GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL REPORT

on the

BAR 1-20 CLAIM GROUP

NTS 105 C 8 & 9

Lat. 60°30'N, Long. 132°14'W

by
J.C. STEPHEN & G.M. DePAOLI

supervised by
W.R. BACON, Ph.D, P.Eng.

Work Dates
June 26 - July 16
Aug. 11 - 31
Sept. 1 - 11, 1976

090178

Office Of The Supervising Mining Recorder
FEB 17 1977
WHITEHORSE
Yukon Territory

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
$ 16,194.00

~~Resident Geologist or~~
~~Resident Mining Engineer.~~

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

B.R. BAXTER
~~Supervising Mining Recorder~~
for/ Commissioner of Yukon Territory

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LIST OF ILLUSTRATIONS

Illustrations for the Geophysical Report are listed within that report following the 'Geological' and 'Geochemical' sections of this report.

BAR GROUP
105 C 8 & 9
WATSON LAKE M.D., YUKON TERRITORY

INTRODUCTION

The BAR 1-20 claims cover prominent rusty sinters and occurrences of barite marcasite and galena mineralization at latitude 60°30'N, approximately one mile east of Wolf River.

These mineral indications had previously been staked as SMEG (1971), KEY (1969), SUPERIOR (1957) and as RED TOP and AMBER SPRING (1956).

The showings were examined and staked in June 1976. Mapping and soil sampling was commenced near the end of June. Relatively favourable results of this program led to more staking, linecutting, further mapping and an IP survey in August and September.

This report describes the work done and the results obtained during the prospecting season 1976.

PROPERTY, LOCATION, ACCESS

The BAR group consists of the following claims:

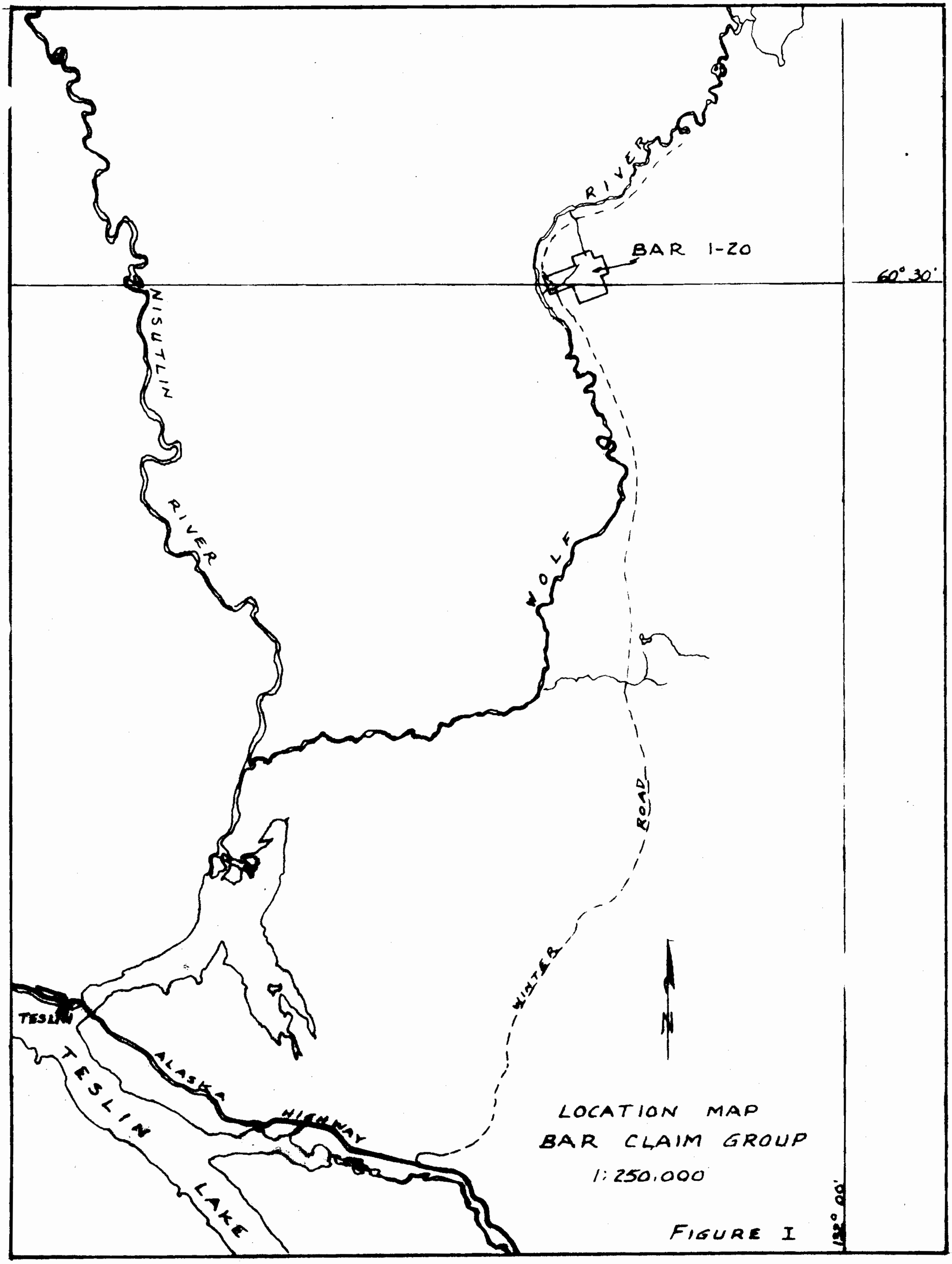
Name	Record No.	Date Staked	Date Recorded
BAR 1-8	YA 0026-33	June 12, 1976	June 24, 1976
9-12	YA 00913-916	Aug. 11, 1976	Sept. 3, 1976
13-18	YA 00917-922	Aug. 12, 1976	Sept. 3, 1976
19,20	YA 00923,924	Aug. 11, 1976	Sept. 3, 1976

The claims were staked and are held on behalf of D.C. Syndicate who financed the exploration program.

The claims trend northwest from near the Wolf River at latitude 60°30'N, as shown on Fig. I.

Access to the claims was by helicopter during this program. The air distance from Teslin is 28 miles. However, there is a winter road, about 35 miles in length, to the property from Hays Creek at Km 1272 on the Alaska Highway.

Elevation is about 3000 feet at the southwest end of the claim group and rises to the northeast to over 4000 feet. The area covered by the claims was burned years ago and is covered by willows, alder and immature pine and poplar. No timber of any value is present on the claims.



LOCATION MAP
BAR CLAIM GROUP
1:250,000

FIGURE I

BAR 1-20 GROUP
LOCATION OF
PICKET LINE GRID

1" - ½ MILE NOV 1976

FIGURE IA

PROGRAM

The property was examined and BAR 1-8 claims staked by J.C. Stephen during June 10-13th. A preliminary mapping and soil sampling program was conducted by C.Q. Barrie and H.I. Hutcheson on tape and compass lines at 200 and 400 foot intervals on BAR 1-8 from June 26 to July 16th.

On receipt of the geochemical results, the claim group was enlarged to 20 claims. A grid, consisting of a 7200 foot base line and 60,500 feet of chained picket lines at 400 foot intervals, was cut. This grid covered the known geochemical anomalies and sinter deposits.

Soil sampling was extended to the limits of the picket line grid, geological mapping was extended to the new claims, and in September an IP survey was conducted on this grid.

Compilation of data was completed in Vancouver after the end of the prospecting season.

Mr. C.Q. Barrie undertook to do his B.Sc. thesis on the geology of the property at McMaster University.

GEOLOGY

General

The property covers a portion of Units 2 and 3 of the Teslin map sheet, described in G.S.C. Memoir 326 "Geology of Teslin Map Area" by Robert Mulligan 1963.

Unit 2 is described as "intermittent bands of fossiliferous limestone lying in a northwesterly trending belt between rocks of Unit 1 on the west and those of Unit 3 on the east".

Unit 3 "consists typically of unmetamorphosed, dark weathering sedimentary rocks....."

Air photos A11472-247 and A11536-130 suggest a series of fractures trending mainly east, northeast, north and southeast. Some of these features have been confirmed as faults by geological mapping.

Table of Geological Formations

13		Rusty limonite sinter
12		Barite, quartz barite zone
11		Diabase
10		Massive grey siltstone
9		Siltstone, argillite
8		Grey chert pebble conglomerate
7		Grey green chert, cherty quartzite
6		Grey chert pebble conglomerate
	(a)	Interbedded siltstone
5		Dolomite, interbedded chert
4		Dark grey chert, cherty quartzite
3		White to red chert, cherty quartzite, breccia
2		Grey limestone, chert lenses
1		Slaty argillite (occurs east of claim group)

Rock Types

Results of the 1976 geological mapping on the BAR claims are shown on the accompanying map (Figure II) "BAR Claim Group Geology" at a scale of 1" = 200'. The rock types are briefly described below.

Rock Types

1. Slaty Argillite

This is a bed of fissile, black, slaty argillite occurring below the main limestone approximately one mile east of the main sinter deposits. It appears to be conformable with the limestone. This rock unit does not outcrop on the claim group.

2. Grey Limestone, Chert Lenses

Limestone occurs on BAR 15 and 16 as a more or less circular low hill. The rock is generally fine-grained, grey to dark grey in colour. No well-defined bedding is evident.

Chert lenses and nodules are common in the limestone and chert beds occur on the south side of the hill.

A high bluff of similar limestone occurs across the boundary of claims BAR 14 and 16 and extends northerly into BAR 5 and 3.

This limestone is generally fine-grained, relatively massive light grey in colour. Chert lenses and nodules become more common going up the bluff (presumably up section).

A narrow zone of limestone chert breccia or conglomerate occurs at the upper contact. The limestone appears to dip to the north or northeast. These two large exposure areas of limestone are separated by an east-trending fault.

Grey limestone with some chert lenses occurs in the northeast portion of BAR 2. Indistinct bedding indicates shallow dips to the grid west (about S70°W).

Extensive limestone occurs off the claim group to the north, east and southeast. As mentioned above, these limestones appear to be underlain by thin bedded slaty dark argillite. The limestones are generally grey in colour and contain some chert nodules and lenses.

3. <u>White to Red Chert, Cherty Quartzite, Breccia</u>

These cherts overlie the grey limestone on BAR 5, 13, 14 and 15-18. Occasionally, this rock is thin-bedded but is more often thick-bedded to massive. Colour varies from white through orange to dark red. Red colours appear to be due to hematite.

The chert is brecciated in places. In the case of breccia on line 24W at 25N, this is probably tectonic as a fault zone appears to cut the formation in the vicinity. At 23W, 27N, however, the breccia contains a few rounded fragments and is probably a depositional feature.

