

2024

REPORT ON GEOCHEM SURVEY

ON

X - Y CLAIMS IN HIGHLAND VALLEY

FOR

COMET-KRAIN MINING CORP. LTD.
VANCOUVER, B.C.

BY

D.W. PRINGLE & ASSOCIATES
LTD.
RICHMOND, B. C.

28/8/69

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I. Copper Geochemical Soil Survey

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2024 MAP

(2)

contour map was made up. With the aid of field markers established on most claim location points an accurate claim location was plotted. Superimposed over this control was the result of an airborne mag survey. The Geochem area selected was over the mag low areas plus extra surrounding ground. Generalized field geology was also completed.

Results

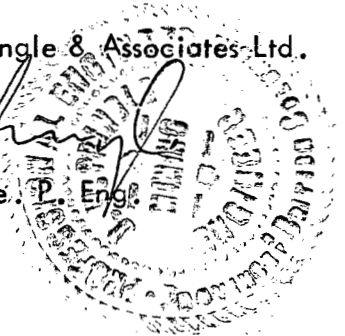
Generally a very good correlation was obtained between the air borne mag lows, the Geochem and ground observations of copper mineralization.

Future Program

Presently a detailed Tectonic Analysis is being done on the group. It is also expected a ground magnometer survey will be carried out. It is hoped from correlation of all of the above surveys that a drill target could be selected.

D.W. Pringle & Associates Ltd.


D. Pringle, P. Eng.



(1)

Introduction

This report outlines the general purpose of the Geochem survey which is covered in detail in a report by A. A. Burgoyne, M. Sc.

Location

The X-Y claims (1-28) of Comet-Krain Mining Corp. Ltd. lie in Highland Valley south and east of Bethlehem, or more specifically just to the N.W. of the "four corner's". Claims are located approximately longitude 120 degrees 55' W. and latitude 50 degrees 00' N.

Personnel

Personnel was under the direction of D.W. Pringle and consisted of two parties - one to establish and flag grid system, the other to obtain suitable soil samples for Geochem analysis. Personnel data is recorded on Form B filed on 22 July 1969.

Work

The Geochem survey follows up the work done previously. Initially the whole area was flown and a new 1-1000'-25'

COPPER GEOCHEMICAL SOIL SURVEY

MINERAL CLAIMS

X Y 1	X Y 8	X Y 15	X Y 22
X Y 2	X Y 9	X Y 16	X Y 23
X Y 3	X Y 10	X Y 17	X Y 24
X Y 4	X Y 11	X Y 18	X Y 25
X Y 5	X Y 12	X Y 19	X Y 26
X Y 6	X Y 13	X Y 20	X Y 27
X Y 7	X Y 14	X Y 21	X Y 28

X Y Group of Claims
Four Way Corners Area
Highland Valley, B.C.

Claims X Y 1-28
120° 55' W, 50° 00' N

by: Alfred A. Burgoyne, M.Sc.

OWNER:	Comet-Krain Mining Corporation Ltd. (N.P.L.)
WORK BY:	Crest Laboratories (B.C) Ltd.
WORK DATES:	Copper Geochemical Survey: July 15 - 19, 1969
	Analytical Work: July 21, 1969.

REPORT ON COPPER GEOCHEMICAL SOIL SURVEY

X Y GROUP OF CLAIMS (X Y 1-26)

FOURWAY CORNERS AREA

HIGHLAND VALLEY, B.C.

120°55' W, 50°00' N

by:

ALFRED A. BURGOYNE M.Sc.

CREST LABORATORIES (B.C.) LTD.

1068 HEMER STREET

VANCOUVER 3, B.C.

TELEPHONE: 689-8585

AUGUST 14, 1969

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FIGURES

FIGURE I	CHAIN AND COMPASS GEOCHEMICAL SOIL SURVEY FOR COPPER	In end pocket.
FIGURE II	CUMULATIVE PERCENT (FREQUENCY) CONCENTRATION GRAPH FOR COPPER IN B SOILS	Follows page 3.

