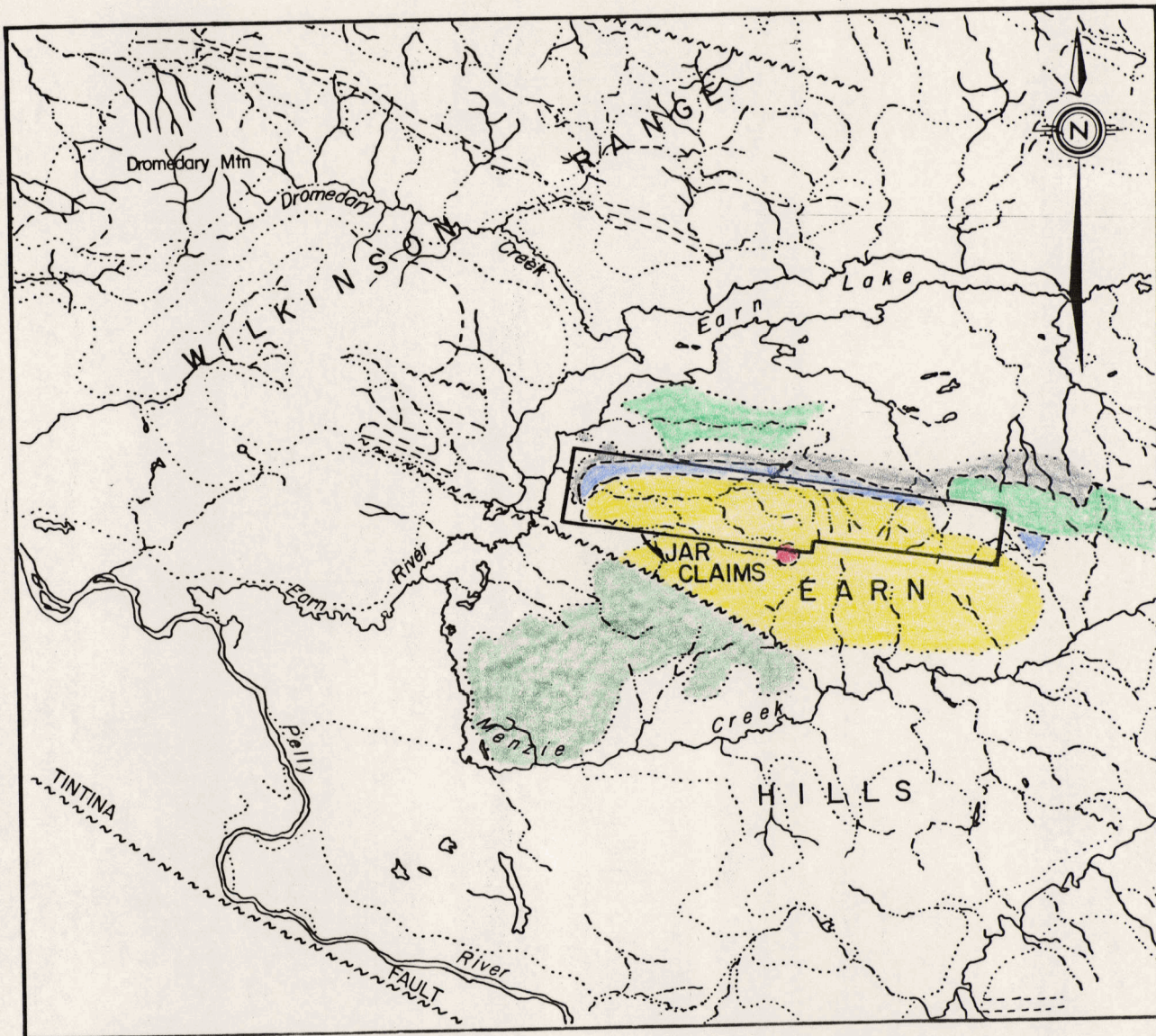
PHYSIOGRAPHY AND CLIMATE

The elevation is low around the western portion of the claim block bordering Earn Lake (700 m A.S.L.). In this area it is generally swampy, with small rolling drumlins on the south shore of Earn Lake. The remainder of the claim group is situated over the Earn Hills (maximum elevation 1680 m), where vegetation consists of small scrub timber and buck brush. The climate is subarctic.

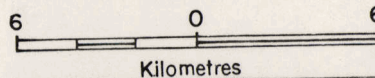
REGIONAL GEOLOGY - See Figure 3

The JAR claims are located in the Selwyn Basin of the Northern Cordillera, on the northeast side of the Tintina Fault (a major transcurrent fault of 450 km lateral displacement).

The claims are situated on the gradual transition between Lower Devonian interbedded limestone, siltstone and black shales of the Road River Formation, into the Devonian-Mississippian sediments, black chert, barite shale, siltstone,



LEGEND



- TERTIARY

 - quartz feldspar porphyry
- CRETACEOUS

 - South Fork Volcanics: andesite-dacite, biotite granodiorite, quartz monzonite and muscovite biotite granite-granodiorite
- MISSISSIPPIAN or earlier?

 - Crystal Peak Formation: chert pebble conglomerate, minor quartzite
 - bedded chert, argillite, quartzite and limestone
- DEVONIAN-MISSISSIPPIAN

 - Earn Group: black chert, barite, black shale, siltstone, and quartzite
 - Kalzas Formation: fossiliferous limestone
- LOWER DEVONIAN

 - Road River Formation: interbedded limestone, siltstone, and black shale
- ORDOVICIAN-SILURIAN

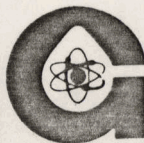
 - Menzie Creek Formation: amygdular andesite, tuffs, and intercalated shales
- CAMBIAN-ORDOVICIAN

 - Vangorda & Mount Mye Formations: calcareous phyllites and graphitic phyllites respectively

ANVIL RANGE RECONNAISSANCE

REGIONAL GEOLOGY

*Revised from: R.B. Campbell, 1967 G.S.C. Map 1221A



DRAWN BY:

DATE:

CHECK'D BY:

DRAW'G No: 3

N.T.S.: 105L

SCALE: 1: 253,440

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limestone and quartzite of the Lower Earn Group. This stratigraphy is similar to that of the stratiform Pb-Zn-Ag and barite deposits of Tom, Jason and Cathy of the MacMillan Pass area, S.P. Gordey et al (1982) and K.M. Dawson (1982). Both the Road River formation and Earn Group sediments are intruded by Cretaceous age granitic intrusives and volcanics.

The Earn Group is fault bounded to the south by Ordovician-Silurian volcanoclastics and intercalated shales of the Menzie Creek formation.

Reconnaissance mapping indicated that outcrop is abundant, except in the western portion of the claim group where overburden depths may exceed 20 m. Earlier mapping in the JAR claims area (105L) was done by R.B. Campbell (1967). Further mapping to the east and southeast was done by J.H. Roddick and L.A. Green (1961) and D.J. Templeman-Kluit (1971).

RESULTS OF THE 1982 PROGRAMME

Geology

Mapping and prospecting of the JAR claims was undertaken to evaluate the barite horizon and explore for any associated base metal mineralization.

Survey control was through the use of government air photos, and a 1:20,000 scale pencil manuscript prepared from existing government air photos, by McElanney Surveying and Engineering, Ltd. of Vancouver.

Results of this survey are shown in Figure 4.

Interbedded brown weathering limestones and siltstone with occasional graphitic shales (Road River formation), cut by Cretaceous South Fork Volcanics occur along the northern boundary of the claim group.

To the south a 50 m thick unit of Devonian-Mississippian black crystalline fossiliferous limestone of Kalzas Formation (R.B. Campbell, 1967), has been traced along strike for 12 km. This unit contains crinoids, several types of brachiopods and colonial coral pieces. In some places this limestone unit is fetid smelling.