As indicated by increasing chert content in the upper parts of the limestone, the shift from deposition of limestone to c hert was a more or less gradual process.

Similarly, the chert is in sharp contact with dolomite in the south part of BAR 13 but is interbedded with dolomite on BAR 3.

4. <u>Dark Grey Chert, Cherty Quartzite</u>

On BAR 1 and 2 and to the north and east of the claim group, the limestone horizon is overlain by beds of dark grey massive 'glassy' chert and grey cherty quartzite.

The contact appears to be conformable.

The grey cherts contain zones of chert breccia which are probably depositional features.

5. Dolomite, Interbedded Chert

Four small outcrops of a thin bed of dolomite occur on BAR 3 and as a single outcrop near the south boundary of BAR 13.

The rock is grey to buff in colour, is interbedded with chert in the most northerly outcrop and contains hematite and magnetite in fractured material in the same area.

6. Grey Chert Pebble Conglomerate, Interbedded Siltstone 6(a)

On claims BAR 1, 2, 4 and 20, the dark grey chert is apparently conformably overlain by beds of grey chert pebble conglomerate.

Pebbles or fragments are sub-angular to sub-rounded. All appear to be of fine-grained grey chert. The beds dip 40° to 60° to the west and are generally sheared in appearance. Shearing, however, seems more or less confined to the matrix as the chert pebbles are not broken as a rule.

Intermittent local beds of siltstone occur as conformable lenses.

7. Grey Green Chert, Cherty Quartzite

This unit occurs on BAR 1, 3 and 4, and in very small amounts on BAR 13 and 14. It appears to overlie the dolomite conformably although the contact is not clearly exposed at any point.

Most of the surface over this formation consists of loose rock fragments. However, in the northeast part of BAR 3, some good exposures occur.

The rock is generally fine-grained grey to grey green and is thin bedded. Bedding trends nearly north and dips to the west.

8. Grey Chert Pebble Conglomerate

This is similar to Unit 6 but is spatially separated and although it is most probably the same as Unit 6, this cannot be demonstrated at present.

9. Siltstone, Argillite

These rocks are similar to 6(a) and may be the same unit. They are often highly sheared.

10. Massive Grey Siltstone

Outcrops of massive, quite featureless siltstone outcrop in the north portion of the claim group. They occur where we would expect gneissic rocks of Unit 1 Teslin Map Sheet Memoir 326 but are not similar to Unit 1 rocks in other areas. It is possible a fault exists along the creek valley trending through BAR 10, 8, 6 and 20.

The relationship of this unit to other rocks described is unknown.

11. Diabase

This is a medium-grained, dark coloured rock occurring as a dyke on BAR 1. It is fresh in appearance and unaffected by shearing of Unit 6.

12. Barite, Quartz Barite Zone

This zone constitutes the main showings of mineralization and is the primary reason for staking the BAR claims.

The zone occurs below the grey green chert in the vicinity of northeast and east trending faults. It consists primarily of barite, massive white, to dissiminated, with considerable quantities of silica as white quartz and silicified quartzite.

The zone contains considerable marcasite and minor galena.

13. Rusty Limonite Sinters

These are spring produced limonitic deposits. Two have active springs at present. The outlines mapped are more or less the vegetation-free zones which are up to 1000 feet in length and 200 feet wide. Much more rusty material is covered by vegetation in some areas.

Small sinters are being deposited in present day creeks at 24W, 51N and 14W, 26N.

The sinters consist of light to dark rusty limonitic material which encloses gravel, rock fragments and vegetable matter on occasion. The volume of limonitic material could be in excess of 100,000 tons.

STRUCTURE

To the southeast of the property, the rock sequence appears to be: slaty argillite, grey limestone, dark grey glassy chert and chert breccia, chert pebble conglomerate. These rocks dip westerly.

On BAR 1 and 2 and north of the property, the rock sequence is similar. Dips on BAR 1 and 2 are to the west.

In contrast, on BAR 3 and 13 to 16 the sequence appears to be: grey limestone with increasing chert content upwards, white to red chert, chert breccia, dolomite, grey green cherty quartzite.

Although the limestones are similar in appearance, they may be two entirely separate deposits and if that is the case, it is likely that the formations on BAR 3 and 13 to 16, as well as minor barite and grey green chert on BAR 4 and 20, are unconformable above the grey chert pebble conglomerate.

The whole series is cut by faults. The most certain of these are shown on the geological map. The two occurrences of Pb shown on the map are in a line which serves to substantiate the fault suggested in the IP interpretation as trending southeast through 18W, 50N.

Other faults are suggested by interpretation of the IP and by air photo examination.

MINERALIZATION

The barite zone is mineralized with barite as (1) massive white material, (2) interbanded with marcasite and (3) mixed with quartz.

On some surface showings, porous white siliceous material was termed "barite froth" as it usually indicated the presence of barite in the area.

Marcasite occurs as fine disseminations, streaks and small lenses in the barite zone.

At 39W on the base line, a large float of somewhat banded, nearly massive, marcasite mineralization in grey green chert was found.

Galena occurs as fine-grained material on fractures and associated with marcasite and barite. Only small amounts were found.

Pyrite (or marcasite?) occurs in quartzitic phases of the grey green chert south of the base line at 18W.

Hematite occurs on fractures in dolomite at 23W, 43N and colouring much of the chert near lines 24W and 28W.

Magnetite occurs on fractures in the dolomite at 23W, 43N and in breccia material associated with manganese which is found in fragments along a zone at about 36N from 36W to 48W.

Manganese staining occurs with chert and limestone on the tractor road at 70W, 27N.

No zinc mineralization was identified.

The IP survey suggests that areas of marcasite are probably more extensive than shown by mapping and the localization of galena may be associated with faulting.

As a result, there is a possibility of important mineralization at fault intersections with the barite horizon.

GEOCHEMISTRY

Claims BAR 1-8, 13-18, 20 were soil sampled as shown on the maps accompanying this report.

Sample spacing was at 200 foot intervals on tape and compass lines 200 feet apart on claims BAR 1-6 and on lines 400 feet apart over the remainder.

Samples were collected from holes of varied depth dug with a grub hoe. Where possible, the rusty brown 'B' zone below root development was sampled but, in many cases, material varied from fine rock fragments over exposed portions of the grey green chert, to black wet organic material in swampy drainage areas, to rusty sinter material.

Bagged samples were shipped to base camp, dried and sifted to -40 mesh, and forwarded to Chemex Labs, North Vancouver, for analysis.

Graphs I to IV following represent the distribution of values obtained from determinations for Ag, Pb, Zn, Cu.

Values for silver, lead, zinc and copper are plotted on Figure V (in pocket) and Figures III and IV (in pocket) are overlays of silver and lead contours.

Silver values were contoured at 1.0, 3.0 and 5.0 ppm. Anomalous values are considered to be those over 3.0 ppm.

In general, these results outline the mapped areas of barite zone mineralization.

Lead values were contoured at 50, 100 and 200 ppm. The 100 ppm contour is considered anomalous and shows a pattern very similar to that of silver although somewhat more spread out. The anomaly at about 20N from 24W to 32W is not confirmed by silver and is represented by only very few samples. There is an apparent increase in copper.

It seems evident the lead and silver values have not migrated very far and, in general, outline known areas of mineralization.

Zinc values shown on Figure V are contoured at 500, 1000 and 2000 ppm.

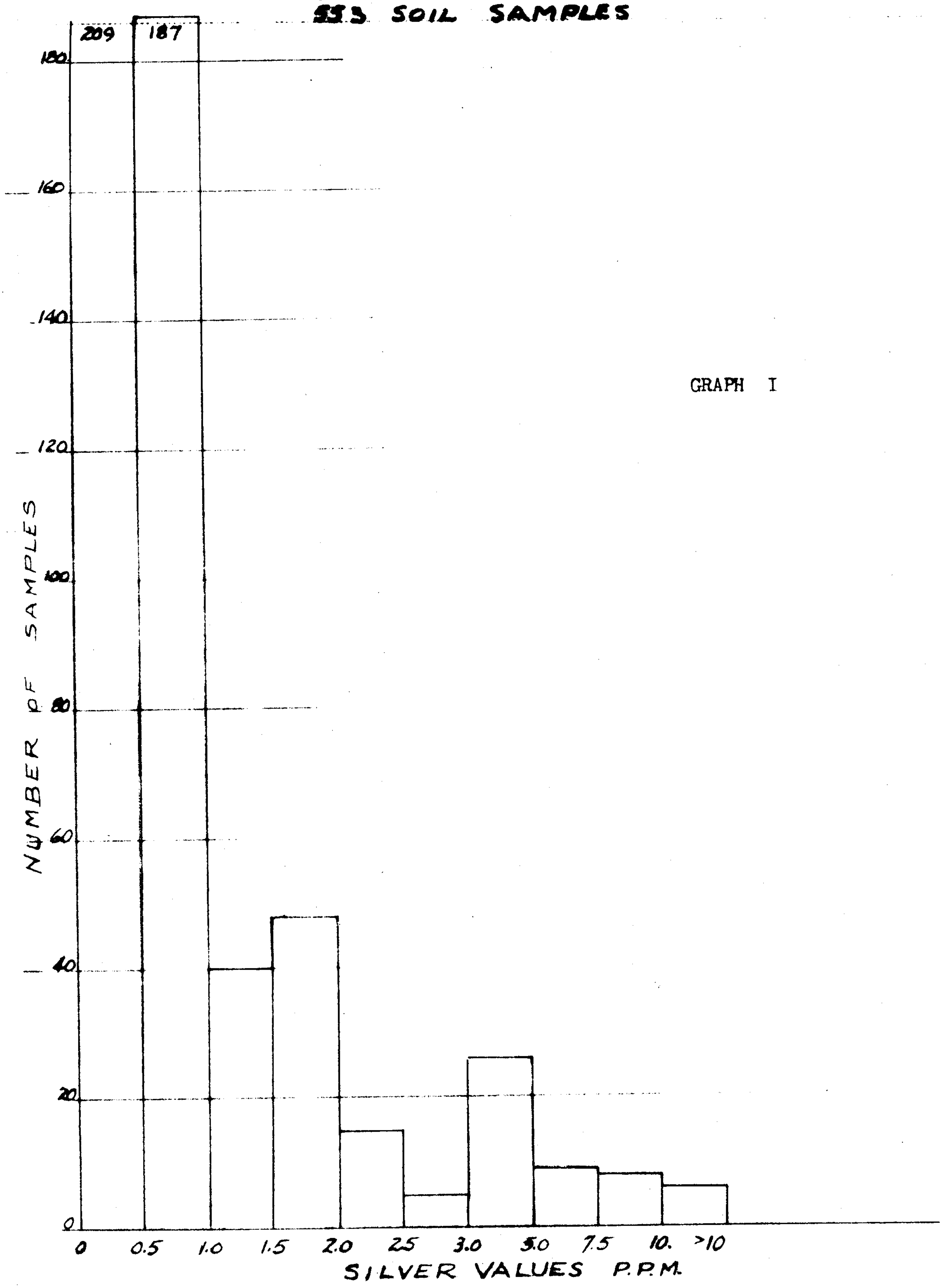
The zinc anomalies are rather sharply separated from those for silver and lead and, as they generally conform to drainage areas, they might have the same source and have been transported farther as a result of the greater solubility of zinc.