CREST LABORATORIES (B.C.) LTD.B.C. REGISTERED ASSAYERS
INDUSTRIAL and RESEARCH CHEMISTS1068 HOMER STREET
August 11, 1969
AUGUST 3, B.C.**SUMMARY:**

A soil geochemical survey for copper was completed on the X Y 1-28 group of claims from July 15-19, 1969. The analytical laboratory work was completed on July 22, 1969. A sample grid was placed on the group by utilizing two east-west baselines; cross lines were placed every 400 feet in a north-south direction by chain and compass and samples taken every 200 feet on these cross lines. Approximately 14 line miles or 370 soil samples were collected and analysed for copper content. The soil samples were dried, sieved, weighed, and digested by a hot concentrated perchloric-nitric acid mixture and subsequently analyzed by atomic absorption. The copper values were plotted and statistical calculations completed. A cumulative percent-concentration graph was constructed for the data and it is evident that for B soils, two distinct populations are present. One population (background) which varies from 14 to 80 ppm, and a second population (anomalous) varies from 50 ppm to in excess of 200 ppm. This second population, the anomalous one, is considered to be caused by copper mineralization. For organic, swamp, or A soils, two distinct populations emerge as for the B soils; however, the sample population (34) was too small for any definite quantitative relations to be made except that the anomalous population in this case is in excess of 90 - 100 ppm.

A copper anomaly is defined statistically by the 80 ppm contour and it is seen (Note Figure 1) that these values trend in a north-west direction in part coincidental and parallel to magnetometer and structural lows.

SOIL COLLECTION AND CLASSIFICATION:

A sample grid was placed on the claim group prior to the geochemical soil survey by utilization of two east-west base lines which were previously used as claim location lines (Figure 1), north-south cross lines were placed at every 400 feet apart, the lines being located by chain and compass and soil sample sites were marked with orange flagging every 200 feet along the lines. All cross lines (13) were run from base line 1 (the northerly base line) to a point 1,400 feet

north and to approximately 6,200 feet south. Baseline 2 (southerly base line) was used as an effective survey tie-in. About 14 line miles or 370 soil samples were collected. At each soil sample site a hole or pit was dug to a depth of 8 - 12 inches depending on the soil development and the depth of bedrock. In every case where possible one-half pound of a B soil sample was taken with a clean trowel and any large rock fragments were rejected. The soil was placed in a Kraft soil sample bag and its location marked on the exterior of the bag.

For the most part, the soils development in the area can be described as residual, developed from the Guichon quartz diorite which forms the bulk of the Guichon Creek batholith. The soil thickness is generally less than 2 feet, and immature in development. Locally in the southern part of the claim group soil thickness increases and has been developed from transported glacial drift, generally medium to fine grained sands. The soil development for the area is given below.

- A₀. Organic litter, undecayed leaves, twigs, 1-4 inches thick.
- A₁. Organic debris, partially decomposed, organic rich humus horizon, black in colour, 0-4 inches thick.
- B. Brown to orange in colour, loose structure accumulation clay and iron minerals and of organic matter; immature, 0-12 inches thick.
- C₁. Weathered bedrock or weathered glacial drift.

In swamps, and some valleys, the A₀ or A₁ soil horizon was very thick (greater than 2 feet) and it was sampled because of the physical difficulty in obtaining a B soil sample.

ANALYTICAL TREATMENT OF SOIL SAMPLES:

The samples were analysed by Crest Laboratories (B.C.) Ltd. and the analyst is chemist, Edwin Andrews, supervised by this writer.

The samples were dried in their respective sample bags at a temperature of 150° F. and then sieved to -80 mesh through a stainless steel screen. One gram portions of the screened soils were placed in 25 x 200 mm culture tubes and then digested in a mixture of perchloric and nitric acids at 425°F. for a period of three hours. The resulting digested residues were then made up to 30 milliliters volume in 10 percent perchloric acid. The respective sample solutions were then aspirated into a Techtron Atomic Absorption Spectrophotometer Model 5 and the

copper absorption readings were recorded. The absorption readings were then transformed into parts per million copper. Calibration of the atomic absorption spectrophotometer is effected by preparation and analyses of copper standards each day.

