GEOLOGICAL - GEOCHEMICAL REPORT

on the

CAB 1-5 MINERAL CLAIMS
Bootjack Lake Area
93 A 12/E
Cariboo Mining Division

by

J.S. Christie September 1979

OWNER: W.A. Howell
OPERATOR: JMT Services Corp.
DATES OF WORK: June 29, 1979 - July 12, 1979

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ILLUSTRATIONS

INTRODUCTION

The Cab claims cover an area of low relief northwest of Mt. Polley. Based on an interpretation of the most recent glacial direction, mineralized float found as far as 4 km northwest of the claims may have a source on the property. The objective of the current programme was to search the property for exposed bedrock and to investigate the margins of a large central swampy area by means of soil sampling and geochemical analysis. Soils were collected by auger at 100 foot intervals on lines adjacent to the swamp. In total, 93 samples were obtained and these were analysed with a Dithizone-Heavy Metals Field Kit.

LOCATION AND ACCESS

The Property lies 65 km northwest of Williams Lake in NTS 93A/12E, covering a large flat swampy area northwest of Mt. Polley. Vegetation is dense pine-fir forest with open swamplands. Elevation is about 1000 M.

The claims are accessible by road from Williams Lake via the Likely road to Moorehead Lake, and then the Cariboo-Bell road which runs southwest of the claims. A short walk of about 1 km is required from the Cariboo-Bell road to the property.

MINERAL CLAIMS

The property consists of the Cab 1-5 mineral claims described below and shown on the accompanying map.