BY DATE SUBJECT BAR CLAIM GROUP SHEET NO OF

CHKD. BY DATE DISTRIBUTION OF SILVER VALUES JOB NO

553 SOIL SAMPLES

GRAPH I



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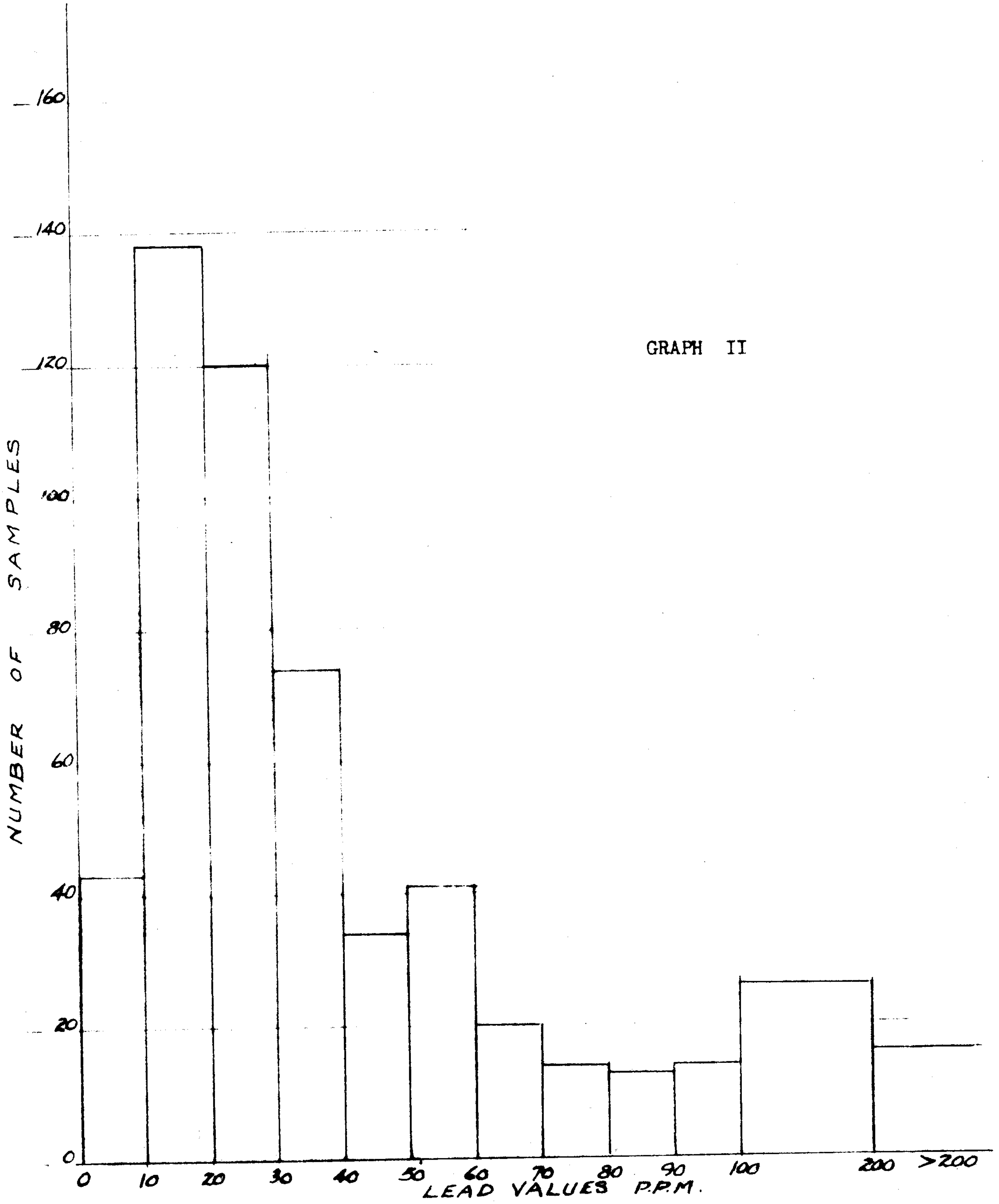
553 SOIL SAMPLES



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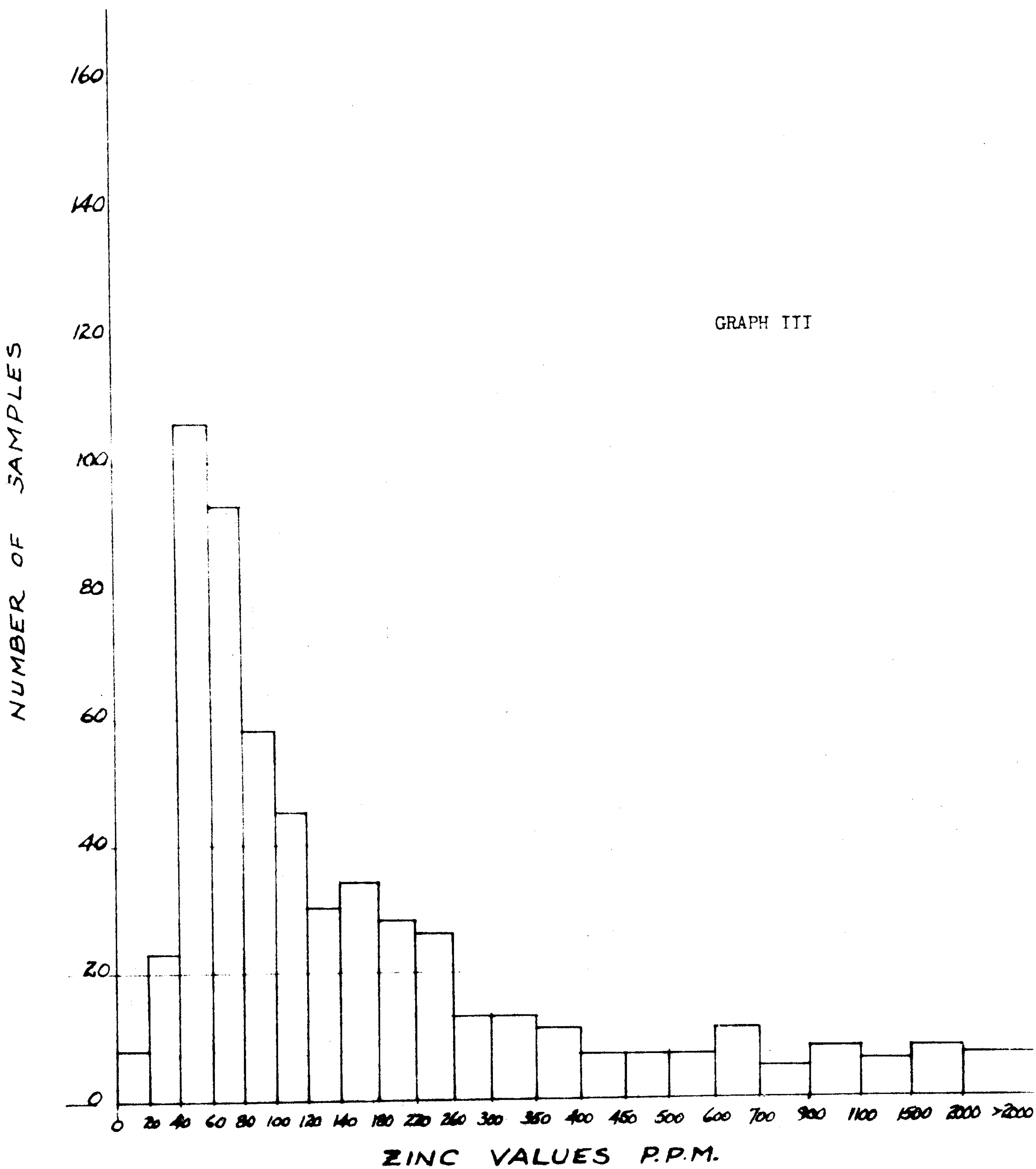
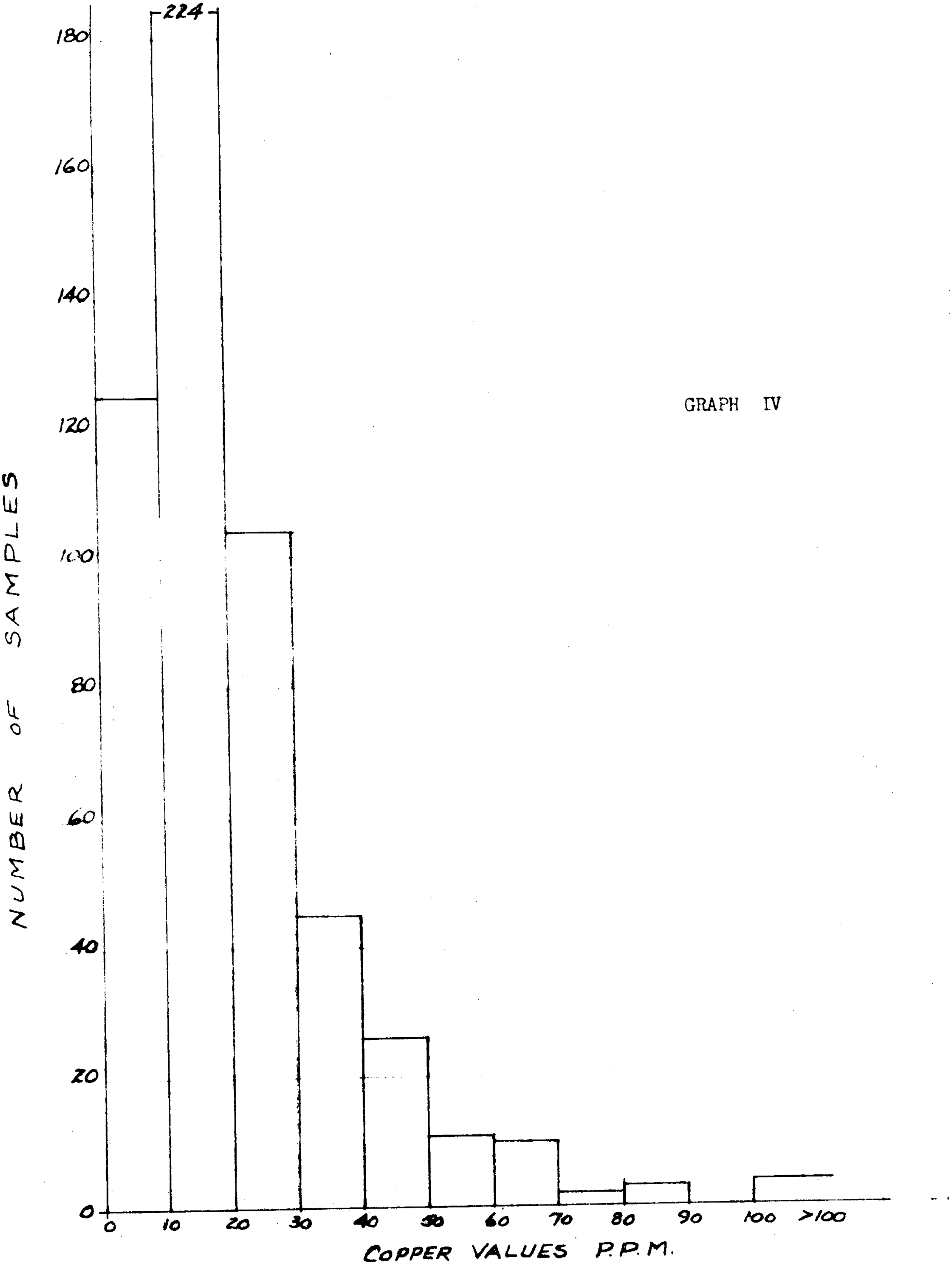
DISTRIBUTION ZINC VALUES
554 SOIL SAMPLES