RESULTS:

I. Statistical Treatment of Data.

A cumulative frequency-concentration graph was constructed from the data for 8 soils (Figure 2), and from this it was decided that values above 80 ppm are distinctly anomalous; values from 79 to 50 ppm are possibly anomalous - this being the zone of overlap where high background values mix with low anomalous values; and values below 50 ppm are distinctly non anomalous and are of background concentration. Simply, the cumulative frequency - concentration graph expresses two distinct log normally distributed populations - the background population and the anomalous population. For organic soil samples (A₁, humus, or swamp) a distinctly anomalous value has been calculated from the limited number of values to be greater than 90 - 100 ppm.

II Expression of Copper Anomalies.

A north-west trending series of copper anomalies cross almost diagonally through the center of the map area and are parallel or coincidental with a north-west trending structural lineament(s) and magnetometer lows. Other copper anomalies peripheral to the main central north-west trending series may express parallel or cross-trending structural features.

Some of the copper anomalies are situated within topographical depressions e.g. swamps, bogs, and represent zones of copper accumulation; however, others may represent structural lows where copper bearing waters have percolated up through the structure, i.e. a fault zone, and have deposited copper at surface in the highly organic matter, e.g. Line 26E, 6S.

It should be noted that the copper anomalies on the X Y claim group will probably be low in magnitude because of the relatively high^{acid} conditions. pH measurements over the area are from 4.5 to 5.5; at this pH, copper is soluble and moderately mobile, thus leaching of copper mineralization occurs rapidly and the soil geochemical expression is low, perhaps 2 to 3 times background. The only

limiting which will prevent mobility of copper is its ^dabsorption to organic matter in swamps and low topographical areas.

CONCLUSIONS AND RECOMMENDATIONS:

Copper anomalies found in this soil geochemical survey are of low order in magnitude, but quite discrete. The exception to this is the 2550 ppm value on the edge of a swamp on line 26E, 6S.

It is believed that the low order magnitude of the copper anomalies are caused by the high acid conditions (low pH) of the area. The coincidence of copper anomalies with the structural lineaments and magnetometer lows in the central part of the map area certainly merits the area for further and more detailed work. This work would include:

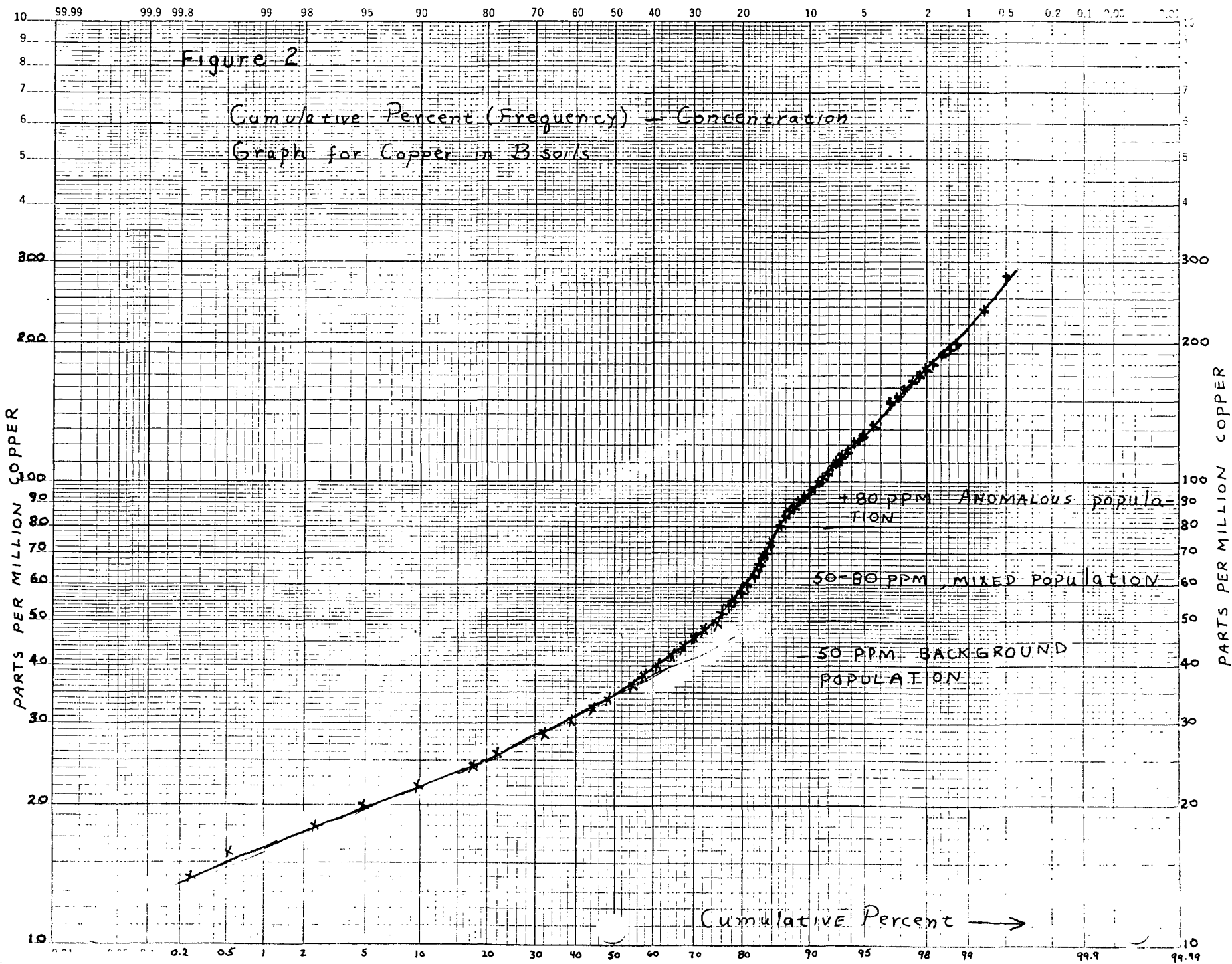
- 1) Further correlation of geochemical results to ground geology and geophysics.
- 2) Detailed geochemical work on geochemical anomalies which appear favorable in light of a known geology and geophysics.