The Earn Group, (up to 2500 m thick) located stratigraphically above the Kalzas formation, is Devonian-Mississippian in age and can be split up into three subdivisions:

- (1) The oldest package, approximately 700 m thick, contains black, red and green chert, barite siltstone and black shales.

- (2) Interbedded black organic shale, siltstone, grey weathering limestone and grey quartzite. The siltstone contains a "wispy" texture grading up to larger cross laminations. The limestone contains large (0.5 m) cross laminations and occasional fossiliferous beds (up to 1 m thick containing brachiopod pieces). The grey quartzite is calcareous in some places. This package is up to 1000 m thick.
- (3) Grey quartzite, occasionally with large cross laminations (up to 0.5 m thick). This package usually occurs in lenses up to 500 m thick.

The Earn Group is intruded on the south central boundary of the claims by a Cretaceous muscovite-biotite granite-granodiorite intrusion which is porphyritic in places (contains up to 1 cm long plagioclase laths).

The Earn Group appears to be indicative of a shallowing upward marine environment, probably of turbidite origin.

Structure

The rocks in the northeast form a simple homoclinal assemblage trending approximately 100° and dipping around 50° to the south. Towards the central and southwest parts of the

claim block the Earn Group is complexly drag folded suggesting it occupies the hinge area of a large west plunging syncline.

Rocks in the western portion of the claim block are more highly faulted and sheared, as opposed to their counterparts to the east.

Mineralization

A 20 m thick barite horizon was discovered in 1981 and traced along strike for a distance of 1 km during that year.

This horizon was traced out 4½ km to the west and 1 km to the east in outcrop during 1982. Barite in stream float indicates that this horizon may extend an additional 2 km to the east.

The barite horizon is up to 20 m thick and is black to grey in colour and in some places weathers a rusty orange colour. It contains up to 41.1% barium. It frequently contains limy nodules, up to 15 cm in diameter (witherite?). Four and one half km to the west the barite horizon is represented by bedded (5-20 cm thick) nodular (up to 15 cm) barite in black chert containing >15% barium. One km to the east of the initial barite discovery the barite is grey and finely laminated (1-2 mm) with black chert and contains up to 10%

barium. Another 2 km to the east of this, the same type of barite was found to be abundant in stream float.

To the south of the claim block barite is found as fracture fillings in black chert. A random grab sample contained 6.1% barium.

The pyrite horizon is found stratigraphically above the barite, and it is comprised of stratiform pyrite nodules (1 cm to 20 cm in diameter) in black shale forming a bed 1.5 m wide. It was traced along strike for a distance of 5 m (the extent of the outcrop).

In 1981 a minor occurrence of disseminated arsenopyrite, chalcopyrite and sphalerite was found in grey chert in the central portion of the JAR claims, stratigraphically above and to the south of the barite horizon.

Geochemistry

During the 1982 field season a reconnaissance stream sediment geochemistry survey was conducted over the streams on the JAR property and immediate vicinity. Samples were taken approximately every 500 m. A total of 159 samples were taken. Another 30 samples were taken from streams around the barite horizon in order to do a geochemical orientation survey.

Twenty soil samples were also collected from overburden over the barite horizon.

Bedrock chip and float chip samples, in total 41 rock samples, were also collected.

Stream Sediment Geochemistry

The stream sediment samples were collected in order to determine the extent of the barite horizon and to explore for any associated base metal mineralization.

The samples (159) were analyzed for Pb, Zn, Ag, Ba, Mo Cu, W, Ag, Ni, As, Mn, Mg and Fe by Acme Analytical Laboratories, Ltd. of Vancouver; analytical procedures are given in Appendix I. Statistical analysis of the data was done by plotting histograms of frequency versus concentration for both the 1982 data (159 samples) and the 1981 data in the area (36 samples). Results of this work are summarized in Table I.

Results - See Figures 5, 6 and 7.

During the 1982 work no significant anomalous values were found for Pb, Ba, W and As.

Significant coincident stream sediment anomalies exist in the central portion of the claim block where 2KG-0002L, 5L, 6L, 7L and 9L all contain anomalous Cu (up to

Table 1: Statistical Treatment of Stream Sediment Geochemical Data, 1981 and 1982 Results

	Low 1981	High	Low 1982	High	Background 1982	Anomalous	Number of Anomalies 1982
Lead	4	224	2	26	2 - 37	>37	
Zinc	50	1663	68	745	68 - 462	>462	3
Silver	0.1	1.6	0.2	1.3	0.2 - 0.8	>0.8	7
Barium	582	16,948	187	2,280	187 - 4705	>4705	
Molybdenum	2	31	1	15	1 - 8	>8	3
Copper	6	58	5	64	5 - 38	>38	16
Tungsten	-	-	2	-	0 - 2	-	
Gold	-	-	5ppb	55ppb	0 - 15ppb	>15ppb	2
Nickel	-	-	4	61	4 - 35	>35	10
Arsenic	4	1137	2	67	2 - 126	>126	
Manganese	190	1780	162	3333	162 - 1202	>1202	11
Magnesium	-	-	0.18%	0.89%	0.18 - 0.66%	>0.66%	2
Iron	0.92%	10%	1.01%	5.39%	1.01 - 3.3%	> 3.3%	4

* All results are in ppm unless indicated.

57 ppm), 2KG-0002, 5, 6 and 9L contain anomalous silver (0.9 to 1.3 ppm). Samples 2KG-0002L and 5L contain anomalous magnesium (up to 0.89%). Sample 2KG-0007L contains anomalous zinc at 623 ppm. This anomalous area can be correlated with previous lead 224 ppm and zinc 1663 ppm anomalies of 1981; it appears that this black shale unit of the Earn Group is anomalous in Pb, Zn, Ag, Cu and Mg.

Nickel anomalies seem to be associated with the barite horizon, since the anomalies start where the barite horizon is located and can be detected up to 2 km downstream from the barite, see figure 6. Copper anomalies also seem to be associated with the black shale and barite horizon.

Gold anomalies of 35 and 55 ppb, samples 2KZ-0053L and 58L are closely associated with the South Fork volcanics.

The Mo, Ni, Cu and Ag anomalies of 2KG-0178L, 0179L, south of the claim block are associated with the rust colour weathering Menzie Creek formation volcanoclastics.

The extremely high background of barium in the stream sediments draining the black shales, chert and barite is comparable with background values found in the Earn Group around MacMillan Pass, i.e. Tom, Jason, Tea deposits, W. D. Goodfellow(1981).

The reason for obtaining no anomalous barium values in 1982, even though we were collecting samples draining the barite horizon, is due to analytical technique. The samples collected during 1981 were analyzed using a whole rock technique (X-ray fluorescence), and values of up to 16,948 ppm were obtained. Whereas the 1982 samples were digested in a aqua regia solution and determined using inductively coupled Argon Plasma (ICP); see Appendix I for analytical procedures. It appears that barium sulphate does not readily go into an aqua regia solution.

The information from the 30 stream sediment samples collected for the geochemical orientation survey is not available at the present time. Sample location sites are shown in Figure 8.