Name	Record No.	Record Date
CAB 1-5	848-852(10)	Sept. 11,1978

CAB MINERAL CLAIMS

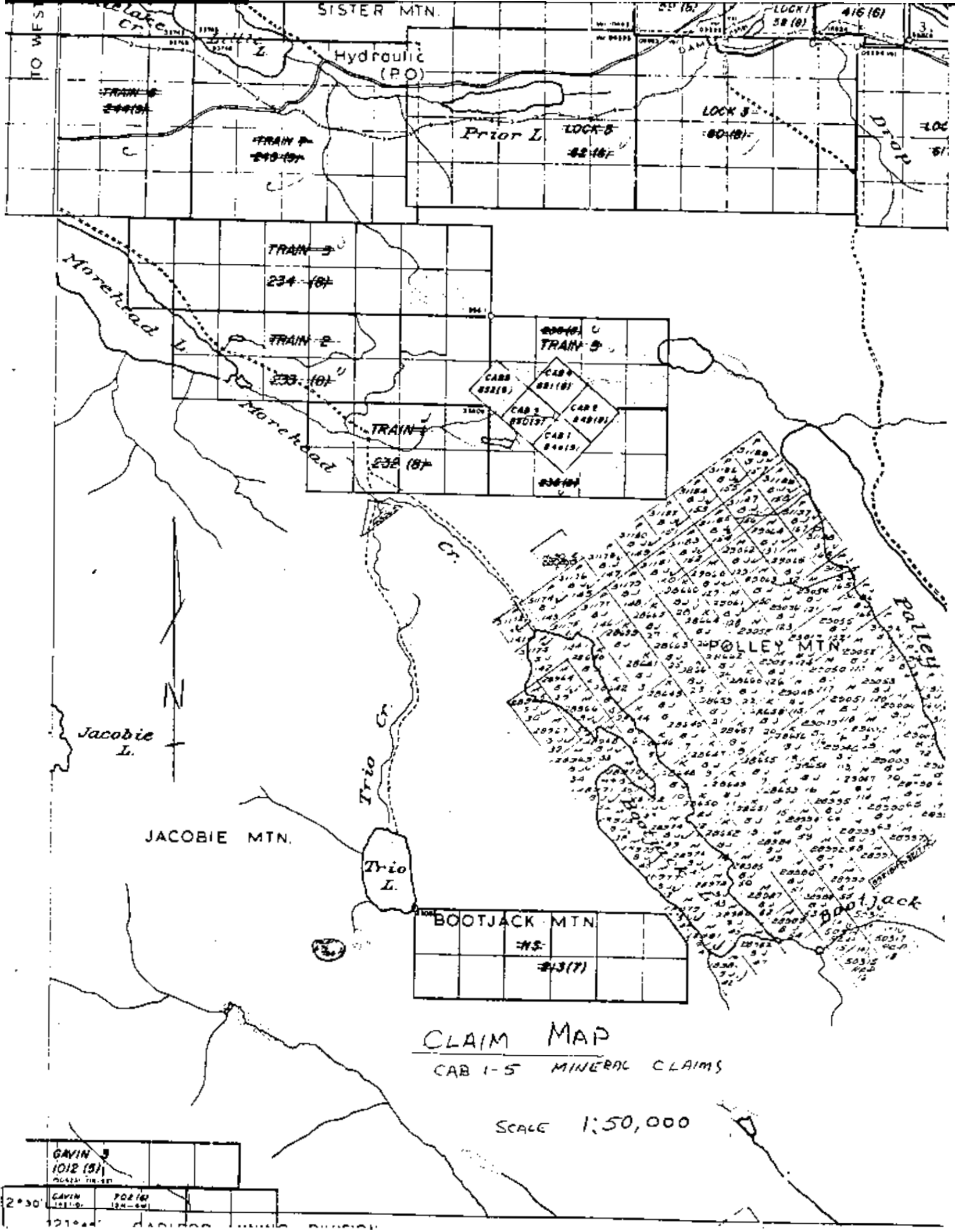
CARIBOO MINING DIVISION

PROPERTY LOCATION MAP

SCALE

Mile 0 136 Miles

Prepared by Drawn by JSC	Date Revised Oct 79	NTS MAP AREA 93A/12E	DRAWING NO



CLAIM MAP

CAB 1-5 MINERAL CLAIMS

SCALE 1:50,000

HISTORY

Placer gold mining has been carried on just east and north of the claim area for over one hundred years. In 1964, the Karl Springer interests discovered Cariboo-Bell alkalic porphyry deposit on Polley Mountain. Through 1970, about 30,000 m of diamond and percussion drilling outlined a cluster of six breccia related zones in an Upper Triassic volcanic center environment. Reserves are reported to be more than 25 X 10^6 tonnes grading 0.5% Cu, 0.02 oz/T Au. In 1976, Quintana prospected the area, discovered numerous copper mineralized float boulders and staked 172 units. Further work included a test I P profile, and six percussion holes. Quintana allowed the property to lapse and in 1978 a part of the original area was re-staked by W.H. Howell as Cab 1-5 claims. Of the original property, this area appeared to have the best potential for significant mineralization.

GEOLOGY

Regional:

The Cab claims lie in the Quesnel Trough, a 35 km wide, northwesterly trending fault bounded belt of Upper Triassic to Lower Jurassic volcanics and co-eval and comagmatic alkalic intrusives, together with volcanic epiclastics and marine sediments. A feature of the Polley Mountain - Morehead Lake area is the presence of red volcanic clastics and flows, suggesting the presence of a volcanic island. Copper, either native of as sulphide occurs locally as amygdale fillings, and disseminate, Hodgson et al.,(1976). A large area of glacial-fluvial cover extends northwest from the foot of Polley Mountain, covering an area 2400 m to 3000 m wide and 10,000 m long.

Local:

A thorough search of the non-swamp areas on the Cab claims yielded no outcrops. Previous traverses in the area by the author have indicated that the covered area is bounded on the southeast by outcrops of volcanic clastics. These rocks are variably mineralized by fracture controlled and disseminated pyrite, and 200 to 400 ppm Cu as chalcopyrite. Available mapping makes clear that these mineralized outcrops could be either the edge of an unknown porphyry sulphide zone or a part of the Cariboo-Bell system. Published I P data (Hodgson et al, 1976) indicates that a separate system may be present.

Along the southwest side of the covered area, apparently unmineralized volcanic breccia is exposed (Bailey, 1976). These outcrops were not examined. Outcrops on the west end of Morehead-Hydraulic road are fresh except for some carbonate veinlets. However, volcanics? penetrated in Quintana's percussion hole #6 contain more than 1% pyrite and anomalous gold values.

Northwest of the Cab claims on the Tom property, a small alkalic body and the nearby volcanics are mineralized with copper (Bailey, 1976). Northeast of the covered area, Bailey (1976) maps volcanics, and reports only a little copper on Sister Mountain. Bailey (1976) indicates that monolithologic syenite and trachyte pyroclastics are present north and south of the covered area, suggesting the presence of an intrusive under cover.