Respectfully submitted,
CREST LABORATORIES (B.C.) LTD.

Alfred A. Burgoyne

Alfred A. Burgoyne, M.Sc.
Geologist-Geochemist.

AAB/seb



CREST LABORATORIES (B.C.) LTD.B.C. REGISTERED ASSAYERS
INDUSTRIAL and RESEARCH CHEMISTS1068 HOMER STREET
VANCOUVER 3, B.C.
July 22, 1969Comet-Krain Mining Company
Room 409 - 408 Granville Street
U.K. Building
VANCOUVER, B.C.

Cost of Geochemical Survey for Comet-Krain Mining Company, X - Y Group, Highland Valley, B.C. performed by Crest Laboratories (B.C.) Ltd., July 15 - 19, 1969.

Time Cost:

2 men for 5 days @ \$50.00/ crew man day	500.00
Burgoyne for 1½ days @ \$120.00/ day.	150.00

Analytical Costs for 370 soil samples for Copper
(14 line miles).

Analytical @ \$1.00/ sample	370.00	
Preparation charges @ \$.20/ sample	<u>74.00</u>	
Total Analytical Costs		444.00

Disbursement Fees:

Truck Rental	134.03	
Gasoline, Meals, & Hotel Costs for A. Burgoyne July 15 - 16.	21.45	
Gasoline, Meals, Hotel Costs for 2 member soil sampling crew July 15 - 19.	123.87	
Flagging Tape given to D.W. Pringle Crew	12.00	
Miscellaneous	<u>3.00</u>	
Sub Total	294.35	
10% Disbursement Fee	<u>29.43</u>	
Total		<u>323.78</u>

Total Costs:

\$1,417.78

CREST LABORATORIES (B.C.) LTD.

*Alfred A. Burgoyne*Alfred A. Burgoyne, M.Sc.
Geologist-Geochemist.

CREST LABORATORIES (B.C.) LTD.B.C. REGISTERED ASSAYERS
INDUSTRIAL and RESEARCH CHEMISTS1068 HOMER STREET
VANCOUVER 3, B.C.Comet-Krain Mining Company
Room 409 - 408 Granville Street
U.K. Building
VANCOUVER, B.C.Comet-Krain Geochemical Soil Survey Report X - Y Group of Mineral
Claims, Highland Valley, B.C.