Rock Geochemistry

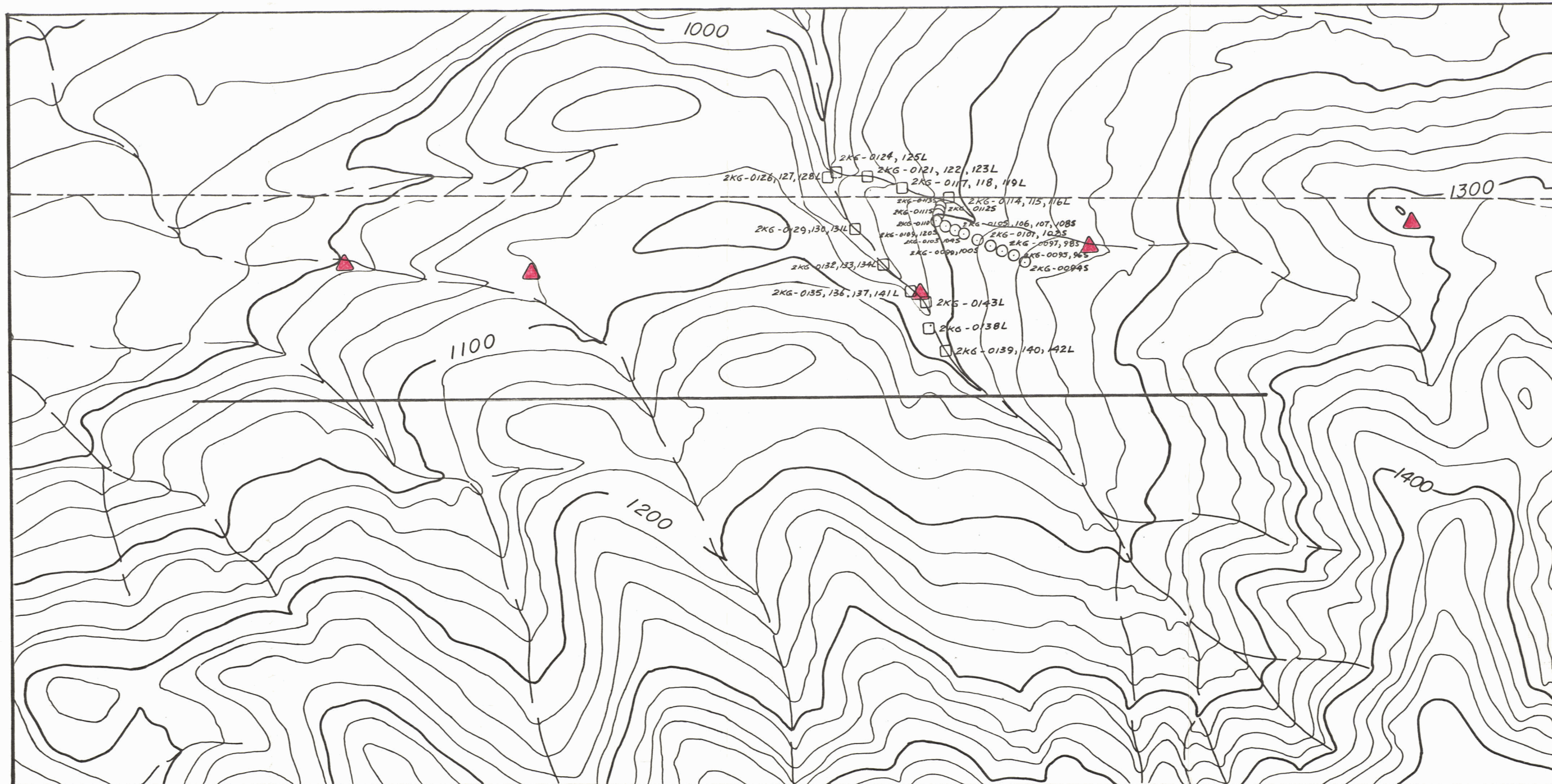
No statistical treatment was done on the rock data since the 41 rock chip samples collected were of various litho-

logies. These rock samples were analyzed for Pb, Zn, Ag, Ba, Cu and Au, by Acme Analytical Laboratories, Ltd. of Vancouver. The results are given in Figures 5, 6 and 7.

Soil Geochemistry

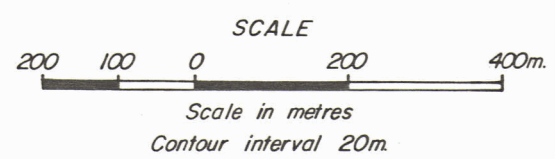
Soil samples (20) were collected from over the barite horizon, samples were taken from the Ao & B horizon as well as glacial till and analyzed for Pb, Zn, Ag, Ba, Mo, Cu, W, Au, Ni, As, Mn, Mg and Fe, by Acme Analytical Laboratories, Ltd.


No significant results were found from this survey.
See Figure 8 for sample locations.



LEGEND

- 2KG-0143L □ stream sediment sample sites
- 2KG-0094S ○ soil sample site
- ▲ barite occurrences
- cut baseline
- - claim boundary



ANVIL RANGE RECONNAISSANCE	
GEOCHEMISTRY ORIENTATION	
SURVEY SAMPLE SITES	
DRAWN BY:	DATE:
CHECK'D BY:	DRAW'G No: 8
N.T.S.: 105L 16	SCALE: 1:10,000
 Getty Canadian Metals, Ltd.	

REFERENCES

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- Dawson, K.M. and Orchard, M.J. (1982), Metallogeny of the Northern Cordillera: Biostratigraphy, Correlation and Metallogenic Significance of Bedded Barite Occurrences in Eastern Yukon and Western District of MacKenzie; Current Research, Part C, Geol. Survey of Canada, Paper 82-1C, p. 31-38
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APPENDIX I
ANALYTICAL PROCEDURES
Acme Analytical Laboratories, Ltd.

STREAM SEDIMENT and SOIL SAMPLES

Pb, Zn, Ag, Ba, Mo, Cu, W, Au, Ni, As, Mn, Mg and Fe

Sample Preparation

Samples are dried at 75°C and sieved to -80 mesh.

Pb, Zn, Ag, Ba, Mo, Cu, W, Ni, As, Mn, Mg and Fe

Digestion

A .500 gram sample is digested with 3ml of 3:1:3 HCl to HNO₃ to H₂O at 90°C for 1 hour, the sample is then diluted with 10ml of demineralized water.

Determination

All the above elements are determined by Inductively Coupled Argon Plasma (ICP) from this solution.

Detection Limits: Ag - 0.1 ppm
Pb, Zn, Mo, Cu, Ni, Mn, As and W - 3 ppm
Ba, Fe and Mg - 0.001%

Au

Digestion

10.0 gram samples that have been ignited overnight at 600°C are digested with hot dilute aqua regia, and the clear solution obtained is extracted with Methyl Isobutyl Ketone.

Determination

Au is determined in the MIBK extract by Atomic Absorption using background correction.

Detection Limit: Au - 5 ppb

ROCK SAMPLES

Pb, Zn, Ag, Ba, Cu and Au

Sample Preparation

Rock samples are pulverized to -100 mesh.

Pb,Zn,Ag,Cu and Au

Digestion

Same as digestion of stream sediment and soil samples

Pb,Zn,Ag and Cu

Determination

Same as determination for stream sediment and soil samples.

Au

Determination

Au is determined in the MIBK extract by Graphite Absorption using background correction.

Ba

Digestion

0.1 gram samples are digested with hot NaOH and EDTA solution.

Determination

Ba is determined in the above solution by Atomic Adsorption.

APPENDIX II

PERSONNEL

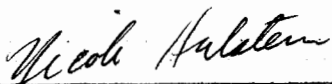
N. Hulstein	Getty Mines, Limited Suite 509 - 700 West Pender St. Vancouver, B.C., V6C 1G8
Lynda Bloom	"
Toni Borschneck	"
Brian Bowen	"
Larry Elgert	"
Don Hawke	"
Roger Hulstein	"
Alison Starr	"
Brian Strapp	"
Brad Van Den Bussche	"

Mark Roden	Bema Industries, Limited Suite 203, 19945 56th Ave. Langley, B.C., V3A 3Y2
Ron Westman	"

APPENDIX III
STATEMENT OF EXPENDITURES
JAR CLAIMS
August - September, 1982

	\$
<u>Salaries</u>	
Getty (mapping-prospecting and stream sediment sampling)	4,800.00
Linecutting - Contracted, Bema Industries, Ltd. 4 crew days @ \$350.00 per day	1,400.00
Geochemical Analysis - Acme Analytical Laboratories, Ltd.	2,029.85
Board - 3 people per day/ 16 days @ \$20.00 per day	960.00
Pencil Manuscript - MacElhanney Engineering & Surveying Limited	2,765.00
 <u>Aircraft Charter</u>	
Helicopter - Canwest Aviation, Limited 39.5 hours @ \$275.00 per hour	10,862.50
fuel 20 barrels @ \$162.00 per barrel	3,240.00
Fixed Wing Support - Supply flights Air North Charter and Training, Ltd.	4,799.97
TOTAL	<u>30,857.32</u>

I certify the above to be a true and correct statement of costs and expenditures.