Evidence of possible mineralization under cover on the Cab claims includes the presence of mineralization peripheral to the covered area, the presence of placer gold workings in Morehead Creek, and the widespread occurrence of mineralized float boulders. These boulders include both volcanic? breccia, propylitically

and phyllically altered, and mineralized with pyrite, chalcopyrite, malachite; and fragments of syenodiorite similarly altered and mineralized. Many rocks exhibit a strong brick red alteration which may be albite. Source interpretations based on the distribution of mineralized float is tenuous at best, as sampling sites in till and glaciofluvial units are restricted to the few stream and road exposures. A mantle of low brush and moss over almost the entire covered area makes recognition of mineralized float essentially impossible. In addition, glacial and glaciofluvial history is unknown, except for the direction of last ice movement which can be inferred from drumlinoid features and from obvious known ice smearing of the copper soil anomaly at Cariboo-Bell. To attempt to define the source of the float exactly is all but impossible, and in the end a decision must be made as to whether all the mineralized float probably comes from Cariboo-Bell, or whether there is a reasonable chance that some comes from an unknown source under cover northwest of Cariboo-Bell. The fact that float found near the Morehead-Hydraulic road contains good grade (up to 1.1% Cu) without potassic alteration, and without magnetite, suggests that there may well be another source for this material. (cf. Hodgson et al, description of Cariboo-Bell mineralization and alteration).

GEOCHEMISTRY

Soil samples were collected by auger at depth up to 1 metre beneath the surface along 4 lines adjacent to the swamp. Sample sites and results are plotted on Map 1 (pocket). In general materials sampled were wet sandy alluvial deposits with local high organics, and gravel to boulder zones. Some clay till? or ground morraine deposits are present. The B-horizon normally

sampled in such a programme is not developed on the property, but since the samples were wet (below local water-table) some geochemical mobility may have occured, and anomalies obtained may related to bedrock mineralization in the local area.

Analyses were done by the Dithizone - Heavy Metals Test (see Appendix). The test does not distinguish between Cu-Pb-Zn but on the basis of personal experience with Dithizone testing in prophyry copper environments, values of 16 or greater are anomalous with a value of 16 probably corresponding to about 50 - 100 ppm Cu. Values of 24-28 likely correspond to about 200 - 300 ppm Cu and are strongly anomalous.

No consistently strong pattern was developed as a result of the programme but spotty anomalies occur on all lines. The strongest and most continuously anomalous values lie along the west line and the west ends of the north and south lines suggesting vaguely that copper mineralization may be present on Cab 1, 3, 5. While not conclusive the results are considered to be encouraging in view of the nature of the materials sampled and the heavy overburden present. A specific drill target has not been defined but there is a good possibility that copper mineralization may be present on the claims.

CONCLUSIONS

The Cab claims are adjacent to a known alkalic porphyry copper deposit and are themselves devoid of outcrop although the nearest outcrops to the west and southwest are altered and mineralized with copper. Published geology suggests that the Cariboo-Bell volcanic center continues or is repeated under cover on the Cab claims. Mineralized float containing up to 1.1% copper and placer gold in Morehead Creek both suggest that there maybe a mineralized zone or zones in addition to those exposed on Polley Mountain. Geochem anomalies obtained in this survey while spotty suggest that the mineralization may be present on Cab 1,3,5. Geochem response is encouraging in view of the difficult sampling and overburden conditions.

Respectfully submitted

G.S. Christie

REFERENCES

Bailey, David G., 1976, Geology of the Morehead Lake Area, Preliminary Map No. 20, B.C. Dept. of Min. and Pet. Res.

Hodgson, C.J., R.J. Bailes and R.S. Verzosa, 1976, Cariboo-Bell, in Porphyry Deposits of the Canadian Cordillera, Special Volume 15, C.I.M.M., pp 388-396.

Wolfhard, M.R., 1977, Preliminary Report on Train Project for Quintana Minerals Corp.