1 man draft ^{ing} for 2 days @ \$50.00 per day	100.00
Burgoyne - Preparation of Maps, Statistical Calculations and Writing Report, 3-1/2 days @ \$120.00 per day.	<u>420.00</u>
TOTAL	<u>\$520.00</u>

CREST LABORATORIES (B.C.) LTD.

Alfred A. Burgoyne
Alfred A. Burgoyne, M.Sc.
Geologist-Geochemist.

CERTIFICATE

I, Alfred A. Burgoyne, of Burnaby, British Columbia, do hereby certify that:

- 1) I am a geologist-geochemist employed by Crest Laboratories (B.C.) Ltd., 1068 Homer Street, Vancouver 3, B.C.
- 2) I am a graduate of the University of British Columbia (B.Sc., Geology and chemistry, 1962), and of the University of New Mexico, (M.Sc., Geology, 1967).
- 3) I have practised my profession as a geologist-geochemist since 1962.
- 4) I personally have examined the property as described in this report.

Alfred A. Burgoyne

Alfred A. Burgoyne, M.Sc.
Geologist-Geochemist

Dated, August 14, 1969

CREST LABORATORIES (B.C.) LTD.B.C. REGISTERED ASSAYERS
INDUSTRIAL and RESEARCH CHEMISTS1068 HOMER STREET
VANGOUVER 3, B.C.
July 23, 1969Comet - Krain Mining Company
Room 409 - 408 - Granville Street
U.K. BUILDING
VANCOUVER, B.C.Lot Number 12G: Geochemical Analyses for Copper:Mesh Size: -80
Digestion Method: HNO₃ - HClO₄
Analytical Method: Atomic AbsorptionDate Received: July 21, 1969
Date Analyzed: July 22, 1969

Sample No.:	Copper ppm.	Sample No.:	Copper ppm.	Sample No.:	Copper ppm.
L10 E 00N	106	L10E 34S	26	L14 E 24S	38
2N	96	36S	38	26S	54
4N	166	38S	22	28S	48
6N	100	40S	32	30S	62
8N	58	L10 E 42S	64	32S	92
10N	30	L14 E 00N	50	34S	48
12N	16	2N	42	36S	42
L10 E 14N	44	4N	24	38S	18
L10 E 2S	42	6N	24	40S	32
4S	46	8N	18	L14 E 42S	38
6S	56	10N	114	L18 E 00N	54
8S	30	12N	26	2N	30
10S	20	L14 E 14N	130	4N	46
12S	54	L14 E 2S	30	6N	34
14S	52	4S	24	8N	190
16S	32	6S	104	10N	38
18S	46	8S	42	12N	50
20S	150	10S	32	L18 E 14N	120
22S	236	12S	30	L18 E 2S	128
24S	22	14S	40	4S	44
26S	28	16S	14	6S	56
28S	24	18S	32	8S	92
30S	32	20S	26	10S	96
32S	50	22S	36	12S	60

Comet - Krain Mining Company
 July 23, 1969
 Lot Number 12 G:
 Page 2...

Sample Number	Copper ppm.	Sample Number	Copper ppm.	Sample Number	Copper ppm.
L18 E 14S	24	L22 E 20S	44	L26E 26S	48
16S	28	22S	28	28S	44
18S	22	24S	36	30S	54
20S	40	26S	36	32S	46
22S	22	28S	36	34S	42
24S	46	30S	26	36S	40
26S	30	32S	28	38S	40
28S	48	34S	30	40S	62
30S	52	36S	28	L26E 42S	40
32S	124	38S	34	L30 E 00N	66
34S	56	40S	26	2N	54
36S	46	L22 E 42S	24	4N	50
38S	30	L26 E 00N	44	6N	24
40S	114	2N	42	8N	54
L18 E 42S	136	4N	156	10N	86
L22 E 00N	34	6N	30	12N	22
2N	18	8N	22	L30E 14N	24
4N	26	10N	96	L30E 2S	28
6N	160	12N	52	4S q	30
8N	24	L26 E 14N	22	6S	30
10N	62	L26 E 2S	24	8S	26
12N	36	4S	36	10S	28
L22 E 14N	34	6S	2550	12S	88
L22 E 2S	40	8S	42	14S	34
4S	40	10S	24	16S	28
6S	26	12S	24	18S	40
8S	18	14S	26	20S	46
10S	30	16S	36	22S	28
12S	36	18S	42	24S	30
14S	36	20S	24	26S	50
16S	26	22S	22	28S	38
18S	26	24S	28	30S	48

Comet - Krain Mining Company
 July 23, 1969
 Lot Number 12 G:
 Page 3...