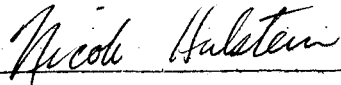


N. Hulstein
GETTY CANADIAN METALS, LIMITED

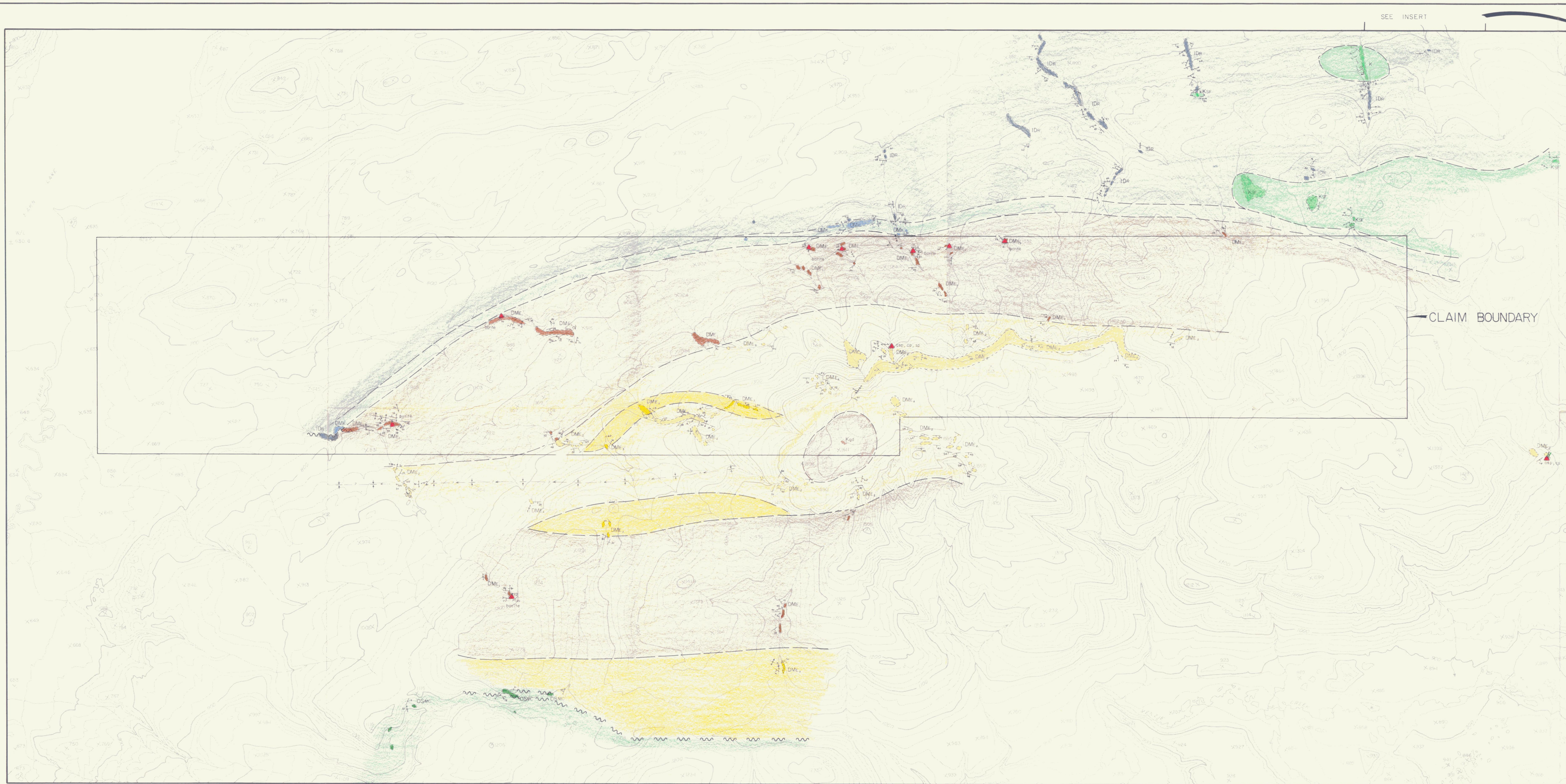
APPENDIX IV

I. N. HULSTEIN, hereby certify that:-

1. I am a geologist residing at #206 - 357 East 2nd Street, North Vancouver, B.C.
2. I received a Bachelor of Science Degree in Geological Sciences from Saint Mary's University of Halifax, Nova Scotia, in 1980 and have been practicing my profession since May, 1981.
3. I am the author of this report and directed the overall conduct of the programme described herein.
4. I am employed as a geologist by Fox Geological Consultants, Limited for Getty Mines, Limited.



N. Hulstein
Geologist



- LEGEND**
- ROCK TYPES**
- CRETACEOUS**
- KSF SOUTH FORK VOLCANICS: Andesite-Dacite
 - KSG SOUTH FORK VOLCANICS: intrusive component. Diorite-Granodiorite
 - Kgd muscovite biotite granite-granodiorite in some places porphyritic
- DEVONIAN-MISSISSIPPIAN**
- DMe EARN GROUP: grey quartzite
 - DMs limy shale, limestone & siltstone with interbedded quartzite
 - DMf black shale and massive black chert
- DEVONIAN-MISSISSIPPIAN**
- DMk KALZAS FORMATION: fossiliferous limestone
- LOWER DEVONIAN**
- IDr ROAD RIVER FORMATION: interbedded limestone, shaly limestone and siltstone
- ORDOVICIAN-SILURIAN**
- OSw MENZIE CREEK FORMATION: amygdular andesite, tuffs, intercalated shales
- SYMBOLS**
- GEOLOGICAL CONTACT, APPROXIMATE
 - ~ BEDDING; INCLINED TOPS UNKNOWN; TOPS KNOWN, VERTICAL TOPS UNKNOWN
 - ~ FOLIATION INCLINED; SECOND GENERATION; THIRD GENERATION?
 - ~ FOLIATION VERTICAL; SECOND GENERATION
 - ~ LINEATION; INCLINED PLUNGE KNOWN; PLUNGE UNKNOWN
 - ~ DRAG FOLD (arrow indicates plunge) Z SYMMETRY, S SYMMETRY
 - ~ JOINT HORIZONTAL; INCLINED; VERTICAL
 - ~ ANTICLINE
 - ~ SYNCLINE
 - ~ ANTICLINE, SYNCLINE (arrow indicates plunge)
 - ~ MINOR FOLD (arrow indicates plunge)
 - ~ DYKE, DEFINED
 - ~ FAULT (arrow indicates dip)
 - ~ MINERALIZATION, TYPE INDICATED: osp - arsenopyrite, cp - chalcopyrite, gn - galena, sp - sphalerite
 - ~ EXTENT OF OUTCROP