SUBJECT BAR CLAIM GROUP
DISTRIBUTION COPPER VALUES
554 SOIL SAMPLES



GRAPH IV

That this might not be the case, however, is suggested by (1) the sharp division between zinc and other anomalies (if due to drainage migration, should it not be more gradual?), (2) the lack of any appreciable zinc in the supposed source area, the barite marcasite zone, in spite of the fact that fresh galena and marcasite are found at surface there, (3) the sharp change in IP response on line 44W, north to 30N, then northeast to 50N 16W is practically coincident with the east margin of the zinc anomalies.

There are no appreciable copper anomalies on the property.

In addition to the normal soil sample program, a series of shallow pits were dug on several of the sinter deposits. These pits were sampled at very narrow intervals. The results are shown on the following pages. These sinter tables are numbered gI, gII, etc., to conform with numbers on the geochemical and geological maps. Results are summarized in the table below:

		Anomalous for			
Sinter No.	Not Anomalous	Cu	Pb	Zn	Ag
Camp Test Pit				x	
gI			x	x	
gII	x				
gIII					x
gIV	x				
gV			x		
gVI			x		x
gVII				x	
gVIII				x	
gIX				x	
gX	x ?				
gXI				x	

BAR GROUP

TEST PIT AT CAMP

Depth (in.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0–1.0	C-937	31	8	620	< 0.5	Black organic layer with roots
1.0–1.9	C-938	4	4	60	< 0.5	Light coloured organic with roots, some sand
1.9–4.5	C-939	34	26	1080	< 0.5	Red with some roots, fine soil, little gravel
4.5–6.4						Thick yellowish brown, no roots, fine soil but some gravel present (4.5–15.9)
6.4–8.7	C-940	22	24	440	< 0.5	
8.7–12.9						
12.9–15.9	C-941	22	30	420	< 0.5	

BAR GROUP

g II SURFICIAL VARIATION

Length - (sampled at 100 ft. intervals starting at top of slope and following the topographic slope)

Distance (ft.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0	C-958	98	62	305	2.4	Above main Fe stained area, wooded
100	C-961	34	18	47	0.5	Sparsely wooded
200	C-962	8	10	34	0.5	No vegetation
300	C-963	30	30	112	0.8	Yellow horizon, no vegetation
400	C-964	21	30	75	< 0.5	Red horizon, sparse brush
500	C-973	22	20	47	< 0.5	No vegetation
600	C-974	20	20	45	< 0.5	No vegetation
700	C-975	28	18	70	< 0.5	No vegetation
800	C-976	26	18	60	< 0.5	No vegetation
900	C-977	58	18	108	< 0.5	Brush

Width - (sampled at 100 ft. intervals starting near west side of iron staining and following the same contour across the stained area; the sample line is approx. 450 ft. of length)

Distance (ft.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0	C-965	30	18	1360	0.5	Trees, brush
100	C-966	12	24	480	0.8	Trees, brush
200	C-967	26	18	2080	0.8	Near stream, brush
300	C-968	21	20	70	1.2	Near active Fe "run"
400	C-969	26	44	112	0.8	Near active Fe "run"
500	C-970	14	34	131	0.5	Treed central zone
600	C-971	14	16	22	0.5	On eastern Fe "run"
700	C-972	33	10	86	0.8	Some organics

g 1

BAR GROUP

Depth (in.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)
0					
	C-999	10	30	2080	< 0.5
1.0					
	C-1100	13	22	2080	< 0.5
2.0					
	C-1101	12	20	2000	< 0.5
4.0					
	C-1102	8	26	3200	< 0.5
5.5					
	C-1103	6	133	3680	< 0.5
8.5					
9.5					
10.0					
	C-1104	6	129	3040	< 0.5
13.0					
14.5					
15.0					
	C-1105	6	200	3520	< 0.5
16.5					
18.5					
20.0	C-1106	6	362	3840	0.5
21.0					
23.0					
	C-1107	7	150	3840	< 0.5
25.0					

BAR GROUP

g II

Depth (in.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0						
	C-959	44	24	233	0.5	Reddish colour
4.0						
6.0						
	C-960	58	20	75	0.8	Yellowish plus some lenses of reddish material
10.5						
						Rock fragments

BAR GROUP

g III

Depth (in.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0						
	C-954	8	84	45	6.4	Fine, red hard fragments
2.0						
	C-955	7	82	16	5.6	Fine, yellow hard fragments
4.0						
6.5						
	C-956	7	42	9	3.2	
9.0						Coarser, less stained material (4.0–14.0)
10.0						
	C-957	12	42	16	3.2	
14.0						

BAR GROUP

g IV

Depth (in.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0 – 1.5	C-948	10	30	22	2.4	No well defined layers
1.5 – 4.0	C-949	13	30	14	0.8	
4.0 – 5.5						
5.5 – 8.0	C-950	26	16	20	0.5	
8.0 – 9.5						
9.5 – 12.0	C-951	12	8	14	0.5	
12.0 – 13.5						
13.5 – 15.0	C-952	22	8	20	< 0.5	
15.0 – 18.0						
18.0 – 19.0	C-953	36	20	28	< 0.5	

BAR GROUP

g V

Depth (in.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0 – 1.0	C-942	8	122	52	< 0.5	Fine, dry material
1.0 – 6.5						Coarser, slightly darker coloured, slightly damper (1.0 – 11.0)
6.5 – 10.0	C-943	10	237	45	< 0.5	
11.0 – 14.0	C-944	6	161	28	1.6	Damp horizon, fine matrix with coarser material

BAR GROUP

g VI (23W, 2N)

Depth (in.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0–0.5	C-945	20	723	67	9.2	Fine, yellowish-brown horizon with gravel
0.5–2.0	C-946	21	700	83	7.6	Brown, sand material, little gravel
2.0–4.0	C-947	16	22	75	9.2	Reddish-brown material, patches of yellow material, some gravel
4.0–6.0						(Reddish-brown material, patches of yellow material, some gravel)

BAR GROUP

g VII (52W, 4+50S)

Depth (in.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0						
0.5						No well defined layers, all samples are rock fragments, thin (<.5") rock layers appear to be similar
	C-987	12	18	1600	< 0.5	
3.0						
	C-988	7	18	2000	0.5	
6.0						
6.5						
	C-989	10	22	2160	0.8	
8.5						
9.0						
	C-990	20	20	2400	0.8	
10.5						
11.0						
	C-991	52	26	2400	< 0.5	
13.0						
15.0						

BAR GROUP

g VIII (near spring at top of sinter)

Depth (in.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0						
	C-992	7	16	3440	<0.5	Loose gravel
1.0						
	C-993	6	16	2880	< 0.5	Black, partially consolidated
3.5						
4.0						
	C-994	7	14	2080	0.5	Transition between upper & lower layers
6.0						
	C-995	6	16	2960	< 0.5	Reddish gravel, also some yellow and black material
10.0						
10.5						
	C-996	7	16	2960	< 0.5	Yellowish gravel, some red and black also present
13.0						
	C-997	8	16	2720	< 0.5	Finer particles of red, yellow and black, well consolidated
16.0						
18.0						
	C-998	7	16	>4000	< 0.5	Similar to above but not well consolidated
23.0						
25.0						

BAR GROUP

g IX

Depth (in.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0						
	C-984	6	16	3440	0.8	Coarse, brown to black, partially consolidated material
2.0						)
3.0						) Fine, brown
	C-985	6	16	2960	0.5	)
4.5						
	C-986	6	16	>4000	<0.5	Thin, consolidated angular plates of black gravel
6.0						

BAR GROUP

g X

Depth (in.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0						
	C-981	10	20	248	0.5	Fine, reddish brown
1.0						
1.5						
	C-982	10	18	240	< 0.5	
3.0						
						?
5.0						
	C-983	8	18	192	0.5	Consolidated, yellow gravel
8.0						
10.5						

BAR GROUP

g XI

Depth (in.)	Sample	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Description
0						
	C-978	12	18	1440	< 0.5	Fine, reddish brown
1.5						
2.0						
	C-979	10	20	1920	0.5	
5.0						
5.5						
	C-980	31	18	800	< 0.5	Consolidated, yellow gravel
8.5						
9.5						
						Larger, darker coloured consolidated material

These results suggest the sources of the various sinters are not all the same. Some may be caused by drainage from essentially iron-rich mineraliztion, others appear to come from silver and/or lead-rich sources, while the more westerly appear to come from zinc-rich sources.

GEOPHYSICAL SURVEY

An IP survey was conducted during September on the picket line grid by Morrison & DePaoli. Their report is included hereunder.

J.C. Stephen

November 27, 1976

W N Baum, P.Eng

1976 GEOPHYSICAL REPORT ON THE BAR MINERAL CLAIMS 1-20

BY: GARRY M. DEPAOLI
GEOPHYSICIST, B.Sc.

DATE: SEPTEMBER, 1976.