Sample Number	Copper ppm.	Sample Number	Copper ppm.	Sample Number	Copper ppm.
L30 E 32S	42	L34 E 40S	34	L42 E 4N	28
34S	No Sample	L34 E 42S	32	6N	30
36S	34	L38 E 00N	46	8N	24
38S	28	2N	52	10N	24
40S	32	4N	70	12N	32
L30 E 42S	80	6N	68	L42 E 14N	20
L34 E 00N	26	8N	96	L42 E 2S	42
2N	24	10N	26	4S	36
4N	66	12N	26	6S	106
6N	116	L38 E 14N	58	8S	36
8N	52	L38 E 2S	40	10S	36
10N	28	4S	30	12S	44
12N	No Sample	6S	26	14S	42
L34 E 14N	No Sample	8S	44	16S	42
L34 E 2S	36	10S	100	18S	36
4S	26	12S	68	20S	38
6S	32	14S	54	22S	28
8S	24	16S	42	24S	92
10S	40	18S	44	26S	38
12S	88	20S	64	28S	28
14S	84	22S	84	30S	28
16S	24	24S	32	32S	168
18S	34	26S	30	34S	22
20S	80	28S	38	36S	34
22S	30	30S	40	38S	32
24S	50	32S	30	40S	28
26S	22	34S	28	L42 E 42S	24
28S	28	36S	28	L46 E 00N	48
30S	28	38S	34	2N	24
32S	30	40S	100	4N	26
34S	38	L38 E 42S	22	6N	26
36S	30	L42 E 00N	44	8N	22
38S	34	2N	30	10N	20

Comet - Krain Mining Company
 July 23, 1969
 Lot Number 12 G:
 Page 4...

Sample Number	Copper ppm.	Sample Number	Copper ppm.	Sample Number	Copper ppm.
L46 E 12N	28	L50 E 2S	28	L54 E 6S	30
L46 E 14N	20	4S	28	8S	36
L46 E 2S	28	6S	34	10S	36
4S	32	8S	28	12S	48
6S	32	10S	36	14S	32
8S	50	12S	46	16S	176
10S	28	14S	34	18S	52
12S	36	16S	192	20S	32
14S	28	18S	26	22S	22
16S	44	20S	180	24S	18
18S	20	22S	62	26S	No Sample
20S	76	24S	30	28S	No Sample
22S	108	26S	20	30S	58
24S	32	28S	22	32S	280
26S	20	30S	22	34S	60
28S	24	32S	No Sample	36S	40
30S	20	34S	No Sample	38S	24
32S	152	36S	36	40S	100
34S	26	38S	18	L54 E 42S	72
36S	188	40S	86	L58 E 00N	24
38S	104	L50 E 42S	24	2N	26
40S	60	L54 E 00N	34	4N	22
L46 E 42S	32	2N	26	6N	76
L50 E 00N	24	4N	42	8N	36
2N	38	6N	36	10N	136
4N	46	8N	26	12N	34
6N	26	10N	24	L58 E 14N	40
8N	50	12N	28	L62 E 00N	120
10N	22	L54 E 14N	28	2N	80
12N	40	L54 E 2S	30	4N	80
L50 E 14N	22	4S	90	6N	36

Comet - Krain Mining Company
July 23, 1969
Lot Number 12 G:
Page 5...