50 250 0 500 1000
scale in metres

CONTOUR INTERVAL 20 METRES

ANVIL RANGE RECONNAISSANCE

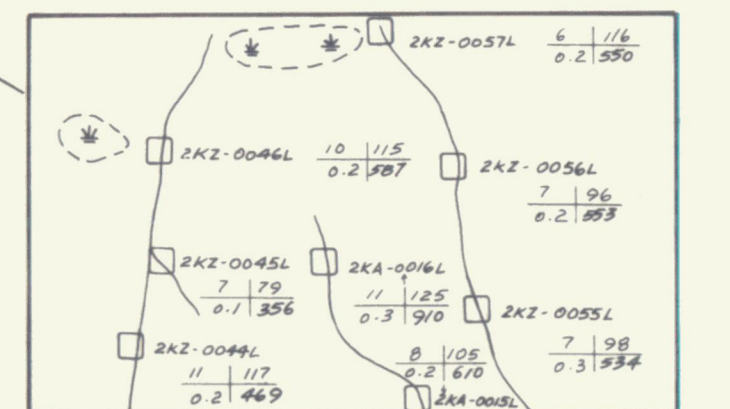
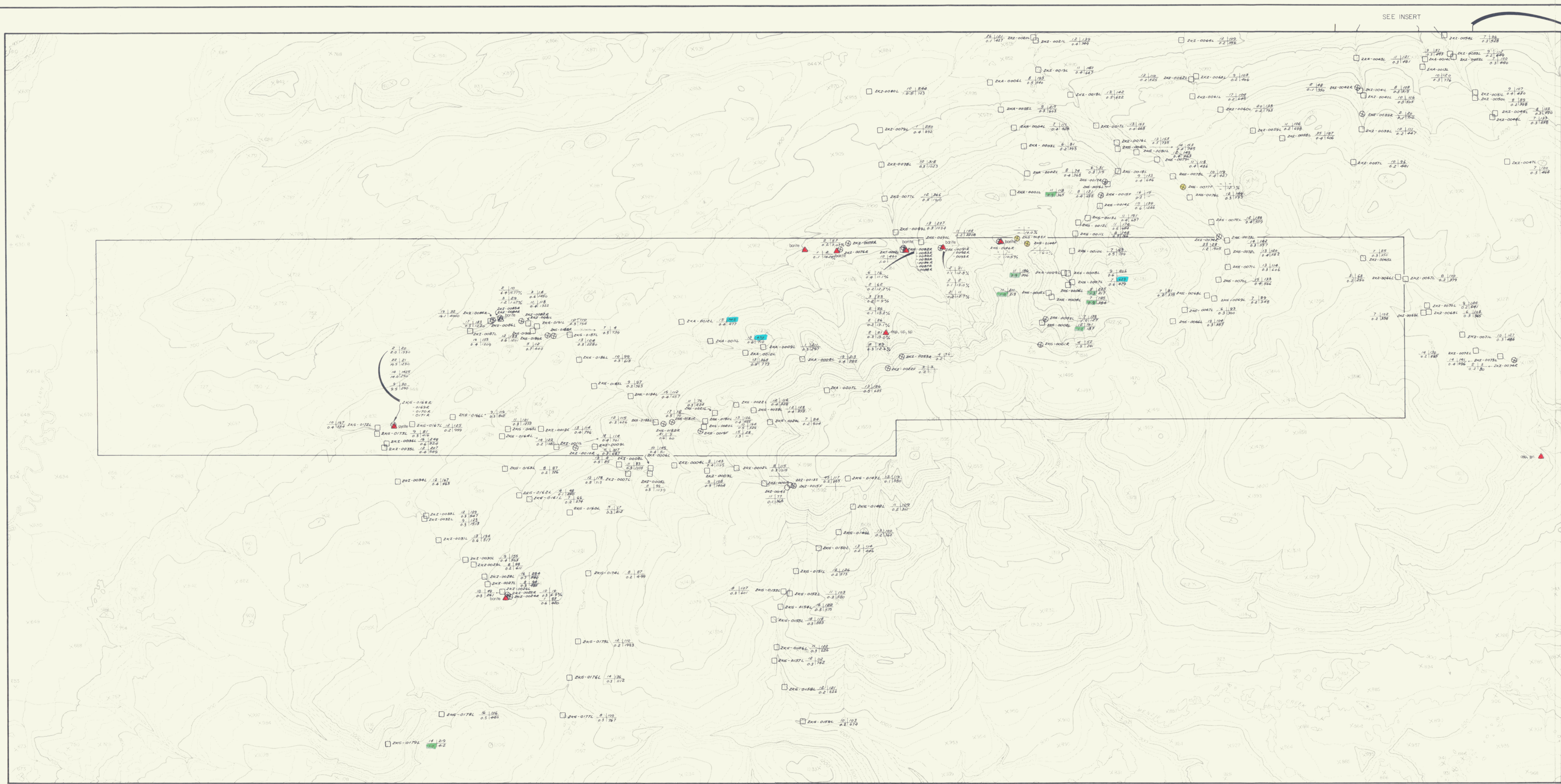
JAR CLAIMS

GEOLOGY 091405

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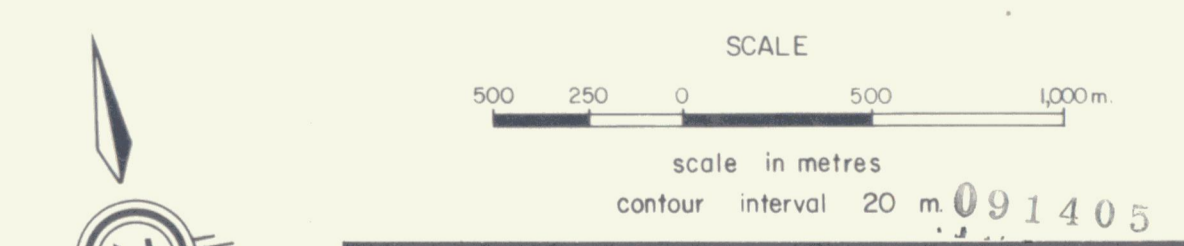
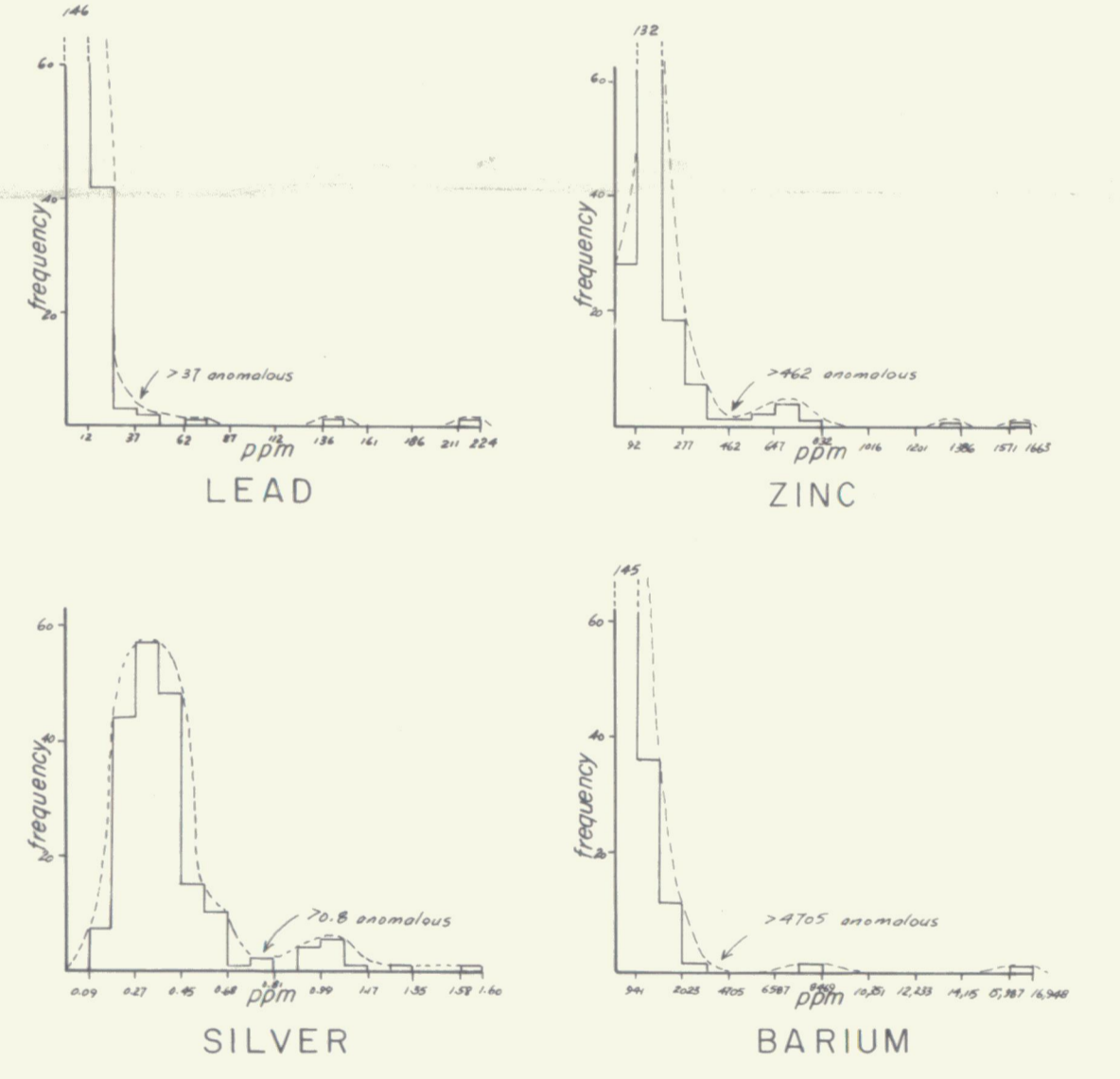
To accompany 1982 Anvil Range Reconnaissance Project, Summary Report
by N. Hulstern