STATEMENT OF QUALIFICATIONS

I, James S. Christie of Vancouver, British Columbia do hereby certify that,

1. I am a Professional Geologist residing at 3921 W. 31st Ave., Vancouver, B.C. V6S 1Y4.

2. I am a graduate of the University of British Columbia B.Sc. Honours Geology - 1965, Ph.D. Geology - 1973.

3. I have practised my profession as a mining exploration geologist, continuously since 1965.

4. I am a Fellow of the Geological Association of Canada.

5. I am a Member of the Geological Society of America.

6. This report is based on my personal knowledge of the district, and mapping of the geology at the property.

James S. Christie, Ph.D.
September, 1979

DETAILED COST STATEMENT

J.S. Christie - June 29 - July 2, July 7 5 days @ $150/day	$ 750.00
Truck rental and fuel	225.00
Accomodation	58.00
Meals - field	80.00
Chemicals and field supplies	95.00
Report	300.00
	$1,508.00

APPENDIX

BLOOM TEST

EXCHANGEABLE HEAVY METALS IN SEDIMENTS

Cold Ammonium Citrate Test

BLOOM TEST

EXCHANGEABLE HEAVY METALS IN SEDIMENTS

Cold Ammonium Citrate Test

Preparation of Field Solutions:

Stock Dithizone Solution (0.01%); with pipette, measure 100 ml of toluene into 8-0z polyethylene screw-topped bottle, and mark bottle at this level with china marking pencil for future reference; shake in contents of one vial of dithizone; shake, wrap bottle in aluminum foil to keep out light, and allow to stand for at least 1 hour before using.

Field Dithizone Solution (0.001%): add one part of stock Dithizone solution and nine parts of toluene to polyethylene wash bottle, shake to mix, and wrap with aluminum foil to keep out light. These liquids may be measured in the field with one of the marked culture tubes; a supply of toluene may be carried in the field in a 32-oz polyethylene screw-topped bottle.

Field Solution: with graduated cylinder, measure one part of 5X Buffer and four parts of metal-free water into 32-oz polyethylene screw topped bottle; shake to mix as needed; transfer portions of this reserve supply to polyethylene was bottle for field use.

Procedure:

1. Measure out one scoopful of sample, (approx 0.25 g) leveled with spatual or pen-knife, and tap into marked culture tube.
2. Add Field Solution to 3 ml mark.
3. Add 1 ml of Field Dithizone Solution, bringing level to 4 ml mark.
4. Insert a polyethylene stopper from one of the vials into the end of the culture tube, and shake briskly fifty times (15 seconds).
5. Allow Dithizone Solution to collect at surface of liquid and observe color. If green, record 0; if blue green, record 1/2; if blue, record 1; if purple or red, proceed with Step 6.

6. Add 1 ml more of Field Dithizone Solution, bringing level to 5 ml mark, and shake briskly 20 times (Five seconds). If color is blue, record 2; if purple or red, repeat the shake-out adding Dithizone Solution in increments of 2,4,4, and 4 until blue end-point is reached; record total volume of Dithizone Solution needed to reach blue end-point; if the blue end-point is over-shot, the recorded value may be interpolated.

NOTES:

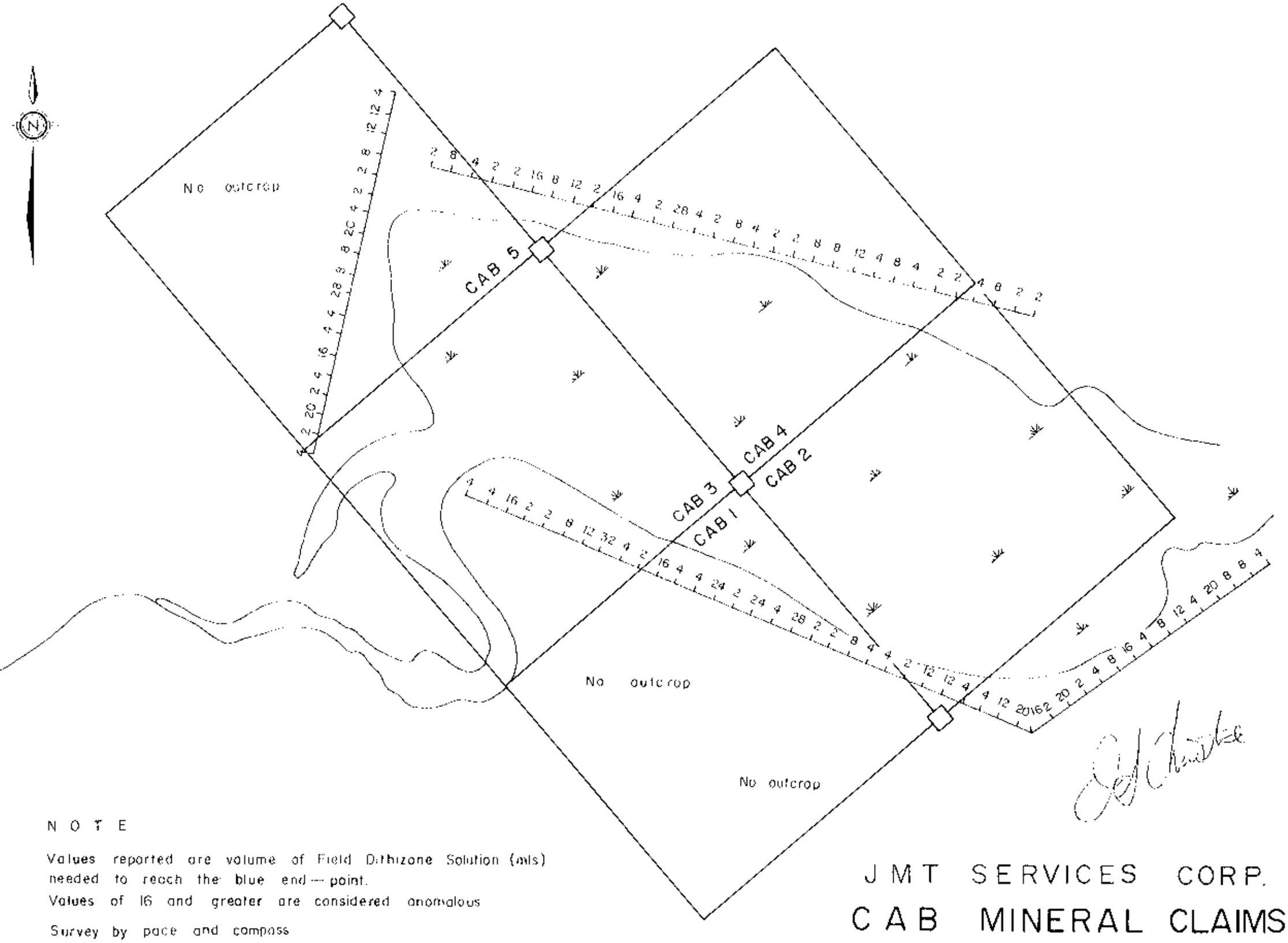
1. Although this procedure does not differentiate between zinc, lead, or copper, it is considerably more sensitive to zinc than to the other metals. Thus in general a high heavy-metal value indicates a high zinc content.
2. For a 0.25 g sample in this test, one ml of dithizone at the blue end-point is roughly equivalent to 1 part per million of exchangeable heavy metals expressed as zinc, this factor will vary with the texture of the sample and the timing of the shake-out.
3. It is important to standardize the timing of the shake-out in the procedure, as increasing the time of the sequence will give higher values.
4. Serious contamination in the course of the procedure is possible by inadvertent contact with the fingers or contaminated objects; all high values should be checked by repeating the entire procedure.
5. Dithizone solution decomposes in light to a yellow solution; this effect may be minimized by keeping all dithizone solutions in the dark, either under cover or in bottles wrapped in aluminum foil.

APPARATUS:

1 graduated cylinder
1 Deeminac
1 wash bottle
10-18x150 culture tubes and stoppers
2 aluminum scoops
1 test tube brush
aluminum foil

REAGENTS:

2x500 ml Toluene
1x200 ml 5X Buffer
3x10 mg Dithizone



N O T E

Values reported are volume of Field Dithizone Solution (mls) needed to reach the blue end — point.
Values of 16 and greater are considered anomalous

Survey by pace and compass

Soil samples collected by auger up to 1 meter beneath surface.

J M T SERVICES CORP.

C A B MINERAL CLAIMS

GEOCHEMISTRY

To Accompany Assesment Report by
J. S Christie

SCALE 1 : 5 0 0

0 500 FEET 1000 2000

0 250 500

METERS