Sample Number	Copper ppm
L62 E 8N	48
10N	58
12N	72
L62 E 14N	86
L62 E 2S	30
4S	24
6S	36
8S	152

Sample Number	Copper ppm.
L62 E 10 S	28
12S	60
14S	24
16S	20
18S	24
20S	32
22S	68
24S	112
26S	18

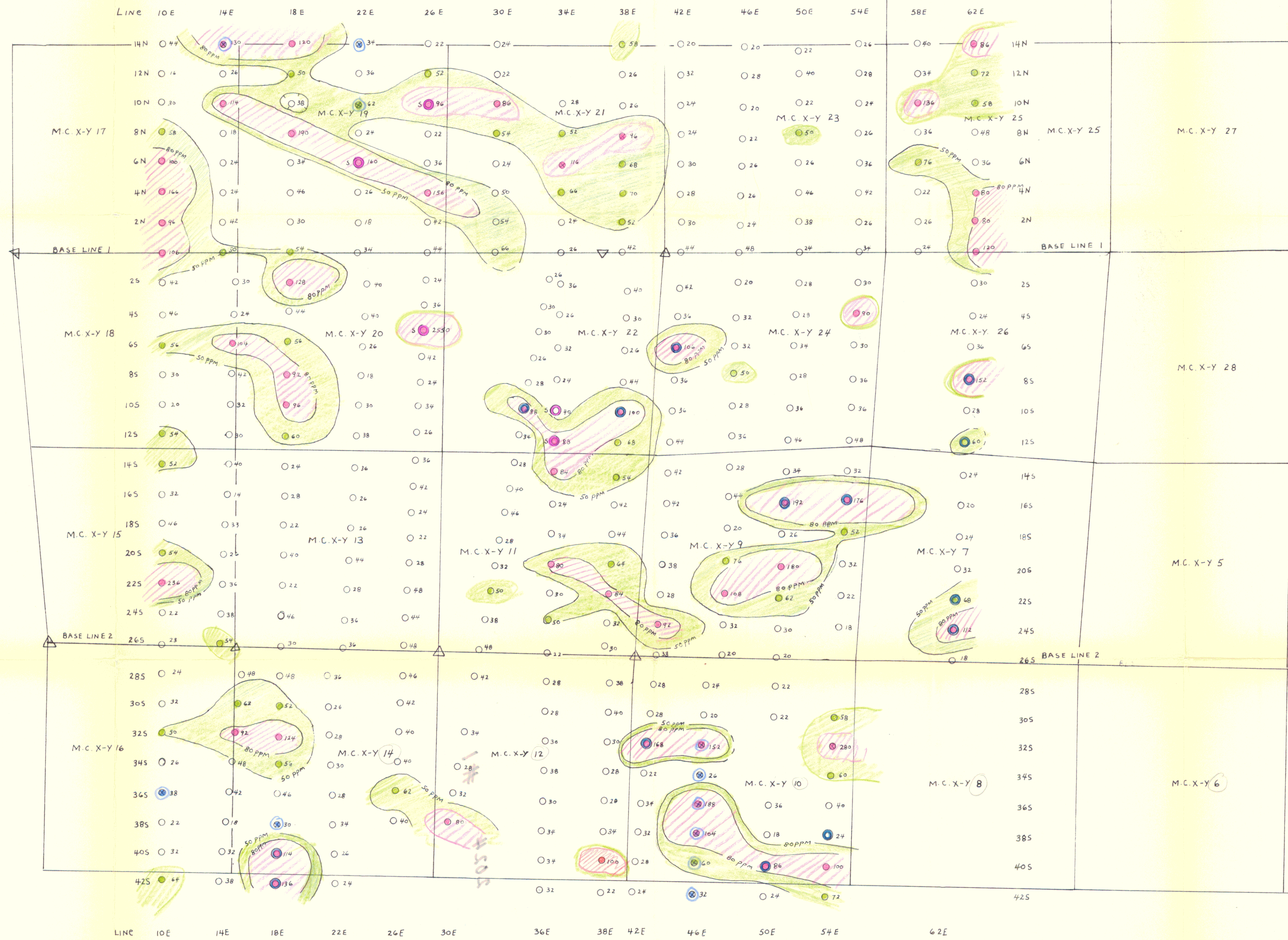
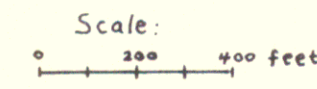
Yours truly,
CREST LABORATORIES (B.C.) LTD.