LEGEND

- SYMBOLS**
- Stream sediment sample site
 - ⊗ Bedrock chip sample site
 - Float chip sample site
 - Soil sample site
- the above each have their corresponding sample number
- ▲ Mineral occurrence, with type of mineralization indicated:
 - asp - arsenopyrite
 - cp - chalcopyrite
 - gl - galena
 - sp - sphalerite
 - Claims boundary
 - Pb, Zn, Ag, Ba Anomalous Values Colour Pattern
 - Mineralized float chip sample - barite

STREAM SEDIMENT STATISTICAL ANALYSIS



ANVIL RANGE RECONNAISSANCE

JAR CLAIMS

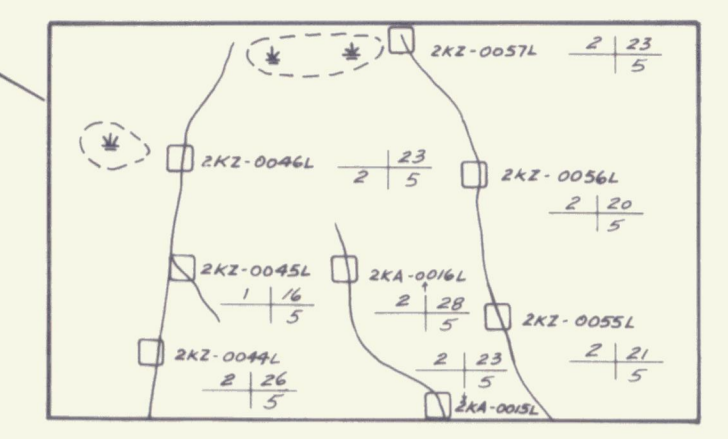
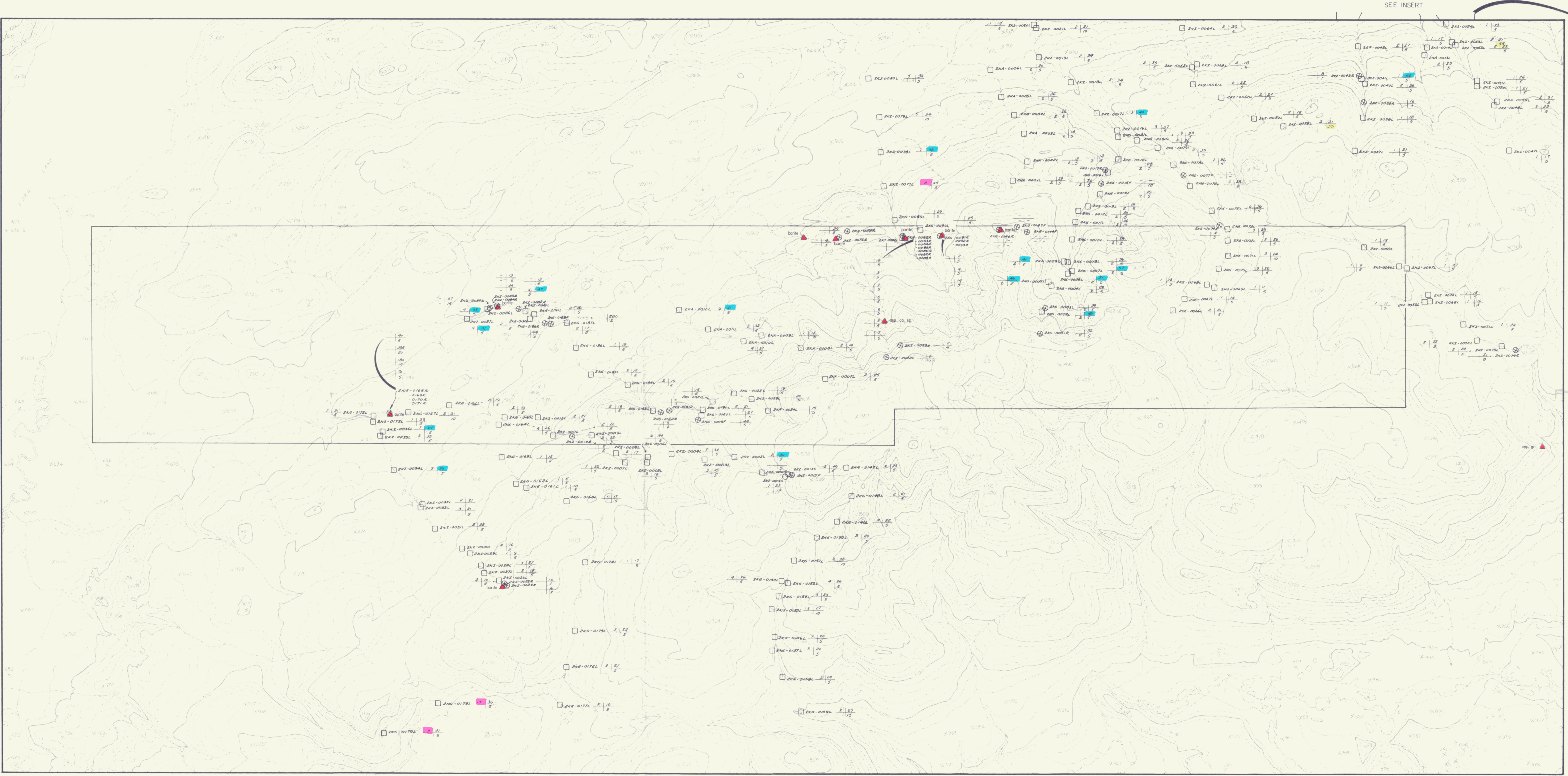
Stream sediment, Bedrock & Float chip, and Soil Geochemistry Results