1976 GEOPHYSICAL REPORT ON BAR MINERAL CLAIMS #1-#20

located in

THE YUKON TERRITORY

in the

WATSON LAKE MINING DIVISION

approximately

28 MILES NORTHEAST OF TESLIN
AT COORDINATES $60^{\circ}30'$ N.LAT.; $132^{\circ}15'$ W. LONG.

work for

D.C. SYNDICATE

work by

MORRISON & DEPAOLI
GEOPHYSICAL SURVEYING & CONSULTING

work period

AUGUST 31 to SEPTEMBER 10, 1976

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ILLUSTRATIONS

INTRODUCTION

The Bar Mineral Prospect is located in the Southern Yukon Territory and consists of 20 mineral claims owned by D.C. Syndicate. The possibility of lead, zinc, silver mineralization occurring within a barite/marcasite limestone complex is currently under investigation.

During the summer of 1976 a total of 10.6 line miles of induced polarization/resistivity surveying were completed over the Bar Group. The work was executed by Morrison & DePaoli Geophysical Surveying & Consulting upon the request of Bacon & Crowhurst and under the direct supervision of J.C. Stephen.

The following report describes the instrumentation, field procedure and results obtained from the survey.

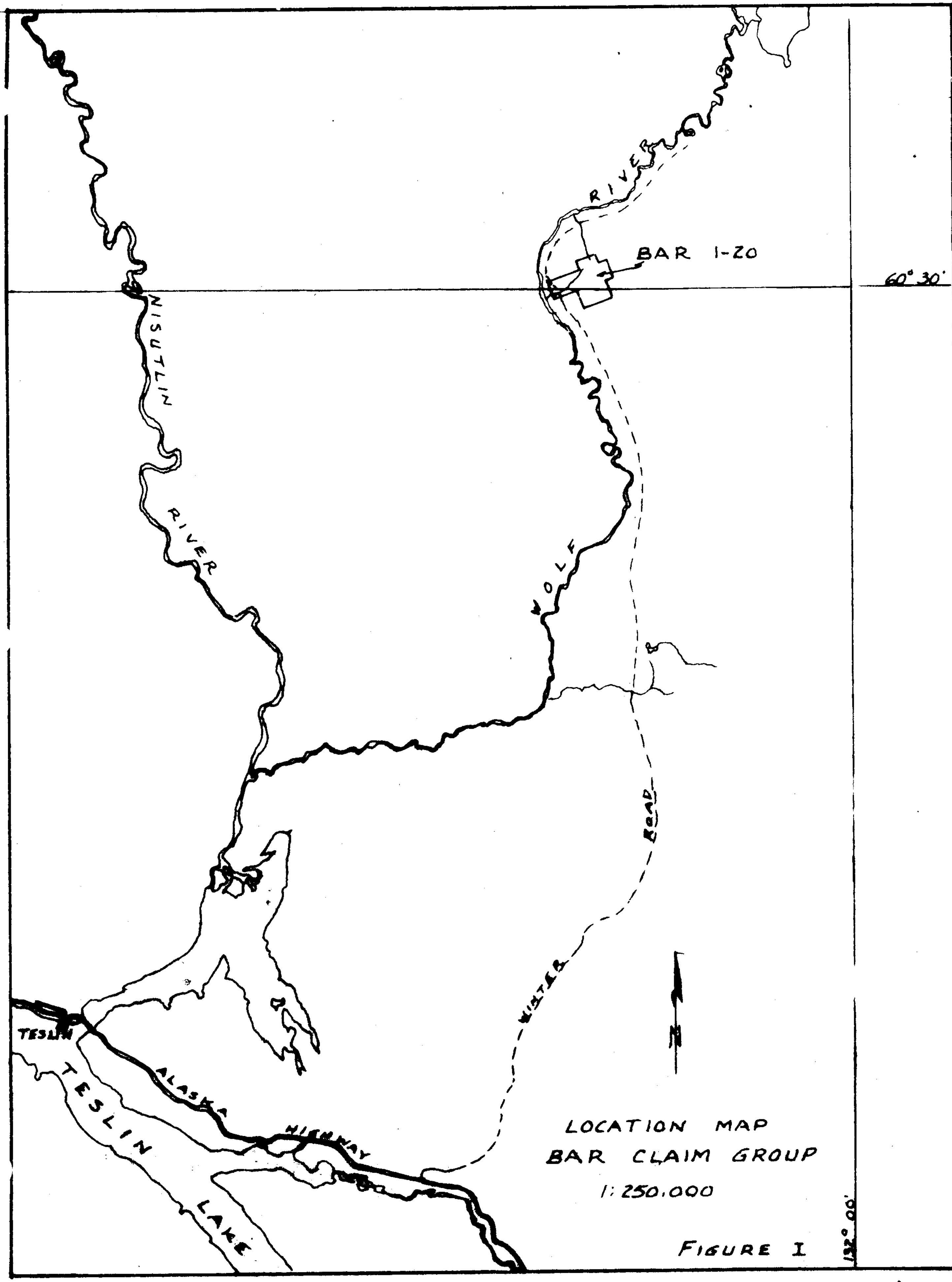
LOCATION AND ACCESS

The property is located in the southern portion of the Yukon Territory approximately 28 miles northeast of Teslin. It lies within the Watson Lake Mining Division at 60°30' North Latitude and 132°15' West Longitude, within NTS Blocks 105 C 8,9.

Access to the Claims is by helicopter from Teslin.

GRID CONTOL

The control grid consists of 11.4 line miles of cut, chained, and picketed lines. An east-west trending baseline is labelled 50+00 N and 12 perpendicular crosslines spaced at 400 foot intervals extend north and south. The grid was established by line of sight picketing, turned off the baseline with a transit.



RIVER
BAR 1-20
60° 30'
NISUTLIN
RIVER
WOLF
ROAD
WINTER
TESLIN
TESLIN
ALASKA
HIGHWAY
LAKE
LOCATION MAP
BAR CLAIM GROUP
1:250,000
132° 00'

FIGURE I

GENERAL GEOLOGY

The property predominantly lies within limestone of Mississippian Age which is part of the Englishmans Formation. The most abundant minerals are barite and marcasite, with minor galena which occur at the base of a fine grained grey green chert.

Geological interest in the area is generated by spot copper, lead, zinc, silver geochemical anomalies.

INDUCED POLARIZATION SURVEY

INTODUCTION AND THEORY

Limited and poor suboutcrop exposure prompted the undertaking of an induced polarization/resistivity survey. Measurements were obtained to determine the lateral and vertical distribution of sulphides within 400 feet of ground surface. Apparent resistivity data taken concurrently is useful in inferring overburden depths, defining abrupt lithological changes and assessing the importance of any IP effects obtained.

The term induced polarization means the electrical separation (ie. separation of charges) induced by an applied electric field. The cause of this polarization is changes in the mobilities of ions within a rock. At the interfaces between zones of different mobilities, excesses or deficiences of ions occur; the concentration gradients developed oppose the current flow and cause a polarizing effect. When mineral grains block the pore passages of rocks and a current is applied, a concentration of ions builds up at the electrolyte (water) - metal interface while awaiting an electrochemical reaction which must occur before the electric charge can be transferred from an ion in the electrolyte to a free electron in the metal. The forces which oppose the current flow are said to polarize the interface and the added voltage necessary to drive the current across the barrier is known as overvoltage.

It takes a finite time to build up overvoltage and one finds that the impedances of the zones (Warburg Impedance) decreases with increasing frequency. In the frequency domain system that was employed the decrease in the Warburg Impedance was measured between current applied at 0.3 and 5.0 hertz.

INSTRUMENT AND PROCEDURE

A multiple frequency McPhar induced polarization system, Model P660, was employed in measuring the polarization and resistivity parameters. The transmitter is a manually variable voltage source. The output current can be selected from both polarities and varies from direct current to automatically alternating output frequencies of 0.05, 0.1, 0.3, 1.25 and 5.0 hertz. Power was obtained from a 2½ KW - 400 hertz motor generator. The maximum output voltage is 690 volts, while the maximum output current is 5.0 amp.

The receiver employed was the A.C. P660 Model. This is a potentiometer type where the amplified and filtered signal is compared with a reference voltage. It draws 7.5 ma. Total weight including carrying case and batteries is 2.2 kilograms.

A symetrical in line dipole-dipole array was employed in the survey..The dipole length was 200 feet and measurements were taken to 4 separations (N=1,2,3,4). Survey procedure required the preparation of a "set-up" station near the center of each line. The transmitter and its motor generator power supply remained stationary at the set-up position and wires in increasing 200 foot intervals were strung out in both directions. Care was taken to ensure that the wires were well separated to prevent inductive coupling effects. The ends of the wires were connected to 4 foot stainless steel rods which had been hammered into the ground. Where possible the receiving dipole also utilized the stainless steel rods for electrode connections. Once the receiver dipole moved past the last steel rod ground connections were made via porous pots. Radio contact between the receiver and transmitter operators coordinated power on and off periods.

PRESENTATION OF DATA

The data is plotted in 12 pseudosections, Figures 3 a-l after Page 10. The pseudosections are vertical profile plots displaying apparent resistivities in $\rho_a/2\pi$ ohm feet and percent frequency effect values. In addition a schematic topographic profile is also shown and some profiles also display mapped line geology. Contoured plan maps of second separation (N=2) apparent resistivity and percent frequency effect data have also been prepared in Figures 4 and 5 respectively. An interpretation of the data is presented in Figure 6.

RESULTS AND INTERPRETATION

The highest induced polarization responses were obtained on the eastern portion of the grid. (See Figure 5). Anomalous percent frequency effects ranging from 7.5 to 20% were obtained on Lines 8+00 W, 16+00 W, 20+00 w, and 24+00 W. These anomalous values have not been entirely defined and remain open in three directions to the north, east and south. In Figure 6 the anomalous PFE responses have been grouped into three anomalies. Anomaly #1 in the south east portion of the grid encompasses the highest induced polarization respnses. PFE values ranging from 7.5 to 20% are interpreted to reflect a total polarizable metallic content of 2 to 6% by volume. Because of the averaging inherent in the induced polarization technique, it is understood that pods of higher metallic concentrations may also be present within a relatively barren host. Anomaly #2 in the northeast corner of the map is characterized by slightly lower PFE values ranging from 7.5 to 12% PFE. A total polarizable metallic concentration of 2 to 3% by volume is interpreted. Anomalies #3a and #3b are characterized by weakly anomalous PFE values, however they are enhanced somewhat by their inferred northeast structural control. All of the PFE anomalies listed above are associated or are coincident with apparent resistivity lows.

The contoured plan resistivity map (Figure 4) is dominated by two rather large resistivity highs (greater than 500 $\rho_a/2\pi$ ohm feet) which trend northeast. The apparent resistivity highs appear to be segmented by northwest faulting as indicated in Figure 6. The extent to the southeast of these resistivity highs has not been defined. The highs are coincident with mapped limestone outcrops and are interpreted to reflect a large mass of relatively uniform limestone.