Alfred A. Burgoyne
Geologist-Geochemist

AAB/seb

COMET KRAIN MINES LTD.
X-Y GROUP, HIGHLAND VALLEY, B.C.

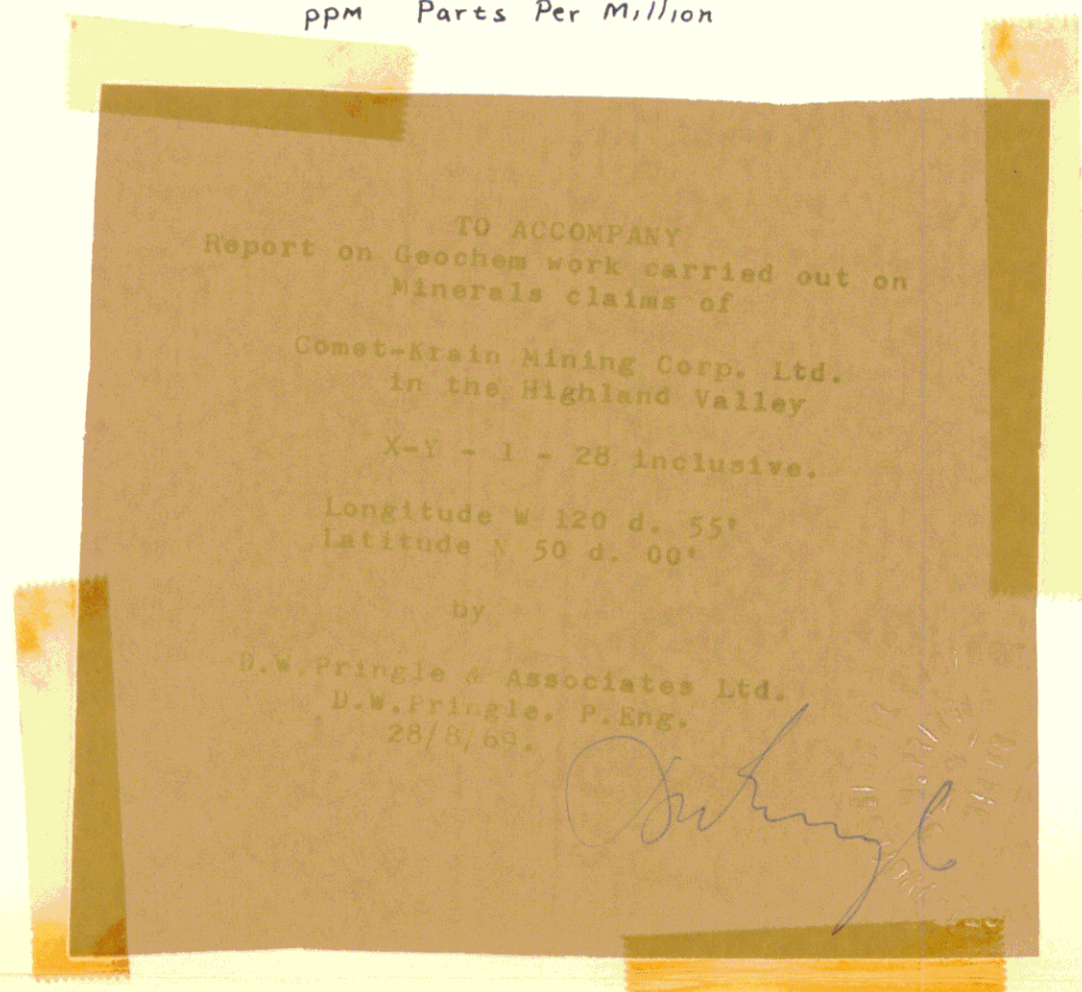
Chain and compass geochemical soil survey for copper



LEGEND

- 36 B₁ soil sample location with copper concentration in parts per million (ppm)
- (blue dot) B₁ soil sample location directly over bedrock
- (blue dot) A₁ soil (organic or humus) sample location
- S Swamp (organic) sample location
- (pink) ≥ 80 ppm copper
- (green) 50-79 PPM copper
- ≤ 49 PPM copper

M.C. Mineral Claim
ppm Parts Per Million



2024