LEAD, ZINC, SILVER & BARIUM

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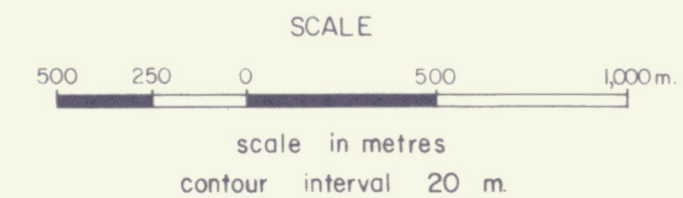
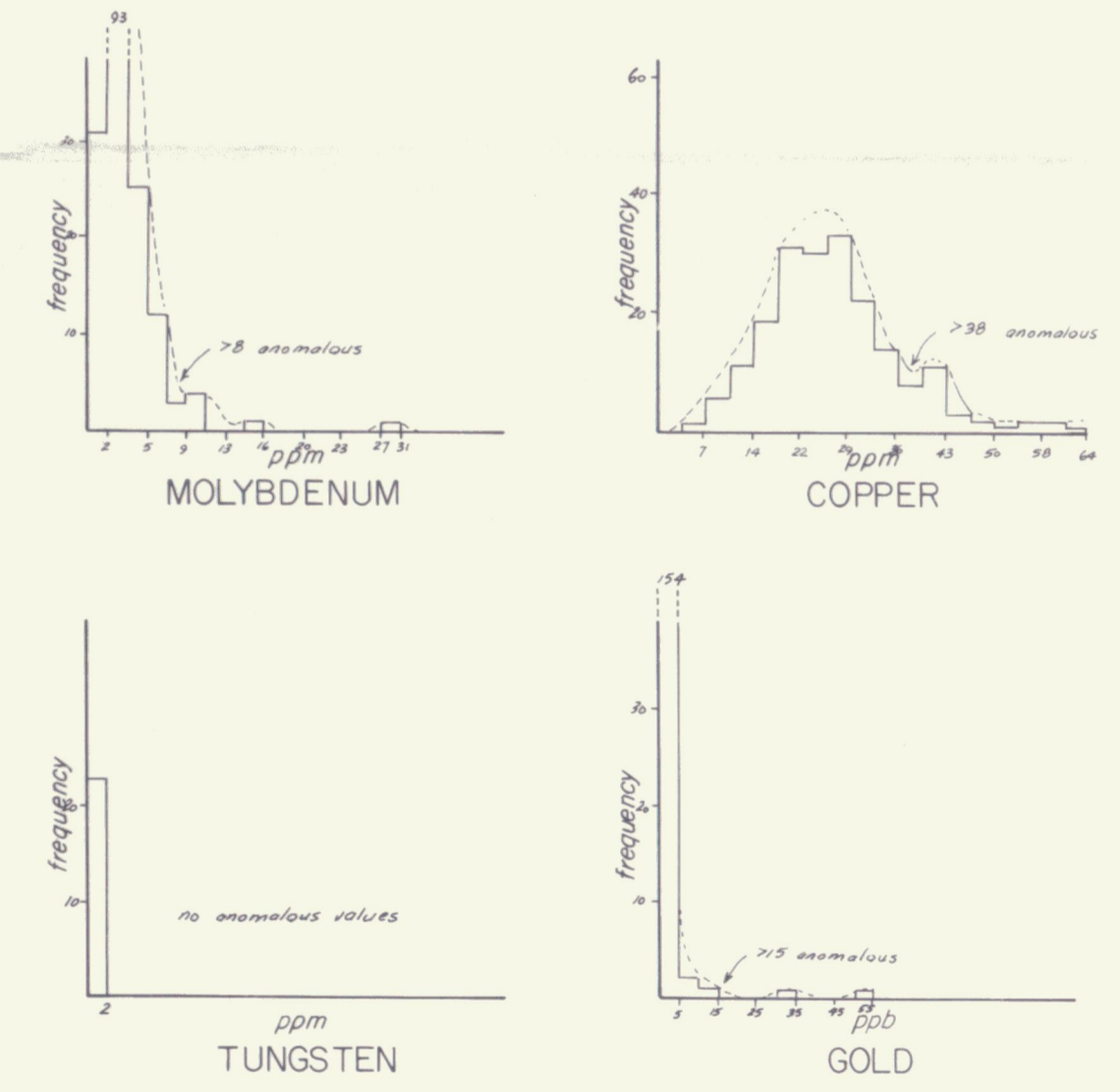
To accompany 1982 Anvil Range Reconnaissance Project, Summary Report by N. Husten



LEGEND

- SYMBOLS**
- ZAG-0001L □ Stream sediment sample site
 - ZAG-0002L □ Bedrock chip sample site
 - ZAG-0003L □ Float chip sample site
 - ZAG-0004L ○ Soil sample site
- the above each have their corresponding sample number
- ▲ Mineral occurrence, with type of mineralization indicated:
 - asp - arsenopyrite
 - cp - chalcopyrite
 - gn - galena
 - sp - sphalerite
 - - - Claims boundary
 - Mo, Cu, W, Au Anomalous Values Colour Pattern

STREAM SEDIMENT STATISTICAL ANALYSIS



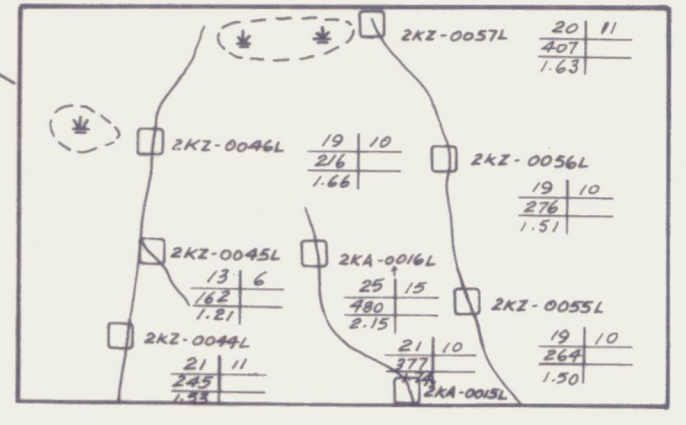
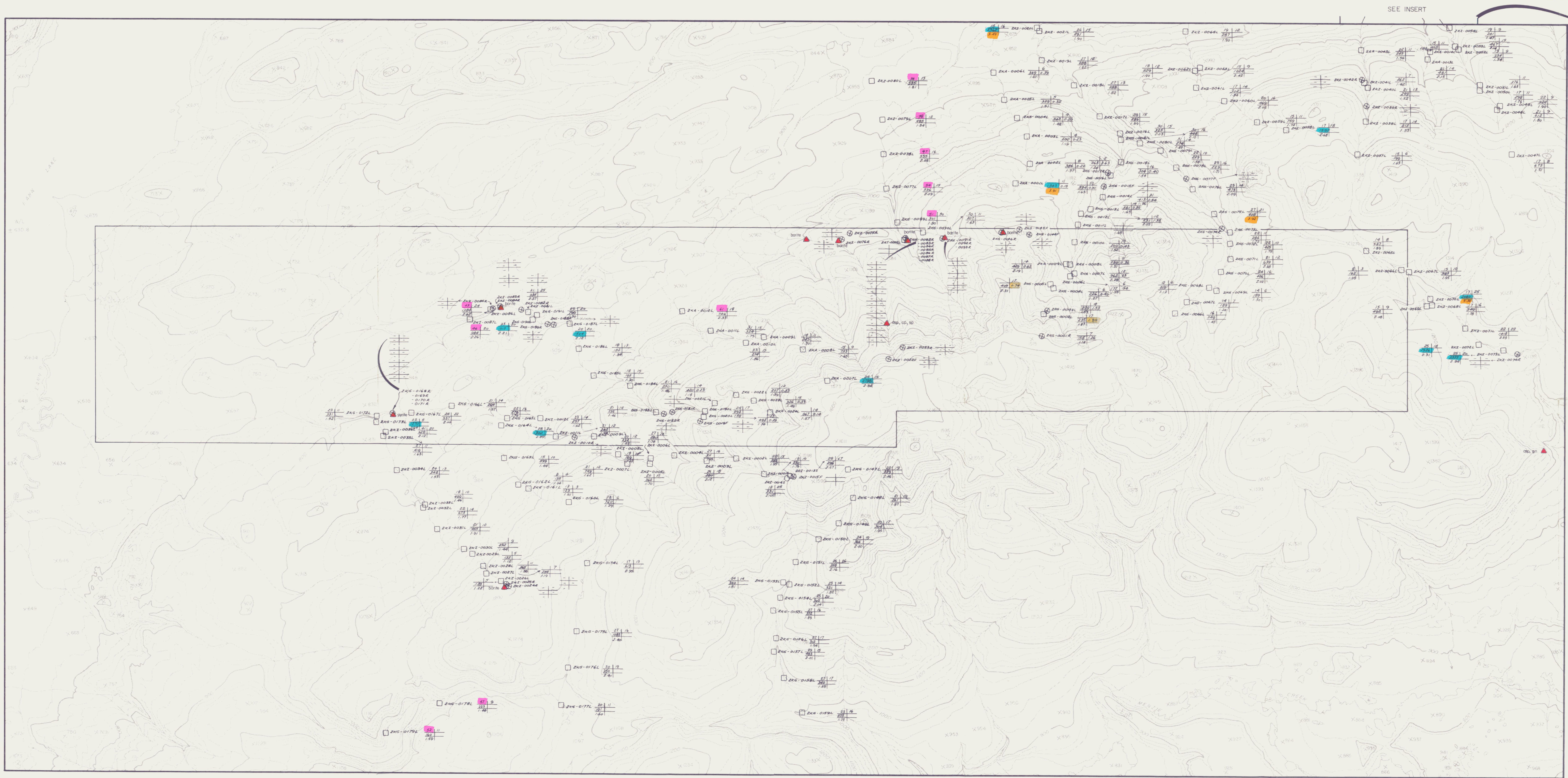
ANVIL RANGE RECONNAISSANCE