A second feature noticeable in the resistivity plan is a northeast trending resistivity low characterized by values lower than 75 $\rho_a/2\pi$ ohm feet. This linear resistivity trend wraps around the northern limit of the resistivity high. The shape of this resistivity low suggests the presence of conjugate northeast and northwest faulting.

Further resistivity lows are noted in the northeast corner of the grid. These lows, which are associated with PFE Anomaly #2 also reflect a strong northeast structural direction.

OBSERVATIONS

The barite/marcasite mineralization has been displayed in Figure 6 and also is plotted on several of the pseudosection profiles. It is apparent that the geophysical signature associated with this mineral assemblage is a resistivity low and a PFE high. This is best displayed on Line 12+00 W near the baseline at 50+00 N. In addition the emplacement of barite / marcasite mineralization appears localized near strong northeast and north west structural directions.

Several copper, lead, zinc, silver geochemical anomalies are present on the grid. Preliminary field maps indicate the geochemical anomalies are associated with PFE highs and are elongated subparallel to major northeast-northwest resistivity lows.

CONCLUSIONS AND RECOMMENDATIONS

Several induced polarization anomalies have been obtained over known barite/marcasite mineralization. The anomalies have not been completely defined and are more extensive than the mineralization visible on surface. The most obvious source of the IP response is from marcasite, since barite does not respond to the induced polarization technique.

Despite the lack of chalcopyrite, galena,sphalerite and proustite on surface, the presence of copper, lead, zinc, silver is confirmed by anomalous geochemical soil anomalies.

In view of the fact of the excellent structural preparation of this area, further work is justified to ensure that no massive copper, lead, zinc, silver mineralization is present as replacement or fracture fillings of any brecciated or highly contorted and dragged dilatant zones. An example of this very situation, with somewhat similar mineralogy is the Magnet Cove Barite Sulphide Deposit of Walton, Nova Scotia (Reference CIMM Bulletin Volume 59 Number 654, October 1966, Page 1209)

Existing geochemical data, which to date has not been adequately portrayed, should be plotted on the present grid and thoroughly interpreted. Should significant anomalies be obtained in areas of PFE highs, drill testing of the anomalies is recommended, particularly in areas of intersecting northeast and northwest structural trends. Drill holes should test induced polarization anomalies to a vertical depth of 500 feet.

Further grooming of the property prior to drill testing can be made by a detailed ground magnetometer survey which will aid in the structural interpretation of the property. In addition intensive geological mapping and detailed geochemical sampling can be focused on current favourable geophysical targets.

Complete definition of PFE anomalies is not necessary until the presence of economic mineralization is established.

RESPECTFULLY SUBMITTED

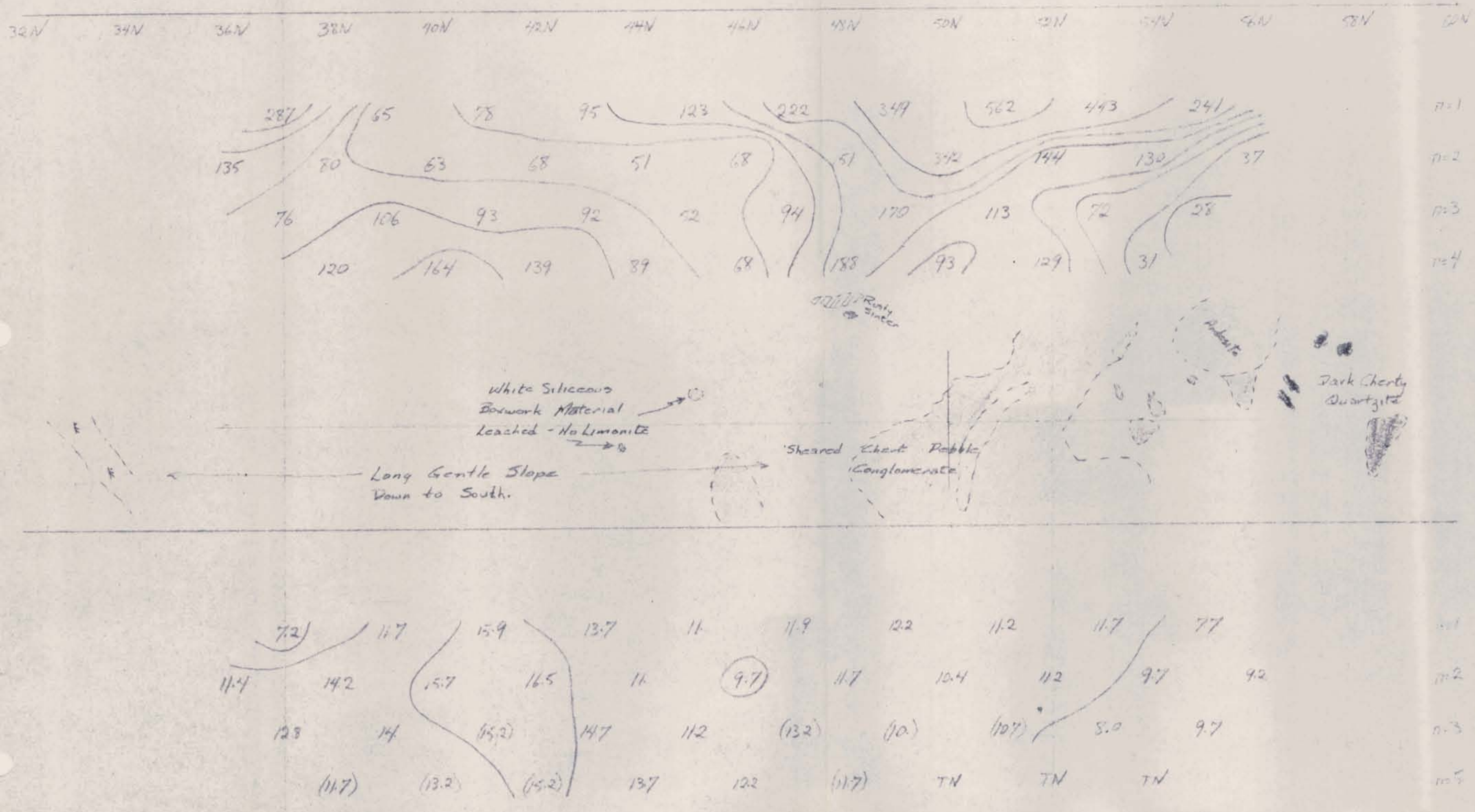
Garry DePaoli

September, 1976
Vancouver, B.C.

GARRY M. DEPAOLI
GEOPHYSICIST, B.Sc.

LIST OF CLAIMS

Name	Record No.	Date Staked	Date Recorded
BAR 1-8	YA 0026-33	June 12, 1976	June 24, 1976
BAR 9-12	YA 00913-916	Aug. 11, 1976	Sept. 3, 1976
BAR 13-18	YA 00917-922	Aug. 12, 1976	Sept. 3, 1976
BAR 19, 20	YA 00923, 924	Aug. 11, 1976	Sept. 3, 1976



$\frac{\rho_{(a)}}{2\pi}$ OHM FEET

D.C. SYNDICATE

TESLIN LAKE AREA, YUKON

BAR CLAIMS

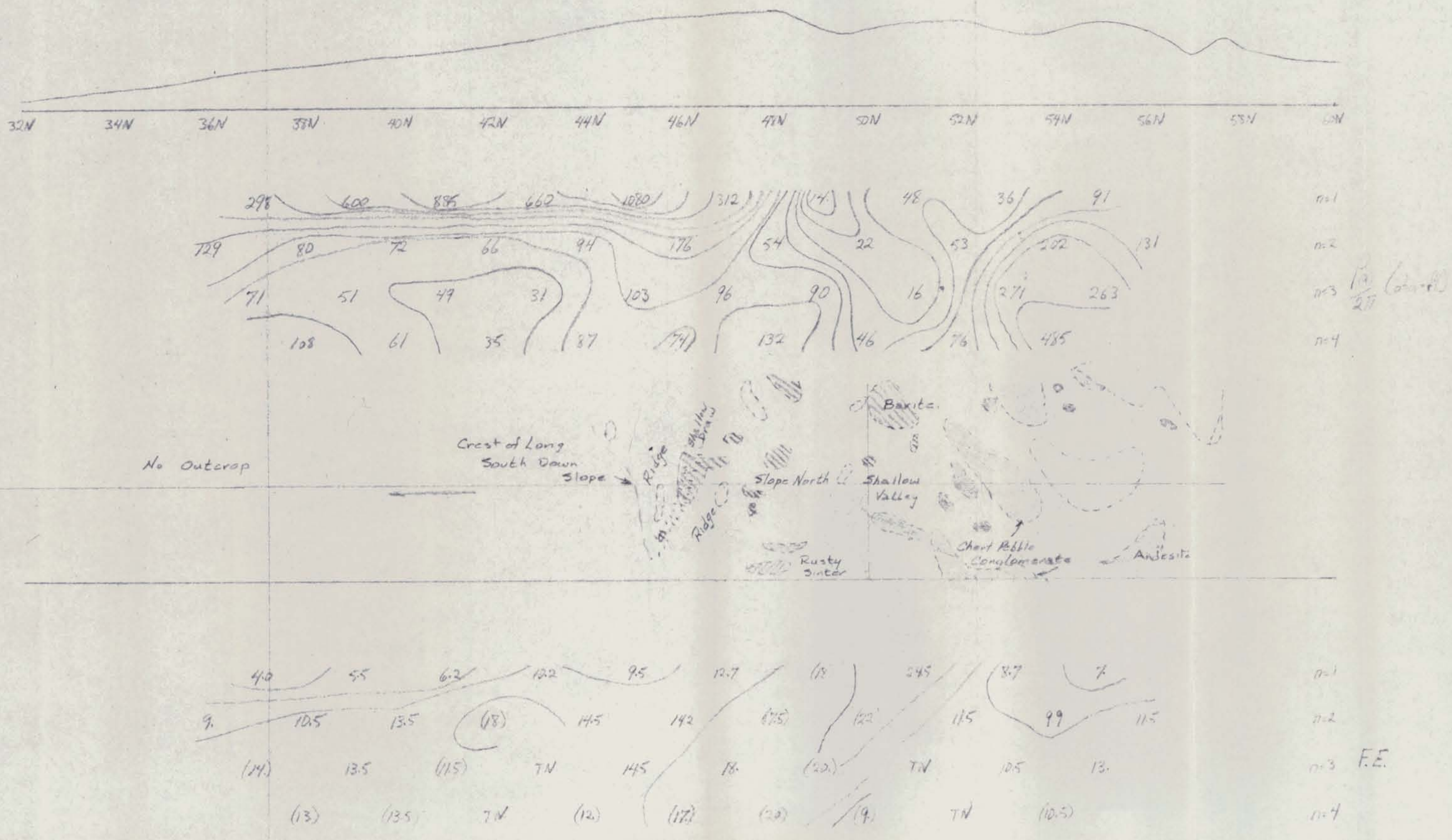
P-660 INDUCED POLARIZATION SURVEY
DIPOLE-DIPOLE ARRAY
SCALE: 1" = 200 ft.