JAR CLAIMS '091405
 Stream sediment, Bedrock & Float chip,
 and Soil Geochemistry Results
 MOLYBDENUM, COPPER, TUNGSTEN & GOLD

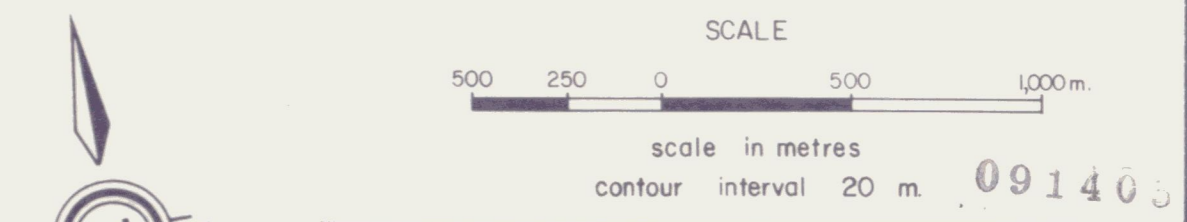
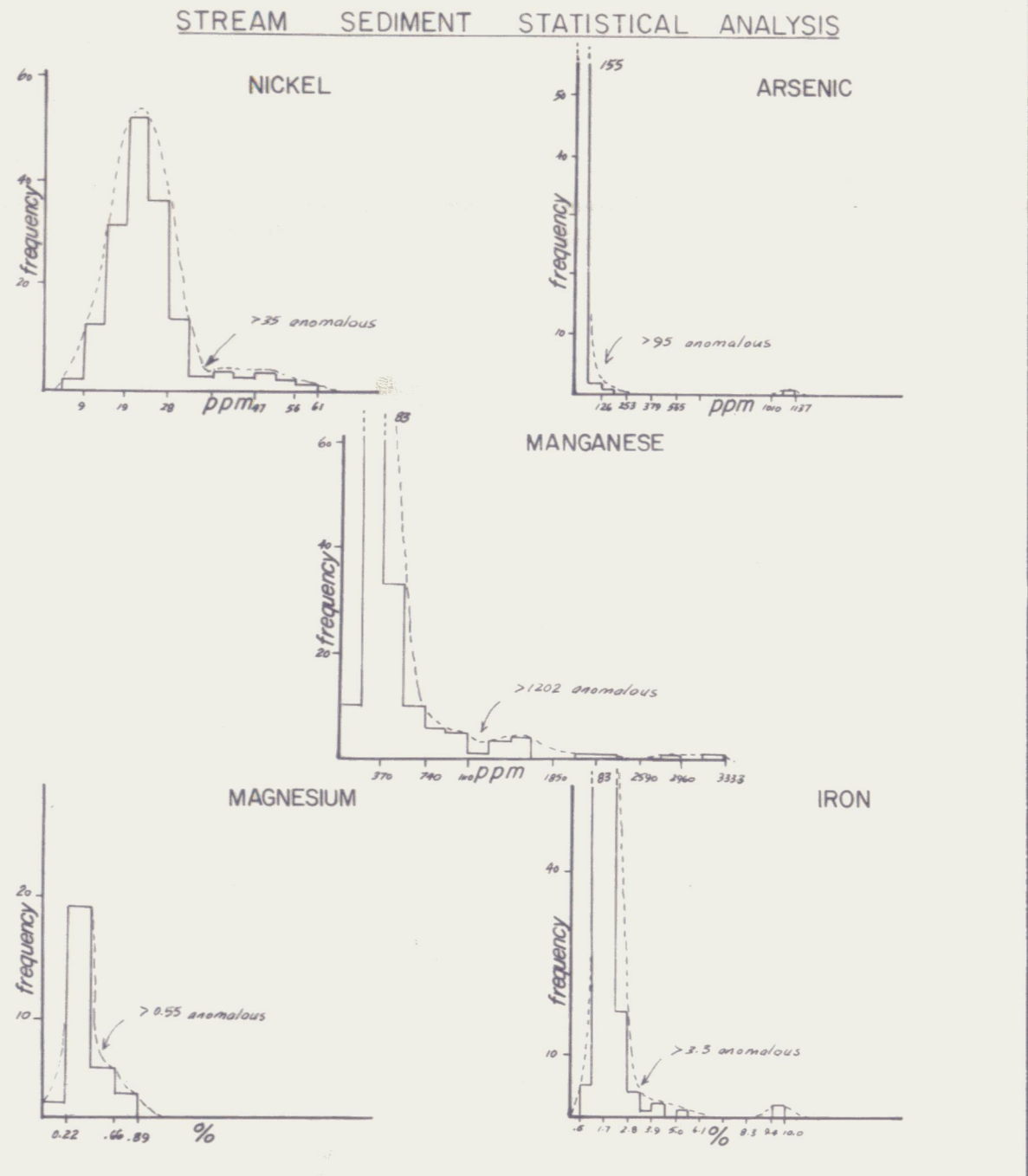
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Getty Canadian Metals, Ltd.

To accompany 1982 Anvil Range Reconnaissance Project, Summary Report
 by N. Hulstien



- LEGEND**
- SYMBOLS**
- Stream sediment sample site
 - ⊗ Bedrock chip sample site
 - Float chip sample site
 - Soil sample site
- the above each have their corresponding sample number
- ▲ Mineral occurrence, with type of mineralization indicated:
 - asp - arsenopyrite
 - cp - chalcopyrite
 - gn - galena
 - sp - sphalerite
 - - - Claims boundary
 - Color boxes Anomalous Values Colour Pattern



ANVIL RANGE RECONNAISSANCE

JAR CLAIMS

Stream sediment, Bedrock & Float chip, and Soil Geochemistry Results

NICKEL, ARSENIC, MANGANESE, MAGNESIUM & IRON

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