AUGUST 31ST 1976

OPERATORS: MORRISON & TAYLOR

LINE 8W

FIGURE 3 (a)



D.C. SYNDICATE

TESLIN LAKE AREA, YUKON

BAR CLAIMS

P-660 INDUDCED POLARIZATION SURVEY
FREQUENCY DOMAIN 5.0 & 0.3 HTZ.
DIPOLE-DIPOLE ARRAY

SCALE: 1" = 200ft.

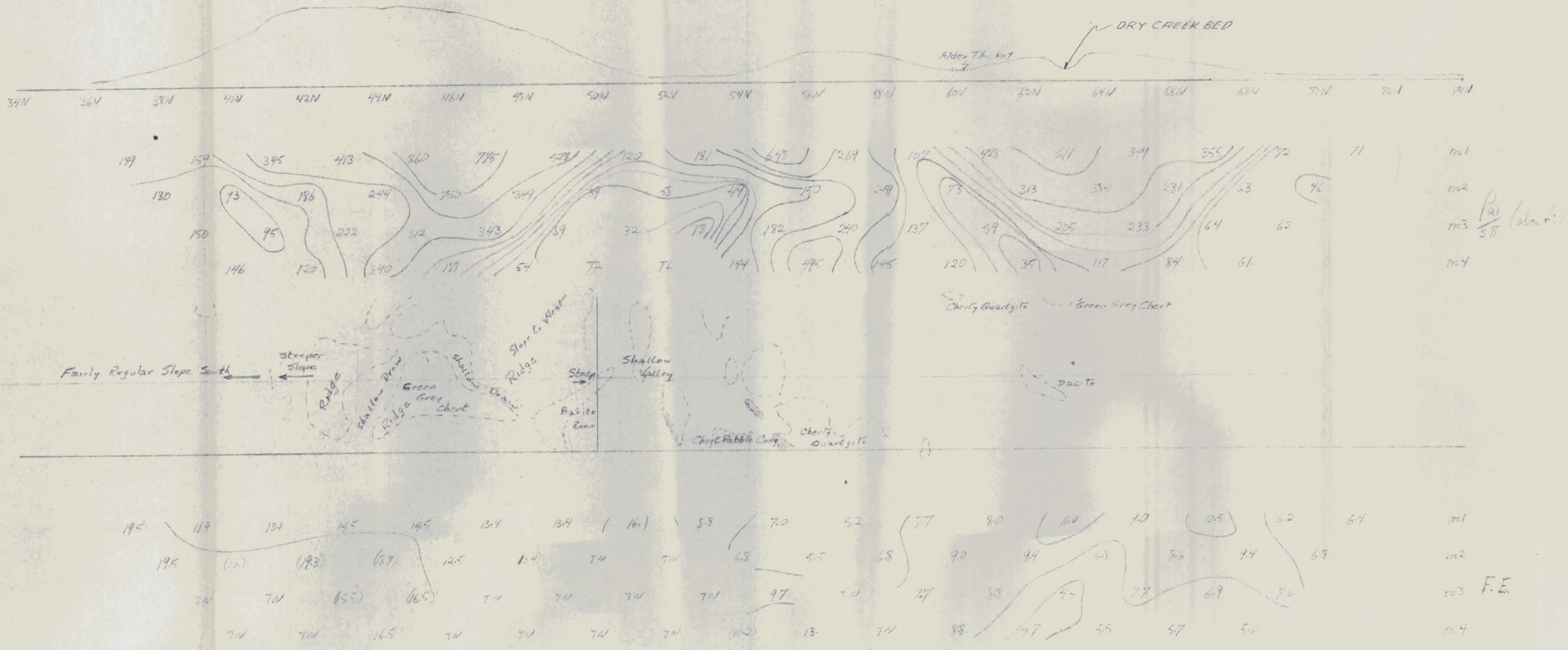
SEPT. 1, 1976

OPERATORS: MORRISON & TAYLOR

LINE: 12 W

FIGURE 3 (b)

LINE # 16 W



D.C. SYNDICATE
TESLIN LAKE AREA, YUKON
BAR CLAIMS

P-660 INDUCED POLARIZATION SURVEY
DIPOLE-DIPOLE ARRAY
FREQUENCY DOMAIN 5.0 & 0.3 hz.

SCALE: 1" = 200ft.

SEPT. 1ST & 2ND, 1976

OPERATORS: MORRISON & TAYLOR

LINE: 16 W

FIGURE 3(c)

D.C. SYNDICATE
TESLIN LAKE AREA, YUKON
BAR CLAIMS

P-660 INDUCED POLARIZATION SURVEY
FREQUENCY DOMAIN 5.0 & 0.3 hz.
DIPOLE-DIPOLE ARRAY

SCALE: 1" = 200 ft.

SEPT. 2ND & 3RD, 1976

OPERATORS: MORRISON & TAYLOR

LINE: 20 W

FIGURE 3 (d)

D.C. SYNDICATE
TESLIN LAKE AREA, YUKON
BAR CLAIMS

INDUCED POLARIZATION SURVEY
FREQUENCY DOMAIN 5.0 & 0.3 htz.
DIPOLE-DIPOLE ARRAY

SCALE: 1" = 200 ft.

SEPT. 3RD & 4TH, 1976

OPERATORS: MORRISON & TAYLOR

LINE: 24W

FIGURE 3(e)

D.C. SYNDICATE
TESLIN LAKE AREA, YUKON
BAR CLAIMS

INDUCED POLARIZATION SURVEY
FREQUENCY DOMAIN 5.0 & 0.3 Hz
DIPOLE-DIPOLE ARRAY

SCALE: 1" = 200 ft.

SEPT. 4TH & 10TH, 1976

OPERATORS: MORRISON & TAYLOR

LINE: 28W

FIGURE 3(f)

LINE # 32 W

D.C. SYNDICATE
TESLIN LAKE AREA, YUKON
BAR CLAIMS

INDUCED POLARIZATION SURVEY
FREQUENCY DOMAIN 5.0 & 0.3 hz.
DIPOLE - DIPOLE ARRAY

SCALE: 1" = 200 ft.

SEPT. 5

OPERATORS: MORRISON & TAYLOR

LINE: 32 W

FIGURE 3(g)

D.C. SYNDICATE
TESLIN LAKE AREA, YUKON
BAR CLAIMS

INDUCED POLARIZATION SURVEY
FREQUENCY DOMAIN 5.0 & 0.3 hz.
DIPOLE - DIPOLE ARRAY

SCALE: 1" = 200 ft.

SEPT. 5

OPERATORS: MORRISON & TAYLOR

LINE: 36 W

FIGURE 3(h)

D.C. SYNDICATE
TESLIN LAKE AREA, YUKON
BAR CLAIMS

INDUCED POLARIZATION SURVEY
FREQUENCY DOMAIN 5.0 & 0.3 hz.
DIPOLE - DIPOLE ARRAY

SCALE: 1" = 200 ft.

SEPT. 6TH & 8TH 1976

OPERATORS: MORRISON & TAYLOR

LINE: 40W

FIGURE 3(i)

D.C. SYNDICATE
TESLIN LAKE AREA, YUKON
BAR CLAIMS

INDUCED POLARIZATION SURVEY
FREQUENCY DOMAIN 5.0 & 0.3 hz.
DIPOLE-DIPOLE ARRAY

SCALE : 1" = 200 ft.

SEPT. 4TH & 8TH, 1976

OPERATORS : MORRISON & TAYLOR

LINE : 44 W

FIGURE 3(j)

D.C. SYNDICATE
TESLIN LAKE AREA, YUKON
BAR CLAIMS

INDUCED POLARIZATION SURVEY
FREQUENCY DOMAIN 5.0 & 0.3 hz.
DIPOLE-DIPOLE ARRAY

SILTSTONE

SCALE: 1" = 200 ft.

SEPT. 6TH & 8TH, 1976

OPERATORS: MORRISON & TAYLOR

LINE 48W

FIGURE 3(k)

D. C. SYNDICATE
TESLIN LAKE AREA, YUKON
BAR CLAIMS

INDUCED POLARIZATION SURVEY
FREQUENCY DOMAIN 5.0 & 0.3 Hz
DIPOLE-DIPOLE ARRAY

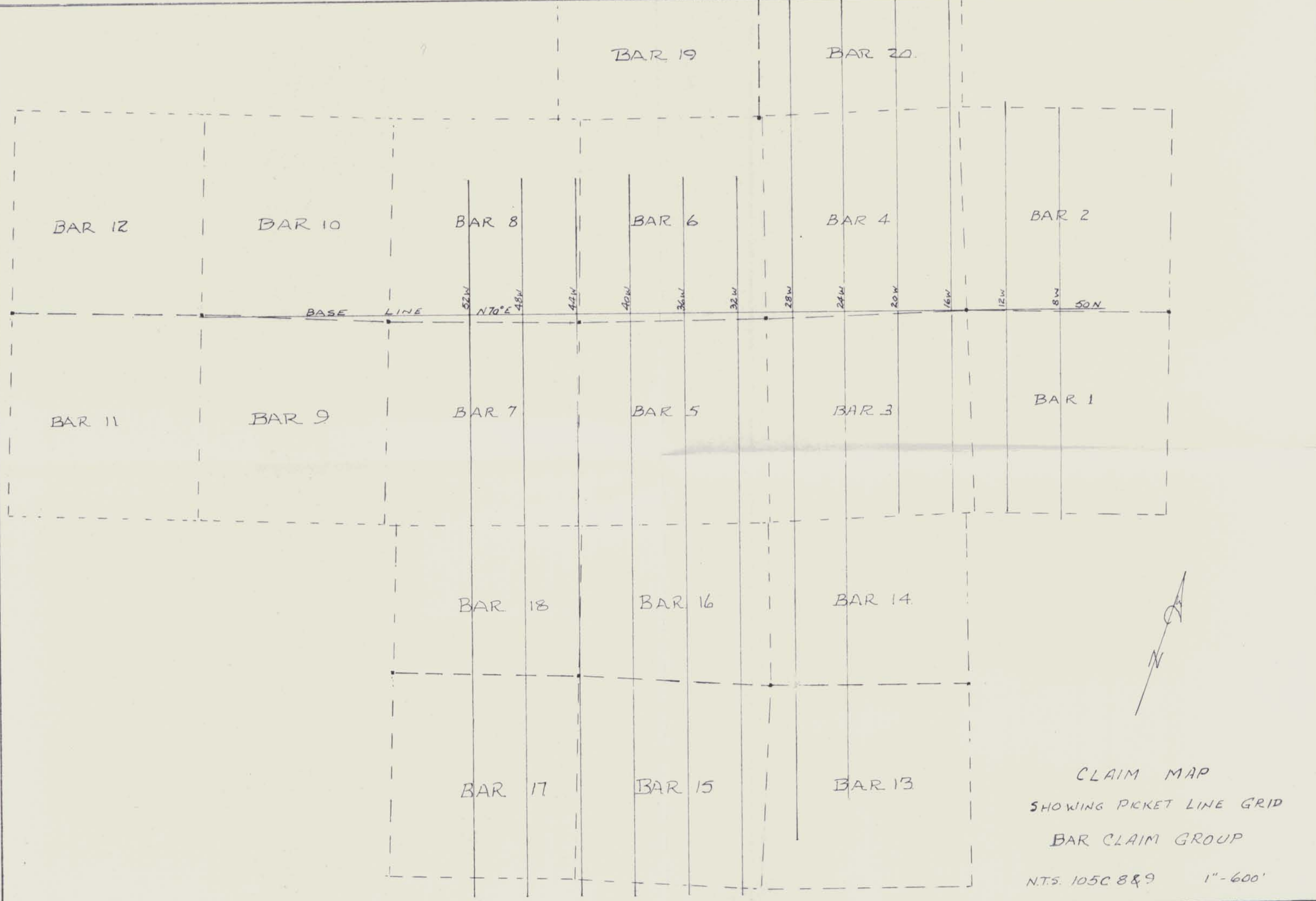
SCALE: 1" = 200 ft.

SEPT. 7TH, 1976

OPERATORS: MORRISON & TAYLOR

LINE: 52 W

FIGURE 3(2)



CLAIM MAP

SHOWING PICKET LINE GRID

BAR CLAIM GROUP

N.T.S. 105C 8&9 1" - 600'

FIGURE II


BAR 19
YA 00923
BAR 20
YA 00924
BAR 12
YA 00916
10
YA 00914
8
YA 0033
6
YA 0031
4
YA 0029
2
YA 0027
11
YA 00915
9
YA 00913
7
YA 0032
5
YA 0030
3
YA 0028
BAR 1
YA 0026
50N
18
YA 00922
16
YA 00920
14
YA 00918
17
YA 00921
15
YA 00919
13
YA 00917
LEGEND
13 RUSTY LIMONITE SINTER
12 BARITE, QUARTZ BARITE ZONE
11 DIABASE
10 MASSIVE GREY SILTSTONE
9 SILTSTONE, ARGILLITE
8 GREY CHERT PEBBLE CONGLOMERATE
7 GREY GREEN CHERT, CHERTY QUARTZITE
6 GREY CHERT PEBBLE CONGLOMERATE, INTERBEDDED SILTSTONE 6a
5 DOLOMITE, INTERBEDDED CHERT
4 DARK GREY CHERT, CHERTY QUARTZITE
3 WHITE TO RED CHERT, CHERTY QUARTZITE, BRECCIA
2 GREY LIMESTONE, CHERT LENSES
1 SLATEY ARGILLITE (Occurs East of claim group)
BOULDERS, FLOAT
OUTCROP, OUTCROP AREA OR RUBBLE
N
D C SYNDICATE
BAR CLAIM GROUP
GEOLOGY
105 C 8 & 9
SEPT 1976
0' 200' 400'

FIGURE II


BL. 50 N
DC SYNDICATE
BAR CLAIM GROUP
SOIL GEOCHEMISTRY
SILVER CONTOURS
105 C 8 & 9
SEPT 1976
0'
200'
400'
FIGURE III

DC SYNDICATE

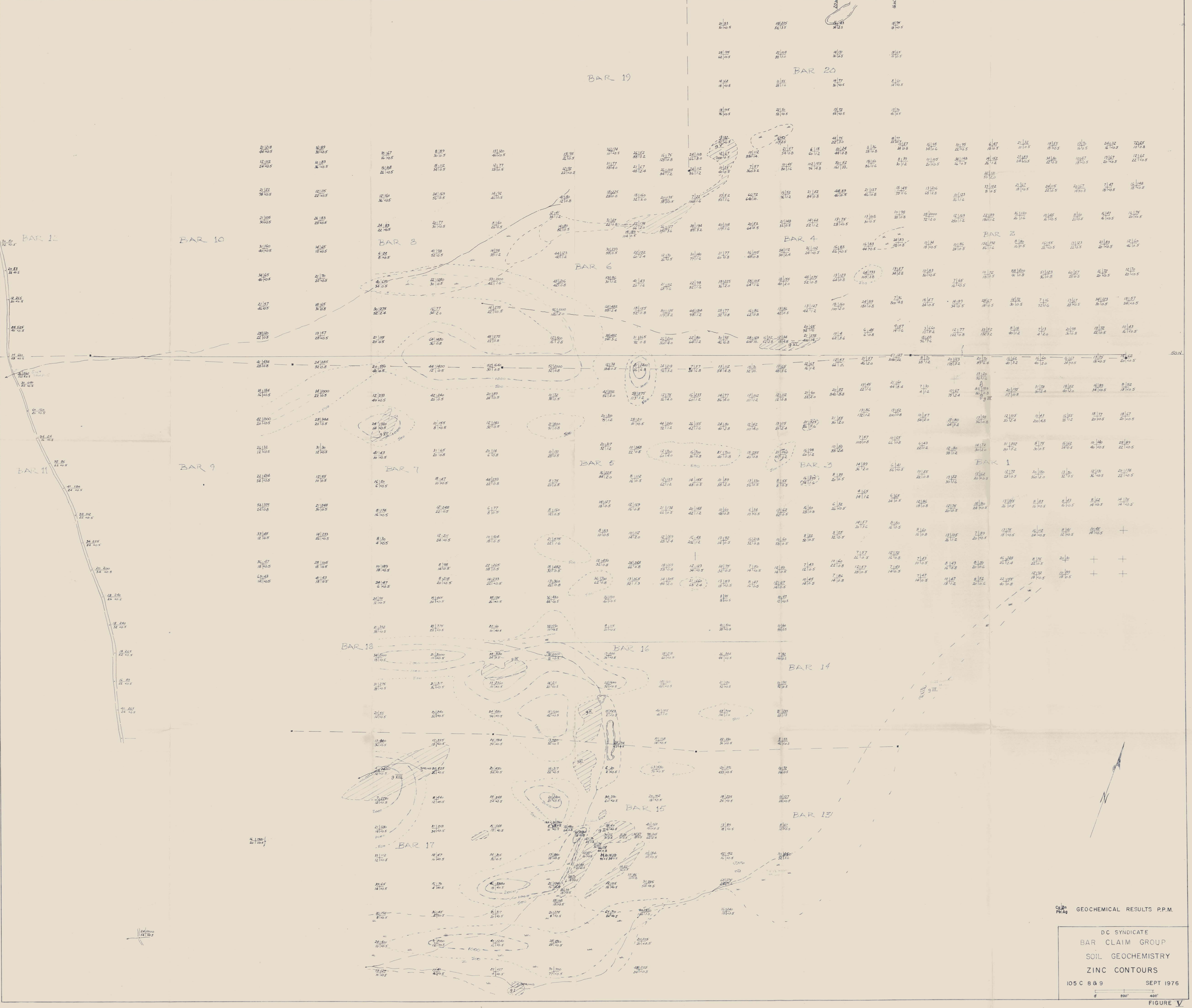
BAR CLAIM GROUP

SOIL GEOCHEMISTRY

LEAD CONTOURS

105 C 8 & 9 SEPT 1976

FIGURE IV


BAR 19
BAR 20
BAR 12
BAR 10
BAR 8
BAR 6
BAR 4
BAR 2
BAR 11
BAR 9
BAR 7
BAR 5
BAR 3
BAR 1
BAR 18
BAR 16
BAR 14
BAR 15
BAR 13
BAR 17
Cu|Zn
Pb|Ag
GEOCHEMICAL RESULTS P.P.M.
DC SYNDICATE
BAR CLAIM GROUP
SOIL GEOCHEMISTRY
ZINC CONTOURS
105 C 8 & 9
SEPT 1976
FIGURE V

LEGEND

GRID LINE

APPARENT RESISTIVITY IN $\rho_a/2\pi$ OHM FEET

RESISTIVITY CONTOUR C.I. 10, 15, 20, 30, 50, 75, 100, 150, 200, 300, 500, 750, 1000, 1500, 2000, 3000, 5000

P-660 FREQUENCY DOMAIN IP
0.3 AND 5.0 HERTZ
DIPOLE - DIPOLE ARRAY
DIPOLE LENGTH 200 FEET
OPERATORS: MORRISON & TAYLOR

D.C. SYNDICATE

BAR CLAIM GROUP
PLAN RESISTIVITY N=2

SCALE: 1" = 200 FEET	DATE: SEPTEMBER 1976
DRAWN BY: GMD	NTS 105 C 8,9

TO ACCOMPANY: 1976 GEOPHYSICAL REPORT ON BAR CLAIMS BY GARRY DEPAOLI

FIGURE 4

LEGEND

GRID LINE

PERCENT FREQUENCY EFFECT

PERCENT FREQUENCY EFFECT CONTOUR
C.I. 0.75, 1.0, 2, 3, 5, 7.5, 10, 15, 20

P-660 FREQUENCY DOMAIN IP
0.3 AND 5.0 HERTZ
DIPOLE - DIPOLE ARRAY
DIPOLE LENGTH 200 FEET
OPERATORS: MORRISON & TAYLOR

D.C. SYNDICATE

BAR CLAIM GROUP
PLAN PFE N = 2

SCALE: 1" = 200 FEET	DATE: SEPTEMBER 1976
DRAWN BY: GMD	NTS 105 C 8,9

TO ACCOMPANY: 1976 GEOPHYSICAL REPORT ON BAR CLAIMS BY GARRY DEPAOLI

FIGURE 5

D.C. SYNDICATE	
BAR CLAIM GROUP GEOPHYSICAL INTERPRETATION	
SCALE: 1" = 200 FEET	DATE: SEPTEMBER 1976
DRAWN BY: GMD	NTS 105 C 8,9
TO ACCOMPANY: 1976 GEOPHYSICAL REPORT ON BAR CLAIMS BY GARRY DEPAOLI	
	FIGURE 6